

Female Labor Market Conditions and Gender Gaps in Aspirations*

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Abstract

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

Keywords: aspirations, gender differences, female employment

JEL Classification Codes: J16, I24, J13

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1 Introduction

Aspirations 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 than those who do not. If aspirations differ across groups (defined by gender or socioeconomic status, for instance), this could perpetuate gaps in outcomes across these groups (Genicot and Ray, 2020).

Existing empirical evidence suggests that changing aspirations can improve outcomes. When it comes to student outcomes, both higher aspirations (Carlana et al., 2022) and more realistic aspirations (Goux et al., 2017) 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 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., 2022; Chiapa et al., 2012; Goux et al., 2017).

Another potential driver of aspirations that has not received much attention in the lit-

erature is the local labor market. We highlight three ways the labor market might affect aspirations: by influencing social norms, the availability of role models, or predictions about future returns to the relevant outcome. To elaborate on the latter channel, current 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. This could affect the amount of schooling they aspire to attain or the age at which they want to get married, depending on the returns to schooling or later marriage at this job. Whether through social norms, role models, or these predicted returns, it is important to note that gender-specific labor market conditions could have gender-specific effects on aspirations and could therefore influence gender gaps in aspirations.

In this paper, we explore how female employment rates affect gender gaps in aspirations. 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 aspirations for the future with respect to education, marriage, and fertility.¹ The survey also asks

¹With one exception, the wording of the survey questions we use (described in detail in section 3) provides a clean measure of aspirations. The one exception is when children are asked about their future education: this question captures a combination of expectations and aspirations, which we argue serves as a good proxy for aspirations.

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, we focus on measures of the labor market for women, including female employment rates and the share of women in professional or management jobs.

We find the gender gaps in education, marriage, and fertility aspirations are significantly smaller in municipalities with higher female employment. We can interpret this result as causal evidence that female employment narrows gender gaps in aspirations – only if there are no omitted variables correlated with municipality-level female employment that could have differential effects on boys and girls. We therefore run a number of additional specifications to shed light on this identifying assumption, and the results rule out a wide range of alternative explanations.

Because we have access to rich information on parental characteristics, we are able to rule out the possibility that parental education, employment, and income are responsible for the heterogeneity in these gender gaps. Our baseline results control for municipality fixed effects, but the findings are also robust to the inclusion of municipality-by-gender fixed effects (for outcomes available in more than one wave). This specification relies solely on changes in female employment over time and therefore helps alleviate concerns about other omitted variables that might be driving our results. We also estimate specifications with individual fixed effects, as well as with municipality characteristics (average education levels and population) interacted with gender.

Finally, our conclusions do not change when we include controls for social norms (along

with their interactions with the female indicator), as well as measures of female leadership (and the female interaction). This suggests that, more than through social norms or role models, labor markets could be affecting aspirations by influencing the predicted returns to additional schooling, later marriage, and delayed fertility.

Consistent with these results, we also show that higher female employment rates 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 potential mechanisms behind this relationship: higher female employment may 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). Although these regressions rely solely on cross-sectional variation (unlike most of our main results), the finding that better female labor market conditions are associated with better education outcomes for women 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 could also benefit the next generation.

2 Aspirations and Labor Markets

There is a large body of theoretical and empirical evidence devoted to understanding how aspirations affect effort, investments, and outcomes. The theoretical work typically models

aspirations as thresholds (Azmat et al., 2020; Dalton et al., 2018; Genicot and Ray, 2017, 2020; La Ferrara, 2019). If an individual’s realized outcome (z) surpasses her aspirations (a), this generates an additional payoff.²

The goal of this paper, however, is to better understand how local labor markets might determine aspirations. To discuss the potential mechanisms through which this might occur, we express aspirations (for individual i of gender g in community j) as follows:

$$a_{ijg} = a(X_{1i}, X_{2jg}, \bar{p}_{jg}). \quad (1)$$

Aspirations are determined by a vector of individual characteristics (X_{1i}) and a vector of gender-specific societal characteristics (X_{2jg}), including role models and social norms.³ In addition, we propose that aspirations can be influenced by community-based predictions about the returns to the relevant outcome (z), which we denote using \bar{p}_{jg} (where the g subscript indicates this variable is gender-specific). We note that \bar{p}_{jg} captures community-level drivers of this perceived probability, not individual drivers (like ability, which would be included in X_{1i}).

If z represents educational attainment, an adolescent girl will aspire for high levels of education if she predicts high returns to education due to community influences (high \bar{p}_{jg}) – for example, if most women in her community hold jobs where there are high returns to education. On the other hand, an adolescent girl in a different community might aspire for less education because she expects to stay out of the labor force, where returns to education are low, since most women in her community do not work (low \bar{p}_{jg}).

