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**Working Paper**

## Female Labor Market Opportunities and Gender Gaps in Aspirations

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# Female Labor Market Opportunities and Gender Gaps in Aspirations

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## ABSTRACT

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# Female Labor Market Opportunities and Gender Gaps in Aspirations\*

Aspirations and plans for the future can influence investments made today. Gender gaps in these views can perpetuate gender gaps in outcomes. In this paper, we explore how gender gaps in aspirations and expectations are affected by the local labor market. Using a national longitudinal survey from Japan, we begin by documenting large gender differences in adolescents' own thoughts about their future educational attainment, occupation, marriage, and fertility, as well as parental aspirations for their child's future. We then show that these gender gaps – specifically, boys planning for higher educational attainment as well as later marriage and fertility – are significantly smaller in municipalities with higher female labor force participation. Consistent with this, we also find that female labor force participation increases parental investments in girls relative to boys. We detect similar patterns when examining realized outcomes at age 19.

**JEL Classification:** J16, I24, J13

**Keywords:** aspirations, gender differences, female employment

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# 1 Introduction

Thoughts about one’s own future, both aspirations and expectations, can influence the human capital investments one makes today (Attanasio and Kaufmann, 2014; Fruttero et al., 2021; Janzen et al., 2017; La Ferrara, 2019; Lybbert and Wydick, 2018). For example, youths who aspire to obtain a college degree might invest more effort into studying during their high school years. Those who expect to take up a job where the returns to schooling are low may choose to drop out of school earlier. If aspirations and expectations differ across groups (defined by gender or socioeconomic status, for example), this could perpetuate gaps in outcomes across these groups (Genicot and Ray, 2020).

In this paper, we examine both plans and aspirations for the future.<sup>1</sup> Existing empirical evidence suggests that changing aspirations can improve outcomes. When it comes to student outcomes, both higher aspirations (Carlana et al., 2018) and more realistic aspirations (Goux et al., 2014) have been found to generate improvements. For business outcomes, Dalton et al. (2018) find that baseline aspirations predict future success among entrepreneurs. While most of this work examines the effects of changing an individual’s own aspirations, there is evidence that caregivers’ aspirations – which we also study in this paper – may be important as well (Bernard et al., 2019; Eble and Escueta, 2022; Ross, 2019).

Given their ability to influence outcomes, it is important to understand what drives aspirations. Previous studies have documented that social influences, role models, and direct interventions can all affect aspirations. For example, Janzen et al. (2017) document an association between one’s aspirations and the outcomes of those higher up in the socioeconomic distribution in one’s reference group. Beaman et al. (2012) show that exposure to female leadership improves education and career aspirations for adolescent girls. Finally, interventions specifically designed to improve aspirations (such as inspirational documentaries

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<sup>1</sup>Due to the wording in the questionnaire, which we describe in detail in section 2, our outcomes of interest capture a combination of plans and aspirations. When referring to the entire set of outcomes we examine, we will use the word “*aspirations*” for brevity, while acknowledging that not all of these variables are pure aspirations variables.

or interactions with tutors and counselors) as well as interventions that had other primary goals (such as cash transfer or vocational training programs) have also been documented to affect aspirations (Bandiera et al., 2020; Bernard et al., 2019; Carlana et al., 2018; Chiapa et al., 2012; Goux et al., 2014).

Another potential driver of aspirations that has not received much attention in the literature is the local labor market. Current local labor market conditions might shape an individual’s perceived probability of obtaining a certain kind of job – or of working at all – in the future, and this could have important implications for the amount of schooling they aspire to attain or the age at which they want to get married. In particular, gender-specific labor market conditions could have gender-specific effects on aspirations and could therefore influence gender gaps in aspirations. In areas where men and women have substantially different labor force participation rates or occupation types, girls and boys might have different aspirations due to different perceptions about their potential future career trajectories.

In this paper, we explore how current female labor market opportunities affect gender gaps in aspirations and plans for the future. Unlike most work on gender gaps in aspirations and eventual outcomes, we focus on a high-income country, Japan. In Japan, women still lag behind men in terms of educational attainment, labor force participation, and representation in top positions. Accordingly, Japan ranked 116th out of 146 countries in gender equality according to the 2022 Global Gender Gap Report (World Economic Forum, 2022). Many studies explore various sources of gender gaps in Japanese labor market outcomes (Abe, 2010; Chiang and Ohtake, 2014; Hara, 2018; Hara and Rodríguez-Planas, 2021), but understanding how local labor market conditions can contribute to perpetuating gender gaps in future generations remains an important exercise.

Our analysis relies on the 2001 Newborn Survey from the Longitudinal Survey of Newborns in the 21st Century. This survey collects data on all infants born in Japan between January 10 and January 17 and between July 10 and July 17 in 2001, every year for nineteen years. Questionnaires during the respondents’ teenage years ask them about their plans for

the future with respect to education, marriage, and fertility. The survey also asks parents about their aspirations for their child’s future educational attainment. We document large and significant gender differences in all of these variables. Girls (and parents of girls) are less likely have aspirations for themselves (or their child) to go to university compared to boys (and parents of boys). Girls want to marry earlier and have children earlier. In addition, education-related aspirations are predictive of actual university enrollment at age 19.

To examine whether local labor market conditions influence these gender gaps, we merge this dataset with municipality-level data from the 2000, 2005, 2010, and 2015 censuses. Specifically, as measures of female labor market opportunities, we calculate female employment rates and the share of women in professional or management jobs.

We find that the gender gaps in education, marriage, and fertility aspirations are significantly smaller in municipalities with more female labor market opportunities. Because we have access to rich information on parental characteristics, we are able to rule out the possibility that parental characteristics correlated with the labor market variables are driving the heterogeneity in these gender gaps. Our results are robust to controlling for municipality fixed effects, municipality characteristics (like average education levels and population) interacted with gender, and municipality-by-gender fixed effects (for outcomes available in more than one wave). The last specification relies solely on changes in female labor market opportunities over time and therefore helps alleviate concerns about other omitted variables that might be driving our results.

Consistent with these results, we also show that better female labor market opportunities disproportionately increase parental investments (monetary and time) in girls relative to boys. This adds to existing evidence that improvements in labor market opportunities for women can increase investments in children, especially girls (Atkin, 2009; Qian, 2008). Importantly, our results shed light on one of the mechanisms behind this relationship: better female labor market opportunities disproportionately raise parental aspirations for girls (relative to boys).

Finally, we detect similar patterns in actual university enrollment at age 19: girls are less likely to be enrolled in university, but this gap is smaller in areas with more female employment (overall and in professional or managerial jobs). The finding that better female labor market opportunities improve education outcomes for women in particular is consistent with a large literature showing improvements in female labor market opportunities can enhance various measures of female empowerment (Aizer, 2010; Anderberg et al., 2015; Heath and Mobarak, 2015; Majlesi, 2016; Molina and Tanaka, 2021). Taken together, our findings suggest that improvements in female labor market opportunities do not only have implications for gender gaps among working-age adults, but also for the next generation.

## 2 Data

### 2.1 Aspiration and Investment Data

We use the 2001 cohort of the Longitudinal Survey of Newborns in the 21st Century. This survey collects data, through a mail-in survey, on all infants born in Japan between January 10 and 17 and between July 10 and 17 in 2001. From the first to sixth waves, the survey was conducted in August (for those born in January 2001) and February (for those born in July 2001). After the seventh wave, the survey was conducted in January (for those born in January 2001) and July (for those born in July 2001). Parents and guardians of children were asked to respond to the survey in all waves; children themselves also completed the survey after the 11th wave (in 2012, when they were fifth graders) to the last wave of 19th wave (in 2020, when they were 19 years old). From the first to the 15th waves, the survey was conducted by the Ministry of Health, Labour, and Welfare and for the remaining waves, the survey was conducted by the Ministry of Education, Culture, Sports, Science and Technology. The response rate for the first wave was 87.8 percent. Of those that responded to the first wave, attrition rates ranged from 6.6 percent in the second wave to 45.8 percent



in the last wave. We explore the implications of these high attrition rates in section 4.3.