We can also apply this model to aspirations about marriage and fertility, which are also measured in the survey used in our empirical analysis. Suppose z captures age of marriage or age of first child. In this case, \bar{p}_{jg} captures community-driven predictions about the

²We outline the basic theoretical framework commonly used to model the link between aspirations and outcomes in section A.1.

³Genicot and Ray (2017) also model aspiration formation as driven by individual characteristics (own income) and society-level characteristics (the society-wide distribution of income).

returns to delaying marriage or fertility. An adolescent girl might aspire for later marriage or fertility if she perceives \bar{p}_{jg} to be high – for example, if she expects to end up in a state where there are positive returns to delaying (e.g., a competitive job where having children early negatively affects promotion and wage growth), as opposed to a state where there are no financial returns to delaying marriage or fertility (e.g., out of the labor force).

Gender-specific labor market conditions, like employment rates or occupation composition, could affect aspirations through both X_{2jg} and \bar{p}_{jg} . With respect to the former (X_{2jg}), high female employment rates could affect social norms about women working.⁴ Alternatively, high shares of women in prestigious jobs could generate role model effects for girls.

Finally, employment rates and other labor market conditions could also affect predicted future returns (\bar{p}_{jg}) and through this, affect aspirations. For girls, exposure to more women in the workforce might raise the perceived probability of ending up in a job where the returns to education, early marriage, or early fertility are higher. This channel is closely related to but distinct from the role model mechanism, where girls aspire for higher education because they see highly educated women in the workforce or leadership positions.

It is worth noting that female employment rates in a given community are determined by both demand and supply. Female employment can increase with an expansion of labor market opportunities for women (demand) or a rise in female labor supply. In this model, any increase in adult female employment (whether due to demand or supply) could in theory affect norms, role models, and predicted returns – and therefore the aspirations of children (for themselves) or parents (for their children).

In this paper, our main goal is to identify whether labor market conditions for women affect gender gaps in aspirations at all (through any of the above-mentioned potential channels). However, we are also able to shed some light on which of these channel appears to be most important.

⁴It is also possible that social norms affect female employment, which poses a potential threat to identification in our empirical analysis, as we discuss later.

3 Data

3.1 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 and 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 5.3.

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 aspirations for the future, with respect to education, marriage, and fertility. 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.⁵ 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?” Respondents then choose from various options (e.g., “I am thinking I will work after graduating junior high school”). Given this phrasing, the question is likely capturing a combination of aspirations and expectations. The model in section A.1 predicts that aspirations and expectations should be positively correlated, and empirical work has found this to be the case (Azmat et al., 2020; Carlana et al., 2022). La Ferrara (2019) uses expectations to proxy for aspirations and argues that the former are a lower bound for the latter. Therefore, although this question does not provide us with a pure aspirations variable, we consider it a reasonable proxy.

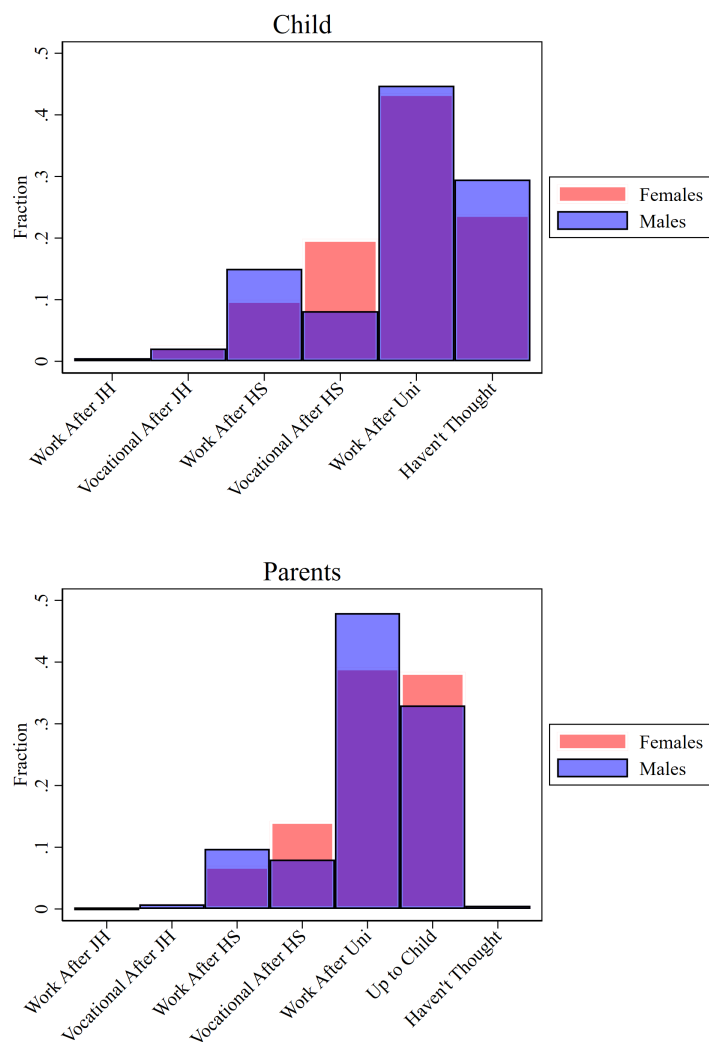
Fortunately, the remaining variables are pure measures of aspirations. Parents in wave 15 are asked: “What kind of educational path do you hope your child follows?” They choose from various response options (e.g., “I want him/her to work after graduating junior high school.”) The response options for 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 are thinking of working after high school, working after university, or have not thought about it yet, while a larger share of girls state that they think of going to vocational school after high school.