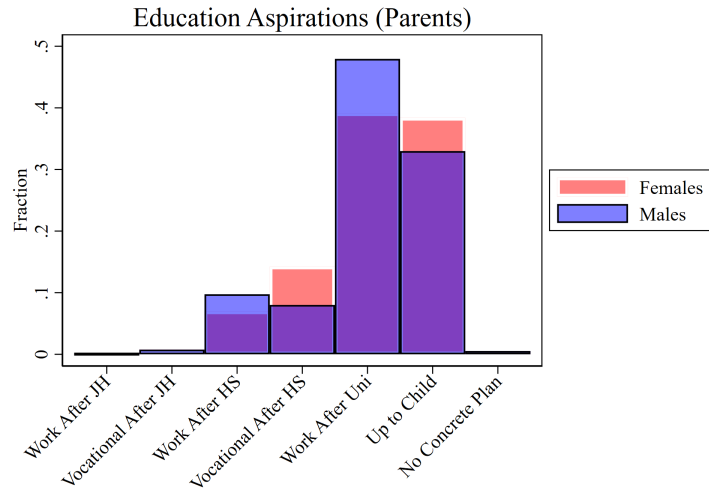
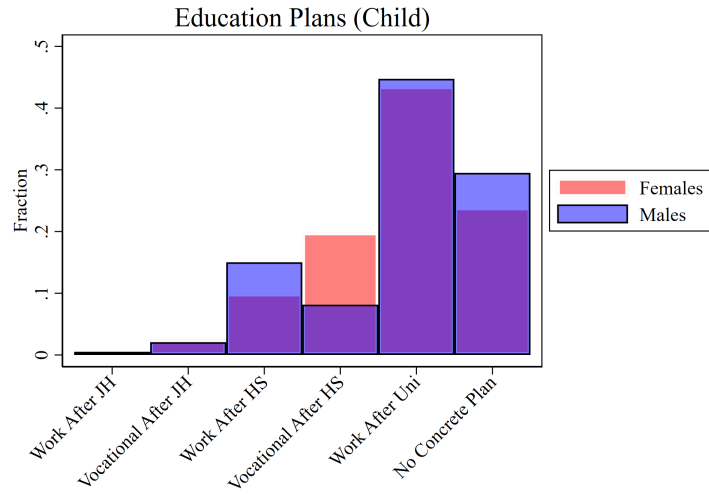
Importantly, this longitudinal survey was conducted every year for 19 years. The survey asks adolescents (starting at age 13, around when they enter junior high school) about their plans and aspirations for the future: how much education they want to obtain, what kind of job they want, as well as when they want to marry and have their first child. The survey also asks parents about their educational aspirations for their children. Finally, the survey collects detailed information about parental investments in their children: total expenditures as well as total time spent. These variables will form our outcomes of interest.

For the majority of our analysis, we focus on the first 15 waves of the survey (all conducted by the Ministry of Health, Labour, and Welfare). The structure of the aspiration questions changes after wave 15, with different questions asked of children who are currently in school and those who have dropped out. Another reason we focus on the earlier waves is that we only use up to the 2015 census for our labor market variables (in order to avoid large linear interpolation errors stemming from the 2020 census being fielded during the COVID-19 pandemic). However, we draw on the last survey wave to examine how well aspirations predict realized outcomes at age 19.

We rely on several survey questions to generate our aspirations variables. Adolescent respondents in waves 13-15 are asked: “Are you thinking about your future at this time? What are you thinking with respect to your schooling?” Given this phrasing, the question is likely capturing a combination of aspirations and plans for the future, two slightly different but related concepts. Parents in wave 15 are asked: “What kind of educational path do you hope your child follows?” We interpret this question to be capturing pure aspirations (as opposed to plans). The response options for both questions are summarized on the horizontal axes of Figure 1.

Histograms of responses to these questions reveal large gender differences in the distributions. In Figure 1, the first panel shows that a larger share of boys than girls aged 13-15 state that they plan to work after high school, work after university, or have no concrete

Figure 1: Education Plans and Aspirations by Gender



plan, while a larger share of girls state that they would like to go to vocational school after high school.

The main focus of our analysis will be on the share who plan for a university education. The unconditional share of boys who want at least a university education is slightly higher than the unconditional share of girls, and these differences are larger after conditioning on having some sort of plan. Similarly, the second panel shows that parents of boys and girls report different aspirations for their children. In particular, almost 50 percent of parents of boys want their son to go to university, while only 40 percent of parents of girls feel the same way. Interestingly, parents of girls are more likely to respond that they would like to leave it up to the child.

The survey also includes questions about marriage and fertility. Respondents are asked: “Are you thinking about your future at this time? What are you thinking with respect to marriage? The timing of your first child?” Because the response options for these questions use the phrase “I want to...” (e.g., “I am thinking that I want to marry between age 20 and 24”), we refer to these as aspirations (as opposed to plans for the future). Figure 2 illustrates that boys and girls differ in their marriage and fertility aspirations as well. Girls want to marry earlier, have children earlier, and are much more likely to have some sort of plan related to these decisions.

Figure 3 illustrates the distribution of parental investments by gender. The distribution of total monthly child expenditures (top panel) and the distribution of time spent with the child (bottom panels) are very similar for boys and girls. If anything, expenditures and time spent is slightly higher for daughters than sons.

Figure 4 explores how well aspirations and expectations predict realized outcomes. While we only observe children until age 19, the last survey wave does record whether they are enrolled in university, as well as their marital status and fertility. In the top left panel of Figure 4, we report the share of children enrolled in university in wave 19, separately for those who stated (in wave 15) they planned on graduating from university and those who did

Figure 2: Marriage and Fertility Aspirations by Gender

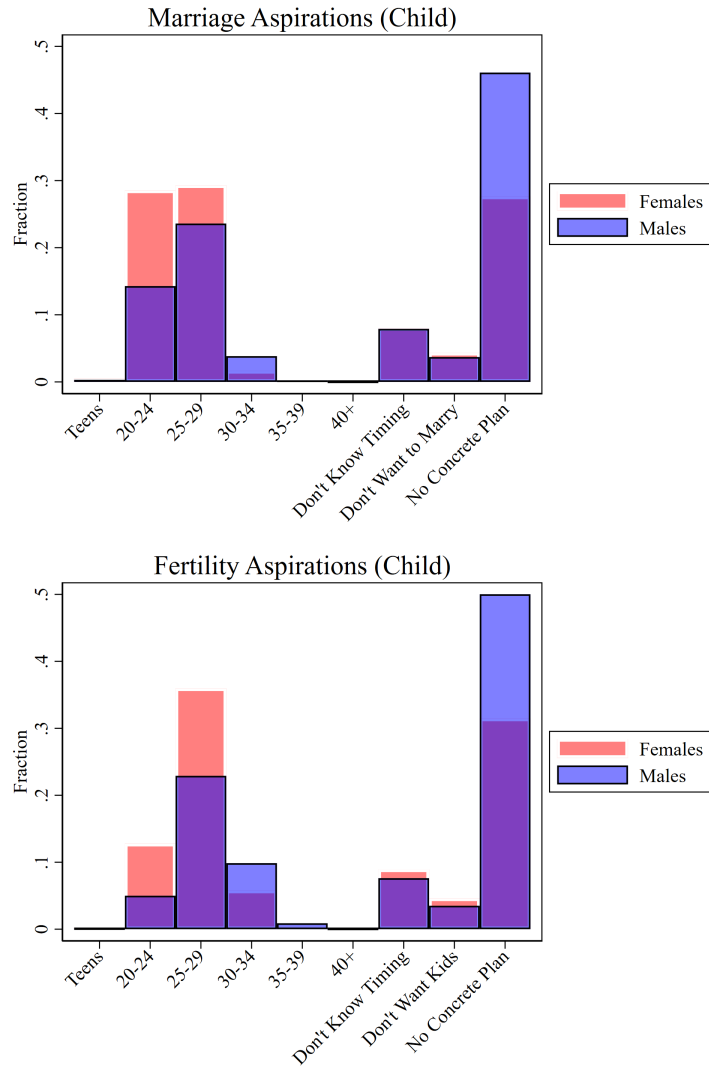
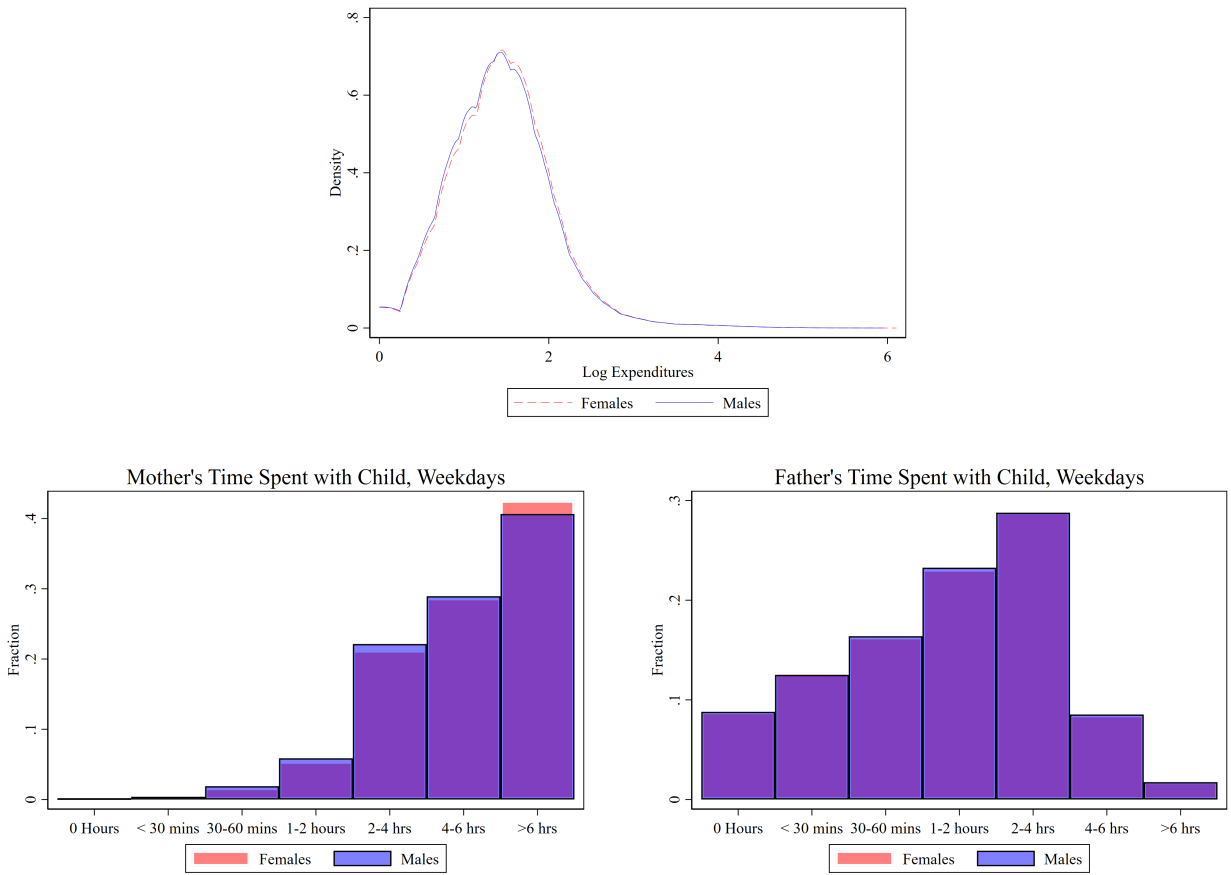


Figure 3: Parental Investments by Gender



not.<sup>2</sup> 73.6 percent of the former group but only 22.1 percent of the latter group were enrolled in university at age 19. The correlation between these two variables (across waves 13-15) is 0.49. The pattern is similar but somewhat less stark when we examine parental aspirations. University enrollment rates were 74.5 percent among children whose parents wanted them to graduate from university and 38.2 percent among children of parents who hoped for a different route. The correlation between university enrollment and parental aspirations is 0.36. In short, children’s own plans for their future education and – to a lesser extent – parental aspirations both have predictive power.

In the second row of Figure 4, we explore marital status and fertility. Given that respondents are still just 19 years old in the final wave, we have only an incomplete picture of realized marriage and fertility outcomes. Only a very small share of respondents (2 percent) are married at age 19, and an even smaller share (0.5 percent) have a child. Nevertheless, these proportions are substantially different across those who, in wave 15, stated they wanted to be married and have their first child in their teens. The correlations between the aspiration and realized outcome variables are positive but small, though these correlations would likely be much higher for marriage and fertility observed at later ages.

## 2.2 Labor Market Data

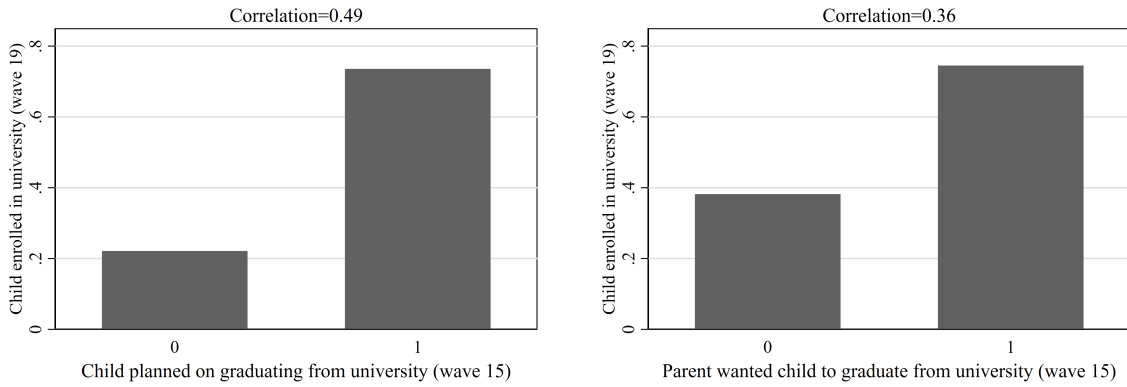
We use census data from the years 2000, 2005, 2010, and 2015 to obtain information on labor market conditions by gender and municipality. Employment rates among adult women (ages 20-59) form our main variable of interest, and we use the share of women in professional and management occupations (1-digit occupation category) in supplementary analyses. We linearly interpolate between census years in order to estimate values for intercensal years (to match with each year of the survey). We do not use the 2020 census for labor market conditions because it was conducted during the COVID-19 pandemic, which would make linear interpolation prone to more error. This is another reason we choose to focus on the

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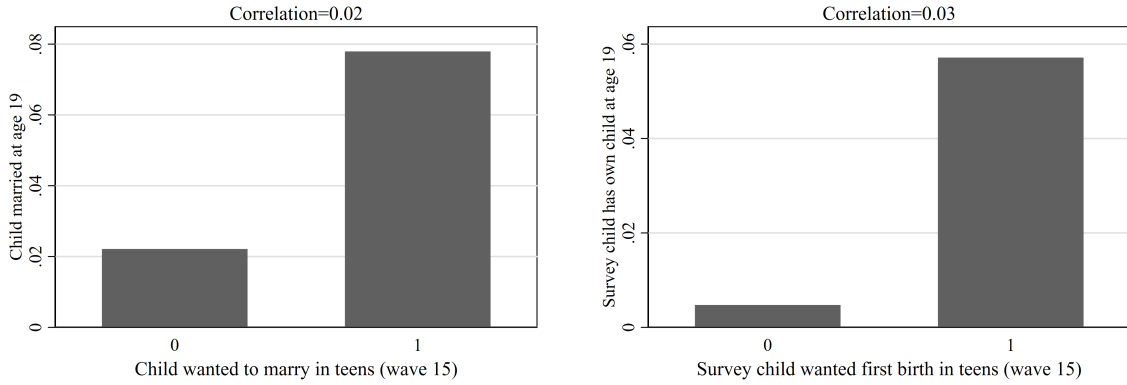
<sup>2</sup>We exclude those who had no concrete plan, but results are similar when we include them in the group that did not plan on graduating from university.

Figure 4: Relationship Between Realized Outcomes and Aspirations

Education



Marriage & Fertility



Notes: Variables labeled on the y-axis are taken from the 19th (last) wave of the survey, while variables labeled on the x-axis are taken from the 15th wave of the survey. Each panel reports the correlation between the two indicator variables on each axis.

first 15 waves in our main analysis. For wave 15 (which took place one year after the 2015 census), we simply assign each municipality its value from the 2015 census. As illustrated in the municipality-level histograms in Figure 5, average employment rates in the 2015 census are substantially higher for men than women.