The main focus of our analysis will be on the share who are thinking about a university education – that is, the share who respond they think they will work after completing university. The unconditional share of boys thinking of at least a university education is

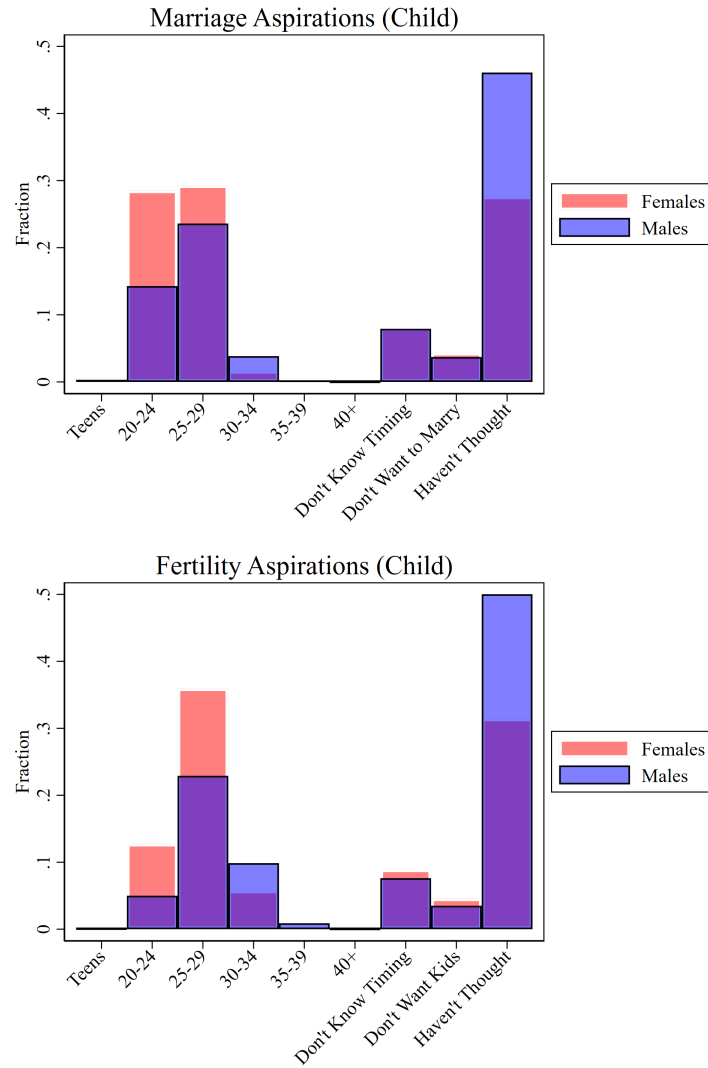
⁵Another reason we focus on the earlier waves is that we only use up to the 2015 census for our labor market variables (in order to avoid large linear interpolation errors stemming from the 2020 census being fielded during the COVID-19 pandemic).

Figure 1: Education Aspirations by Gender



Notes: The top panel shows child responses to the question: “Are you thinking about your future at this time? What are you thinking with respect to your schooling?” Response options are of the form “I am thinking I will ...” The bottom panel shows parents’ responses to the question: “What kind of educational path do you hope your child follows?” Responses options are of the form “I want him/her to...” For both panels, “Haven’t Thought” represents the response “I have not thought about this concretely yet.”

Figure 2: Marriage and Fertility Aspirations by Gender



Notes: The top panel shows child responses to the question: “Are you thinking about your future at this time? What are you thinking with respect to marriage?” Response options are of the form “I want to marry at ages...” The bottom panel shows child responses to the question: “Are you thinking about your future at this time? What are you thinking with respect to the timing of your first child?” Responses options are of the form “I want to have my first child at ages...” For both panels, “Haven’t Thought” represents the response “I have not thought about this concretely yet.”

slightly higher than the unconditional share of girls, and these differences are larger after conditioning on having thought about their future education route at all. 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 leave it up to the child.