The 2000, 2010, and 2020 censuses also collect education information, which we use to calculate the share of university graduates by municipality and gender.<sup>3</sup> Figure 5 illustrates university graduate shares from the 2020 census are much higher for men than women. Municipality shares of female university graduates serve as a control variable in robustness checks.

## 2.3 Norms Data

We also construct measures of gender norms in order to identify the effects of labor market conditions separately from the effects of social norms. We use data from the National Family Research of Japan Survey, which is a repeated cross-sectional survey conducted in 1998, 2003, and 2008 by the Japanese Society of Family Sociology. We use this dataset to generate prefecture-level measures of perceived gender norms to complement our information about female labor market conditions.

Respondents are asked whether they agree, somewhat agree, somewhat disagree, or disagree with a number of statements. We identify two groups of statements: those capturing beliefs about gender roles relating to the labor market, and those capturing other types of family norms. The labor-related gender-norm statements that appear in all waves are the following:

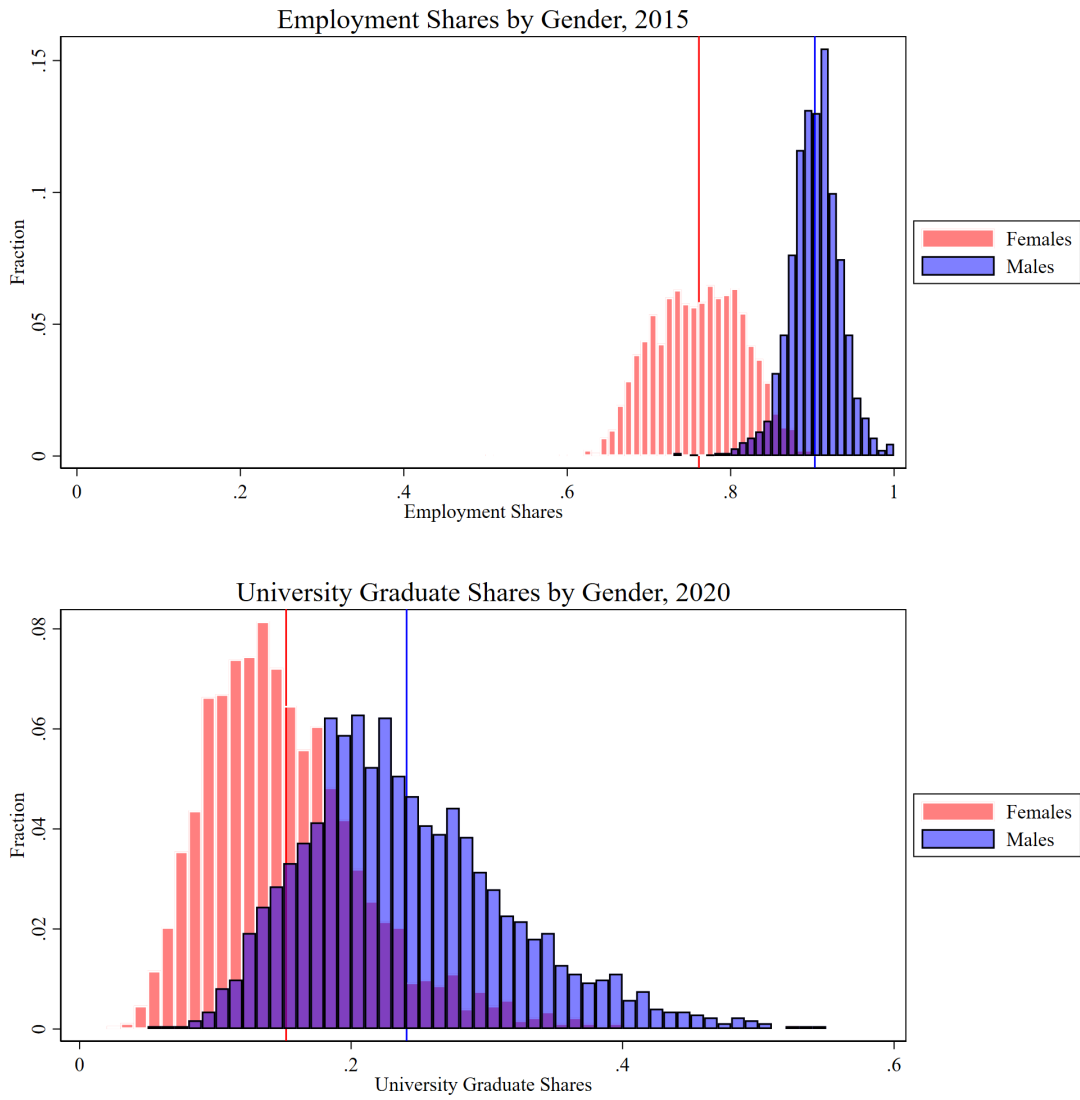
1. Men should provide for the household and women should take care of the home.
2. It is a man's role to financially support his family.

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<sup>3</sup>We choose to use the 2020 census because linear interpolation is likely to be less problematic for this variable than for labor market conditions: the COVID-19 pandemic should not have substantially affected counts of the stock of university graduates in 2020.



Figure 5: Municipality-Level Characteristics, by Gender



Notes: Municipality shares are calculated among individuals aged 20-59.

3. Mothers should not be in the labor force and should concentrate on childcare until a child turns 3 years old.

The statements capturing other family norms unrelated to the labor market, which appear in all waves, are listed below.

1. When a couple doesn't love each other, they should get divorced.
2. It is all right for an unmarried couple to have sexual relations if they have strong affection for each other.

First, we code all responses so that higher values represent less traditional norms. We then standardize each response to have a mean of zero and a standard deviation of one and sum all questions in each category (work-related and family-related). After calculating prefecture-level averages for each year, we linearly interpolate between surveys, assigning every year after 2013 the value from 2013.

Work-related gender norms are positively correlated with female employment. The prefecture-level correlation between our work-related gender norms variable and the female employment rate is 0.4. On the other hand, the prefecture-level correlation between the family norms variable and the female employment rate is negative and smaller in magnitude (-0.23). This negative correlation could be due to the fact that female employment rates are often high in non-urban areas (particularly in the Tohoku region), where gender norms (unrelated to work) are more traditional (Abe, 2018).

## **2.4 Female Leadership Data**

As a measure of the degree of female leadership in each municipality, we utilize the Cabinet Office's data, gathered by surveying all municipalities' governmental offices in Japan regarding the number of men and women in management. Using the information, we compute the proportion of women in management positions in each municipality's governmental offices.

The data have been available from the Cabinet Office, Government of Japan since 2004.<sup>4</sup> Note that this information on female leadership does not specifically provide the number of female elected city council members, and women who work as managers or as other officials in local government are not always visible to the public. Nevertheless, this information does measure how women in a municipality are acquiring leadership positions as compared to men. We therefore use it as a municipality-level measure of the extent to which women are playing an active leadership role in society.

### 3 Empirical Strategy

To examine how gender gaps in aspirations vary across areas with different labor market conditions, we estimate the following regression:

$$Y_{ijw} = \beta_1 Female_i + \beta_2 LM_{wj} + \beta_3 Female_i \times LM_{wj} + \mu_j + \delta_w + \epsilon_{ijw}, \quad (1)$$

where  $Y_{ijw}$  represents an outcome variable related to future plans or aspirations for child  $i$  born in municipality  $j$  in survey wave  $w$ .  $Female_i$  is an indicator equal to one for female children, and  $LM_{wj}$  is a variable representing female labor market opportunities in wave  $w$  and municipality  $j$ . We control for municipality fixed effects ( $\mu_j$ ) as well as wave fixed effects ( $\delta_w$ ). In our baseline specification, we use the overall female employment rate, but we also examine robustness to the share of women in professional or managerial jobs.

$\beta_1$  provides us with the gender gap in outcome  $Y_{ijw}$ , and  $\beta_2$  provides the relationship between our outcome and labor market variables. Our coefficient of interest is  $\beta_3$ , which captures the extent to which female labor market opportunities narrow or widen the gender gap. A negative  $\beta_1$  and positive  $\beta_3$  would indicate a gender gap in favor of boys that is

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<sup>4</sup>The Cabinet Office has conducted the survey since 2000. However, between 2000 and 2003, the Cabinet Office reported the number of men and women in management positions by prefecture and not by municipality. For years before 2004, we assign each municipality with the value from 2004. Documents are available from [https://www.gender.go.jp/policy/suishin\\_law/csv\\_dl/index.html](https://www.gender.go.jp/policy/suishin_law/csv_dl/index.html).

narrowed in areas with high female labor force participation.

Female labor market opportunities might be correlated with parental characteristics. For example, educated mothers with high-paying jobs might choose to live in areas with higher female labor force participation. This would make it difficult to interpret  $\beta_3$ : a positive  $\beta_3$  (paired with a negative  $\beta_1$ ) could be the result of educated mothers, who live in areas with high female employment, having higher aspirations for their girls (rather than female labor market opportunities narrowing the gender gap in aspirations). To ensure that our estimate of  $\beta_3$  is not driven by parental characteristics, we include interactions between the female indicator and various parental controls: mother's and father's income, education recorded in the first wave, and employment status (all expressed as categorical variables).<sup>5</sup>

In our robustness tests, we explore a number of different specifications. First, we control for other time-varying municipality characteristics (population size and average female university graduate shares), and their interaction with the female indicator, to ensure that  $\beta_3$  is not being driven by variation in the gender gap due to these characteristics (which are correlated with female employment). Although our baseline specification includes municipality fixed effects, these fixed effects do not account for the possibility that time-invariant municipality unobservables vary by gender. That is, if some municipalities tend to have persistently high aspirations for boys and low aspirations for girls, this could bias estimates of  $\beta_3$ , even in a specification with municipality fixed effects. Therefore, for regressions on outcome variables for which we have more than one wave of data, we also add municipality-by-gender fixed effects. In this (our most rigorous) specification,  $\beta_3$  is being identified from within-municipality changes in labor market conditions over time.

After examining aspirations, we also explore parental investments (financial and time) and realized education, marriage, and fertility outcomes at age 19 (for which we lose the panel

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<sup>5</sup>The categories for education are high school or less, non-university post-secondary (which includes vocational, junior, and technical colleges), university or more, and other or missing. The categories for employment are: not working, working as a full-time employee, working in other nonstandard employment, and missing. The income category cutoffs are set differently for mothers and fathers due to the different distributions across the two. Both involve four categories and a category for missing income, but for mother's income there is an additional category for zero income (which is very rare for fathers).

element of the data) as dependent variables. In all regressions, we cluster our standard errors at the municipality level.

## 4 Results

### 4.1 Aspirations

We begin by examining educational aspirations (of children and parents) and fertility and marriage aspirations (of children only). In Table 1, we report the regression results from equation (1). Female employment is standardized, such that the main effect of the female indicator can be interpreted as the gender gap in municipalities with the average level of female employment, and coefficients on the female employment can be interpreted as the change associated with a one standard deviation change in female employment.

In columns 1 and 2 of Table 1, the dependent variable is an indicator for whether the child respondent wants to go to university (conditional on having any plan for university).<sup>6</sup> Girls are significantly less likely to want to go to university (8 percentage points in the average municipality), but this gap is significantly smaller in municipalities with higher female employment. Specifically, the gender gap in municipalities with female employment rates that are one standard deviation above the mean is 3.2 percentage points smaller.

There is a similar pattern for parental educational aspirations (in columns 3 and 4): parents are substantially less likely to want their daughters to go to university (conditional on having any aspiration for their child), but this gap is smaller in areas with higher female employment.<sup>7</sup> For both specifications, results are similar across the odd and even-numbered columns, which suggests that parental characteristics like education, income, and employment (which are included as controls, along with their interaction with the female indicator, in even-numbered columns) are not driving the coefficient estimates in the odd-numbered

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<sup>6</sup>See Appendix Table A1, column 5, for the same regression not conditioning on having any plan.

<sup>7</sup>See Appendix Table A2, column 5, for the same regression not conditioning on having any aspiration.

columns. This is also true of the remaining columns of this table; we therefore only report the specification with parental controls in subsequent tables.

To explore the distribution of these educational aspirations in more detail, we report in Appendix Tables A1 and A2 the results of regressions where the dependent variables are indicator variables for each possible educational aspiration response. In these regressions, we include respondents who report having no particular plan or aspiration for themselves or their child, and include having no plan or aspiration as its own separate outcome. For both children’s and parents’ aspirations, there is a significant negative interaction term in the “Work after High School” regression and a significant positive interaction term in the “Work after University” regression. This suggests that female labor market opportunities appear to be closing the gender gap in the share of respondents aspiring for university by reducing the share of women who want to stop at a high school degree. There are no significant interaction terms (in either table) in the regressions on “No Concrete Plan,” which suggests that compositional changes driven by the interaction term are unlikely to be an issue in columns 1 to 4 of Table 1.

In the remaining columns of Table 1, we explore children’s fertility and marriage aspirations. Girls are significantly less likely to want to marry and have children after age 30, but this gap is smaller in areas with high female employment. This is consistent with results in the first four columns, which showed higher educational aspirations among girls in areas with higher female employment. For girls that want to stay in school longer, it is natural for marriage and fertility plans to be pushed back.

In Appendix Tables A3 and A4, we examine the entire distribution of marriage and fertility aspirations, including in the sample children responding they have no concrete plan. For marriage (Table A3), girls are more likely to want to marry in their twenties, less likely to want to marry in their thirties, and substantially more likely to have a concrete plan. Female employment rates narrow the gender gap in wanting to get married between ages 25-29. This effect comes from narrowing the gaps in both wanting marriage in the 30-34 age

Table 1: Female Employment and Gender Gaps in Education, Fertility, and Marriage Aspirations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Plans on University	Plans on University	Parents want University	Parents want University	Wants to Marry after 30	Wants to Marry after 30	Wants First Child after 30	Wants First Child after 30
Female	-0.082*** (0.0075)	-0.081*** (0.015)	-0.10*** (0.0078)	-0.11*** (0.018)	-0.087*** (0.0052)	-0.10*** (0.013)	-0.17*** (0.0072)	-0.17*** (0.017)
Female Emp.	0.011 (0.057)	0.0059 (0.054)			-0.0035 (0.045)	-0.0028 (0.045)	0.053 (0.061)	0.059 (0.060)
Female × Female Emp.	0.032*** (0.0077)	0.032*** (0.0068)	0.023*** (0.0080)	0.023*** (0.0077)	0.018*** (0.0053)	0.017*** (0.0055)	0.022*** (0.0076)	0.020*** (0.0076)
Observations	64170	64170	27985	27985	48025	48025	44307	44307
Mean of DV	0.60	0.60	0.44	0.44	0.13	0.13	0.25	0.25
Controls	None	Parental	None	Parental	None	Parental	None	Parental

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s municipality of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator. For each set of interactions, the omitted category is the modal category. Respondents who state they have no concrete plan are excluded from all regressions.

range and in having no concrete plan. For fertility, the patterns are similar. Gender gaps in wanting a first child at ages 25-29 are smaller in areas with higher female employment, driven by smaller gaps in the age 35-39 target for a first birth and in having a concrete plan.

## 4.2 Investments

We now move on to examine whether female labor market opportunities affect parental investments in different ways for boys and girls. In Table 2, we repeat our main regression (1) using various parental investment variables as our outcomes: child expenditures, weekday hours spent with the child (for each parent), and weekend hours spent with the child (for each parent). We first note that the main effect of the female indicator (which represents the difference between girls and boys for municipalities with average female employment) is actually positive (and statistically significant in the first three regressions), in contrast with the aspiration regressions above.

Despite this, we still see similar patterns in the interaction coefficients, which are all positive (and statistically significant for total expenditures as well as weekend hours of the mother). That is, consistent with the aspiration regressions above, higher female employment appears to disproportionately benefit girls.

Table 2: Female Employment and Gendered Effects on Parental Investments

	(1)	(2)	(3)	(4)	(5)
	Log Expenditures	Weekday Hours (Mother)	Weekend Hours (Mother)	Weekday Hours (Father)	Weekend Hours (Father)
Female	0.018*** (0.0068)	0.062** (0.027)	0.18*** (0.039)	-0.043 (0.027)	-0.063 (0.060)
Female Emp.	0.12*** (0.012)	-0.074*** (0.028)	0.10*** (0.040)	0.048* (0.025)	-0.012 (0.056)
Female $\times$ Female Emp.	0.0066** (0.0030)	0.0060 (0.013)	0.057*** (0.018)	0.011 (0.013)	0.034 (0.026)
Observations	536832	220710	219637	208546	207514
Mean of DV	1.42	5.10	9.39	1.91	7.81
Controls	Parental	Parental	Parental	Parental	Parental

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s municipality of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator. For each set of interactions, the omitted category is the modal category.

### 4.3 Robustness

In this section, we examine robustness to various alternative specifications. First, we include the additional sets of controls discussed in section 3. In Panel A of Appendix Table A5, we add municipality-level population and average female university graduate shares, along with their interactions with the female indicator, to ensure that the interaction terms are not picking up heterogeneity based on these municipality characteristics, which are correlated with female labor market opportunities. In Panel B, we add municipality-by-gender fixed



effects, which can only be estimated for outcome variables for which we have more than one wave of data.

In the next two panels, we explore an alternative labor market variable. We replace female employment with the share of women in professional or management jobs, to focus on jobs that are more likely to positively affect educational aspirations and investments. Panel C reports results for our baseline specification, while panel D adds the same municipality characteristics controls in panel A and panel E adds municipality-gender fixed effects. Across all five panels, the pattern of results is largely preserved.

Attrition rates are high, reaching 45.8% in the final wave. This could complicate our interpretation of the main interaction term if attrition were driven by female labor market conditions and in different ways for boys and girls. To investigate whether this is the case, we generate an indicator equal to one for individuals who have attrited from the sample as of the relevant survey wave. We then regress this variable on the female indicator and municipality-level female employment (in column 1 of Table A6), and add the interaction between the two in column 2. Coefficients in both columns are statistically insignificant and small in magnitude, alleviating concerns that our independent variables of interest might be driving attrition.

In column 3 of Table A6, it is clear that various parental characteristics do predict attrition. This regression includes controls for mother's and father's education, employment, and income (measured at baseline), along with their interactions with a female indicator. Children with more educated parents are less likely to attrit from the sample, and some of these gradients are different for boys and girls. Parental income is also negatively correlated with attrition. Because we control for parental characteristics and their interaction with the female indicator in our main analysis, and because these controls do not substantially change our main coefficient estimates (see Table 1), these statistically significant relationships are unlikely to be biasing our coefficient of interest (the interaction between the female indicator and female employment). However, in order to ensure that our sample in each

wave is representative of the entire sample interviewed in the first wave, we use inverse probability weighting to re-weight our sample accordingly. Specifically, we use a probit regression to predict the probability of being present in each wave using baseline parental characteristics, the female indicator, and the complete set of interactions. We then repeat our main regressions, weighting each observation by the inverse of this predicted probability. Results from the weighted regressions can be found in Table A7, where coefficient estimates are almost identical to those in Tables 1 and 2.

#### 4.4 Norms and Role Models

Having documented that female labor market opportunities disproportionately improve aspirations for and investments in girls relative to boys, we now attempt to distinguish between various explanations. One possibility is that better female labor market opportunities increase a girl’s perceived probability of having a good job in the future. This in turn leads her to aspire to obtain more education and therefore want to get married and have children later. A second possibility is that there is a third variable driving both female labor market opportunities and aspirations. Specifically, local social norms that value gender equality might lead certain areas to have better job opportunities for women and might also separately influence residents to have similar aspirations for boys and girls. A third related possibility is that having more women in the workforce generates a role model effect, where girls observe women in the workplace and aspire or expect to also work in the future.

To explore the extent to which social norms might be driving the empirical results discussed above, we use information on social norms from the NFRJ surveys. As described in section 2, we create two different prefecture-level variables: a measure of non-traditional gender norms related to employment and a measure of non-traditional family norms unrelated to employment (with higher values representing less traditional norms).

In Table A8, we report the results of regressions that include three sets of interactions (along with the main effects of each variable): the female indicator interacted with each

of the two norms variables, as well as the female indicator interacted with prefecture-level female employment. Across all specifications, the coefficients on the interaction between female and female employment are almost identical to those in the main results. That is, the heterogeneity across labor market conditions that we document in Tables 1 and 2 are not driven by norms that are correlated with these labor market conditions. Interestingly, none of the norms interactions are statistically significant in the educational aspiration regressions. However, non-traditional gender norms related to the labor market appear to be associated with mothers spending less time with girls relative to boys. Conversely, non-traditional gender norms unrelated to employment appear to be significantly associated with greater financial and time investments in girls relative to boys.

To explore the role model explanation, we use our data on female leadership. If the effect of female employment is working primarily through a role model effect, we might expect to also see similar effects of female government leaders. That is, we should detect similar heterogeneity patterns when we use municipality-level female leadership measures (specifically, the share of women in managerial government positions). In Table A9, we find no evidence of this. The coefficients on the interaction between female and female employment are similar to the estimates in the baseline specification. Higher female government shares have no effect on gender gaps in educational aspirations or expenditures and have opposite effects for marriage and fertility.

## 4.5 Realized Outcomes

The regressions described above provide evidence that female labor market conditions can influence gender differences in aspirations and investments. Motivated by the existing literature on the effect of aspirations on realized outcomes, along with the evidence provided in Figure 4, we next investigate whether these labor market conditions can affect actual educational attainment, marriage, and fertility. To answer this question, we use information collected in the last wave of the survey, when respondents were 19 years old. Specifically, we

use indicators for whether respondents were enrolled in any kind of post-secondary school, enrolled in university, married, or had at least one child as our dependent variables of interest. We repeat specification (1) using female employment rates in panel A and female professional shares in panel B of Table 3. Each outcome variable is taken from a single survey wave (unlike much of our previous analysis) but could in theory have been affected by labor market conditions throughout the respondent’s entire life, via aspirations. We therefore report two specifications, one which uses the average of the relevant labor market variable across the 2005, 2010, and 2015 censuses and one which uses the most recent census prior to the last wave (2015).

Results reported in Table 3 provide evidence that female labor market conditions, in addition to affecting gender gaps in aspirations, also have direct effects on gaps in realized outcomes. In the first two columns, we use an indicator for whether the respondent is enrolled in school (including university or other post-secondary education, like vocational, junior, or technical colleges). Women are significantly more likely to be in school, but even more so in areas with high female employment and high shares of women in professional and management jobs. Although women are more likely to be in school in general, columns 2 and 3 show they are significantly less likely to be enrolled in university (consistent with the aspiration distributions in Figure 1). Importantly, this gender gap is smaller in areas with high female employment and professional shares. In short, better female labor market opportunities during one’s childhood are associated with improvements in actual educational attainment for girls relative to boys.

While realized education outcomes appear to be influenced by labor market conditions, we find no evidence of this for our imperfect measures of marriage and fertility at age 19. The coefficients on the female employment interaction in columns 5 and 6 are statistically significant at the 10% level, but they are small in magnitude and have the opposite sign of what one would expect based on the aspiration regressions in Table 1. Other than this, none of the coefficients in columns 5 to 8 are statistically significant. Respondents are likely

too young for us to be capturing much meaningful variation in their marriage and fertility outcomes.

Table 3: Female Employment and Gendered Effects on Realized Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Enrolled in School	Enrolled in School	Enrolled in University	Enrolled in University	Married	Married	Has Child	Has Child
A. Female Employment Share								
Female	0.098*** (0.013)	0.098*** (0.013)	-0.049*** (0.016)	-0.049*** (0.016)	-0.0047 (0.0055)	-0.0047 (0.0055)	0.0022 (0.0028)	0.0022 (0.0028)
Female $\times$ Female Emp.	0.013** (0.0061)	0.015** (0.0061)	0.012* (0.0069)	0.014** (0.0067)	0.0039* (0.0022)	0.0035* (0.0021)	0.00058 (0.0011)	0.00017 (0.0010)
B. Female Professional Share								
Female	0.099*** (0.014)	0.099*** (0.014)	-0.047*** (0.016)	-0.048*** (0.016)	-0.0049 (0.0055)	-0.0050 (0.0056)	0.0022 (0.0028)	0.0021 (0.0028)
Female $\times$ Female Prof. Share	0.013** (0.0059)	0.012** (0.0058)	0.019*** (0.0068)	0.016** (0.0069)	0.00046 (0.0024)	-0.00040 (0.0024)	-0.000021 (0.00098)	-0.00047 (0.00095)
Observations	24341	24333	24341	24333	24204	24196	22165	22158
Mean of DV	0.76	0.76	0.54	0.54	0.02	0.02	0.01	0.01
Controls	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental
Labor Market Variable Year	2005-2015 Average	2015	2005-2015 Average	2015	2005-2015 Average	2015	2005-2015 Average	2015

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Outcome variables represent the child’s status at the time of the last survey wave. “Female Emp.” is the female employment rate in the respondent’s municipality of birth from the stated census year, standardized. “Female Prof. Share” is the share of women in professional or managerial jobs in the respondent’s municipality of birth from the stated census year, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator, taken from the first wave of the survey. For each set of interactions, the omitted category is the modal category.

## 5 Conclusion

In this paper, we document large gender gaps in aspirations among Japanese youths and their parents: specifically, in children’s own plans for the future with respect to education, marriage, and fertility, as well as parental aspirations for their child’s educational attainment. Boys want higher educational attainment, later marriage, and later fertility. Parents of boys have higher hopes for their sons’ educational attainment compared to parents of girls.

Importantly, we find these gender gaps are significantly smaller in areas with better

female labor market opportunities, measured by female employment rates and female managerial/professional shares. Consistent with these findings, we also demonstrate that better female labor market opportunities increase financial and time investments in girls relative to boys.

Our results are all derived from specifications that control for municipality fixed effects. They are robust to allowing for gender-specific effects of various parental and municipality-level characteristics, as well as the inclusion of municipality-by-gender fixed effects (for outcomes with more than one wave of data). In addition, we rule out social norms and role models as the primary mechanisms for the relationships that we document. Instead, we hypothesize labor market conditions affect aspirations by changing individuals' expectations about their future careers (or lack thereof).

Using the limited information we have on children's realized outcomes, we find evidence that the relationship between labor market opportunities and educational aspirations translates into similar patterns for actual education decisions by age 19. Taken together, these results suggest that better female labor market opportunities can improve outcomes for girls in a high-income society where substantial gender inequality persists.

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# Appendix

Table A1: Female Employment and Gender Gaps in Education Plans (Children)

	(1)	(2)	(3)	(4)	(5)	(6)
	Work After JH	Vocational After JH	Work After HS	Vocational After HS	Work After Uni	No Concrete Plan
Female	-0.00084 (0.0017)	0.0077* (0.0040)	-0.045*** (0.0091)	0.13*** (0.0094)	-0.025** (0.013)	-0.064*** (0.012)
Female Emp.	-0.016* (0.0097)	-0.025 (0.019)	-0.024 (0.036)	0.021 (0.037)	-0.038 (0.048)	0.081* (0.049)
Female × Female Emp.	-0.00014 (0.00063)	-0.00014 (0.0017)	-0.029*** (0.0044)	0.0062 (0.0046)	0.016*** (0.0055)	0.0075 (0.0049)
Observations	87671	87671	87671	87671	87671	87671
Mean of DV	0.0044	0.023	0.13	0.14	0.44	0.27
Controls	Parental	Parental	Parental	Parental	Parental	Parental

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s municipality of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator. For each set of interactions, the omitted category is the modal category. Children who state they have no concrete plan are included in all regressions.

Table A2: Female Employment and Gender Gaps in Education Aspirations (Parents)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Work After JH	Vocational After JH	Work After HS	Vocational After HS	Work After Uni	Up to Child	No Concrete Plan
Female	-0.0011 (0.0011)	0.00077 (0.0046)	-0.032*** (0.011)	0.069*** (0.013)	-0.11*** (0.018)	0.073*** (0.020)	-0.00032 (0.0033)
Female × Female Emp.	0.00036 (0.00022)	0.000028 (0.0017)	-0.018*** (0.0050)	-0.0023 (0.0058)	0.023*** (0.0077)	-0.0022 (0.0081)	-0.00033 (0.0011)
Observations	28130	28130	28130	28130	28130	28130	28130
Mean of DV	0.00046	0.0079	0.083	0.11	0.44	0.36	0.0050
Controls	Parental	Parental	Parental	Parental	Parental	Parental	Parental

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s municipality of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator. For each set of interactions, the omitted category is the modal category. Parents who state they have no concrete plan are included in all regressions.

Table A3: Female Employment and Gender Gaps in Marriage Aspirations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Teens	20-24	25-29	30-34	35-39	40+	Don’t Know Timing	Don’t Want to Marry	No Concrete Plan
Female	0.0021 (0.0016)	0.15*** (0.011)	0.060*** (0.011)	-0.027*** (0.0039)	-0.0026*** (0.00073)	-0.00055 (0.00036)	0.0051 (0.0070)	0.0060 (0.0052)	-0.19*** (0.013)
Female Emp.	0.0069 (0.0068)	0.015 (0.042)	-0.0017 (0.045)	0.023 (0.017)	-0.0055 (0.0045)	-0.0011 (0.0023)	-0.028 (0.030)	-0.0041 (0.018)	-0.0048 (0.048)
Female × Female Emp.	-0.00013 (0.00076)	-0.0038 (0.0052)	-0.019*** (0.0050)	0.0037** (0.0017)	0.00032 (0.00032)	-0.000044 (0.00020)	0.0024 (0.0028)	0.000014 (0.0025)	0.017*** (0.0061)
Observations	87518	87518	87518	87518	87518	87518	87518	87518	87518
Mean of DV	0.0041	0.21	0.26	0.028	0.0013	0.00039	0.080	0.040	0.37
Controls	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s municipality of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator. For each set of interactions, the omitted category is the modal category. Children who state they have no concrete plan are included in all regressions.

Table A4: Female Employment and Gender Gaps in Fertility Aspirations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Teens	20-24	25-29	30-34	35-39	40+	Don't Know Timing	Don't Want Kids	No Concrete Plan
Female	0.0018* (0.0011)	0.078*** (0.0069)	0.13*** (0.011)	-0.029*** (0.0067)	-0.0097*** (0.0016)	-0.00075* (0.00044)	0.017** (0.0069)	0.0098* (0.0054)	-0.20*** (0.013)
Female Emp.	-0.0046 (0.0045)	0.055* (0.033)	-0.040 (0.046)	0.028 (0.027)	-0.00099 (0.0083)	0.0034 (0.0031)	-0.032 (0.030)	0.016 (0.018)	-0.025 (0.049)
Female × Female Emp.	-0.00019 (0.00045)	0.0041 (0.0038)	-0.022*** (0.0054)	-0.00082 (0.0029)	0.0016** (0.00070)	0.00012 (0.00021)	0.0023 (0.0030)	0.00083 (0.0026)	0.014** (0.0060)
Observations	87412	87412	87412	87412	87412	87412	87412	87412	87412
Mean of DV	0.0020	0.088	0.29	0.079	0.0057	0.00050	0.083	0.040	0.41
Controls	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s municipality of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator. For each set of interactions, the omitted category is the modal category. Children who state they have no concrete plan are included in all regressions.

Table A5: Alternative Specifications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Plans on University	Parents want University	Wants to Marry after 30	Wants First Child after 30	Log Expenditures	Weekday Hours (Mother)	Weekend Hours (Mother)	Weekday Hours (Father)	Weekend Hours (Father)
A. Female Employment: Municipality Characteristic Interactions									
Female × Female Emp.	0.036*** (0.0074)	0.024*** (0.0084)	0.020*** (0.0063)	0.027*** (0.0084)	0.0055 (0.0033)	0.013 (0.013)	0.062*** (0.019)	0.011 (0.014)	0.042 (0.028)
Observations	63692	27786	47678	43985	535901	220702	219629	208538	207506
B. Female Employment: Municipality-Gender Fixed Effects									
Female × Female Emp.	0.075** (0.034)		0.047 (0.035)	0.20*** (0.053)	0.012*** (0.0048)	0.17*** (0.024)	0.60*** (0.034)	-0.00015 (0.025)	0.16*** (0.052)
C. Female Professional Share: Baseline Specification									
Female × Female Prof. Share	0.016*** (0.0058)	0.0095 (0.0066)	0.0059 (0.0047)	0.0076 (0.0064)	0.011*** (0.0031)	0.030** (0.014)	0.079*** (0.021)	0.0089 (0.014)	0.069** (0.030)
D. Female Professional Share: Municipality Characteristic Interactions									
Female × Female Prof. Share	0.017*** (0.0059)	0.012* (0.0067)	0.0071 (0.0048)	0.0083 (0.0066)	0.011*** (0.0031)	0.029** (0.014)	0.076*** (0.021)	0.0086 (0.014)	0.068** (0.030)
E. Female Professional Share: Municipality-Gender Fixed Effects									
Female × Female Prof. Share	0.049* (0.028)		0.019 (0.029)	0.14*** (0.045)	0.012*** (0.0042)	0.17*** (0.024)	0.52*** (0.039)	-0.018 (0.024)	0.071 (0.053)
Observations	64090	27626	47912	44181	536818	220685	219612	208511	207477
Mean of DV	0.603	0.441	0.126	0.246	1.424	5.100	9.392	1.914	7.814
Controls	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s municipality of birth at the time of the relevant survey wave, standardized. “Female Prof. Share” is the share of women in professional or managerial jobs in the respondent’s municipality of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator. For each set of interactions, the omitted category is the modal category. In Panels A and D, “Municipality Characteristic Interactions” include controls for municipality-level population and average female university graduate shares, along with their interactions with the female indicator.

Table A6: Attrition

	(1)	(2)	(3)
	Attrited	Attrited	Attrited
Female	-0.0037 (0.0034)	-0.0041 (0.0035)	-0.0029 (0.035)
Female Emp.	0.0055 (0.0045)	0.0069 (0.0048)	0.0063 (0.0047)
Female × Female Emp.		-0.0029 (0.0027)	-0.0016 (0.0024)
Mother's Ed: High School			-0.38*** (0.025)
Mother's Ed: Non-University Post-Secondary			-0.42*** (0.025)
Mother's Ed: University			-0.43*** (0.025)
Father's Ed: High School			-0.15*** (0.022)
Father's Ed: Non-University Post-Secondary			-0.18*** (0.023)
Father's Ed: University			-0.20*** (0.023)
Mother's Employment: Not Working			-0.019 (0.022)
Mother's Employment: Part-Time			-0.017 (0.022)
Mother's Employment: Full-Time			-0.026 (0.023)
Father's Employment: Not Working			0.0061 (0.021)
Father's Employment: Part-Time			-0.0099 (0.015)
Father's Employment: Full-Time			-0.010 (0.014)
Mother's Income: None			-0.030** (0.012)
Mother's Income: Level 1			-0.037*** (0.014)
Mother's Income: Level 2			-0.045*** (0.013)
Mother's Income: Level 3			-0.051*** (0.013)
Mother's Income: Level 4			-0.051*** (0.014)
Father's Income: Level 1			0.0098 (0.0098)
Father's Income: Level 2			-0.036*** (0.0098)
Father's Income: Level 3			-0.081*** (0.0095)
Father's Income: Level 4			-0.077*** (0.014)
Female × Mother's Ed: High School			-0.058 (0.036)
Female × Mother's Ed: Non-University Post-Secondary			-0.073** (0.036)
Female × Mother's Ed: University			-0.074** (0.036)
Female × Father's Ed: High School			0.052 (0.033)
Female × Father's Ed: Non-University Post-Secondary			0.053 (0.035)
Female × Father's Ed: University			0.058* (0.033)
Observations	658158	658158	658158
Mean of DV	0.24	0.24	0.24

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s municipality of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. Column 3 also includes controls for both parents’ income and employment categories interacted with the female indicator: none of these coefficients are statistically significant and were omitted for brevity. For each categorical variable, the omitted category is the missing category.

Table A7: Weighted Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Plans on University	Parents want University	Wants to Marry after 30	Wants First Child after 30	Log Expenditures	Weekday Hours (Mother)	Weekend Hours (Mother)	Weekday Hours (Father)	Weekend Hours (Father)
Female	-0.083*** (0.016)	-0.10*** (0.019)	-0.11*** (0.013)	-0.17*** (0.018)	0.020*** (0.0071)	0.092*** (0.033)	0.22*** (0.048)	-0.053 (0.033)	-0.12* (0.072)
Female Emp.	0.031 (0.058)		0.0070 (0.050)	0.020 (0.065)	0.11*** (0.011)	-0.15*** (0.046)	0.079 (0.064)	0.15** (0.062)	0.081 (0.11)
Female × Female Emp.	0.033*** (0.0077)	0.021*** (0.0080)	0.019*** (0.0059)	0.022*** (0.0082)	0.0071** (0.0033)	-0.00084 (0.017)	0.041 (0.025)	0.013 (0.017)	0.018 (0.035)
Observations	64170	27985	48025	44307	494797	178303	177347	167419	166546
Mean of DV	0.57	0.41	0.13	0.25	1.48	4.80	9.33	1.87	7.74
Controls	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s municipality of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator. For each set of interactions, the omitted category is the modal category. Observations are weighted by the inverse of the predicted probability of being in a given survey wave, predicted using a probit regression on a female indicator, parental controls at baseline, and all baseline parental controls interacted with the female indicator.

Table A8: Social Norms, Female Employment, and Gender Gaps

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Plans on University	Parents want University	Wants to Marry after 30	Wants First Child after 30	Log Expenditures	Weekday Hours (Mother)	Weekend Hours (Mother)	Weekday Hours (Father)	Weekend Hours (Father)
Female × Female Emp.	0.022** (0.0090)	0.020* (0.011)	0.015* (0.0084)	0.026** (0.011)	0.0072** (0.0034)	0.055*** (0.015)	0.15*** (0.023)	0.012 (0.017)	0.056* (0.030)
Female × Non-Traditional Norms (Labor)	0.0075 (0.0057)	0.0044 (0.0066)	0.00070 (0.0043)	-0.0044 (0.0062)	0.0046 (0.0042)	-0.055*** (0.018)	-0.059** (0.029)	-0.015 (0.018)	-0.0051 (0.040)
Female × Non-Traditional Norms (Family)	-0.0064 (0.0048)	-0.0047 (0.0052)	-0.00030 (0.0038)	0.0019 (0.0048)	0.0056* (0.0030)	0.047*** (0.013)	0.14*** (0.023)	-0.0037 (0.014)	0.066** (0.027)
Observations	64185	27995	48033	44313	536856	220710	219637	208546	207514
Mean of DV	0.603	0.440	0.126	0.247	1.424	5.100	9.392	1.914	7.814
Controls	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s prefecture of birth at the time of the relevant survey wave, standardized. “Non-Traditional Norms” represent either work-related or family-related (as specified) gender norms in the respondent’s prefecture of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator. For each set of interactions, the omitted category is the modal category.



Table A9: Female Leadership, Female Employment, and Gender Gaps

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Plans on University	Parents want University	Wants to Marry after 30	Wants First Child after 30	Log Expenditures	Weekday Hours (Mother)	Weekend Hours (Mother)	Weekday Hours (Father)	Weekend Hours (Father)
Female × Female Emp.	0.032*** (0.0068)	0.023*** (0.0078)	0.016*** (0.0055)	0.019** (0.0076)	0.0063** (0.0031)	0.0056 (0.013)	0.055*** (0.018)	0.012 (0.013)	0.032 (0.026)
Female × Female Gov. Share	0.0039 (0.0045)	0.0022 (0.0058)	-0.0091** (0.0036)	-0.010** (0.0049)	0.0028 (0.0031)	0.011 (0.012)	0.054*** (0.019)	-0.0099 (0.013)	0.055** (0.027)
Observations	64165	27985	48024	44306	536823	220710	219637	208546	207514
Mean of DV	0.603	0.440	0.126	0.247	1.423	5.100	9.392	1.914	7.814
Controls	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental	Parental

Notes: Standard errors (clustered at municipality level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . “Female Emp.” is the female employment rate in the respondent’s prefecture of birth at the time of the relevant survey wave, standardized. “Female Gov. Share” represents the female share of managerial government workers in the respondent’s prefecture of birth at the time of the relevant survey wave, standardized. All specifications control for municipality and survey wave fixed effects. “Parental” controls include categorical variables for mother’s and father’s education, income, and employment status, along with their interactions with the female indicator. For each set of interactions, the omitted category is the modal category.