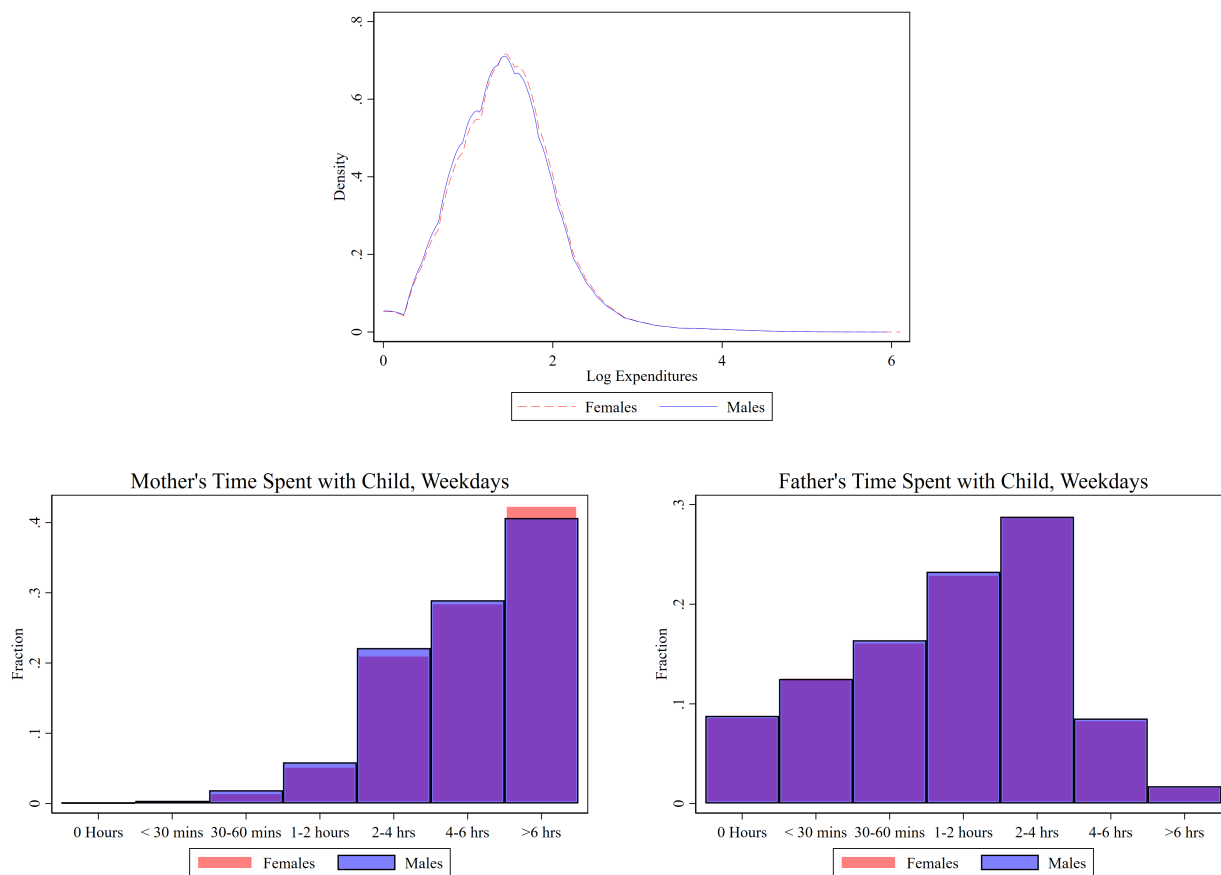
The survey also includes questions about marriage and fertility aspirations. Respondents are asked: “Are you thinking about your future at this time? What are you thinking with respect to marriage? The timing of your first child?” Because the response options for these questions use the phrase “I want to...” (e.g., “I am thinking that I want to marry between age 20 and 24”), we interpret these as aspirations. 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 thought about these issues at all.

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 are slightly higher for daughters than sons.

Figure 4 explores how well aspirations 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 were thinking of graduating from university and those who did not.⁶ 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 less stark when we examine parental aspirations. University enrollment rates were 74.5 percent among children whose parents wanted them to graduate from university

⁶We exclude those who had not thought about their future educational route, but results are similar when we include them in the group that did not think they would graduate from university.

Figure 3: Parental Investments by Gender



Notes: Top panel displays distribution of nominal child expenditures per month across all waves 1 to 15. Bottom panels display distribution of parental time spent with child from all waves in which this information was collected (2, 5, 7, 8, 9, and 10).

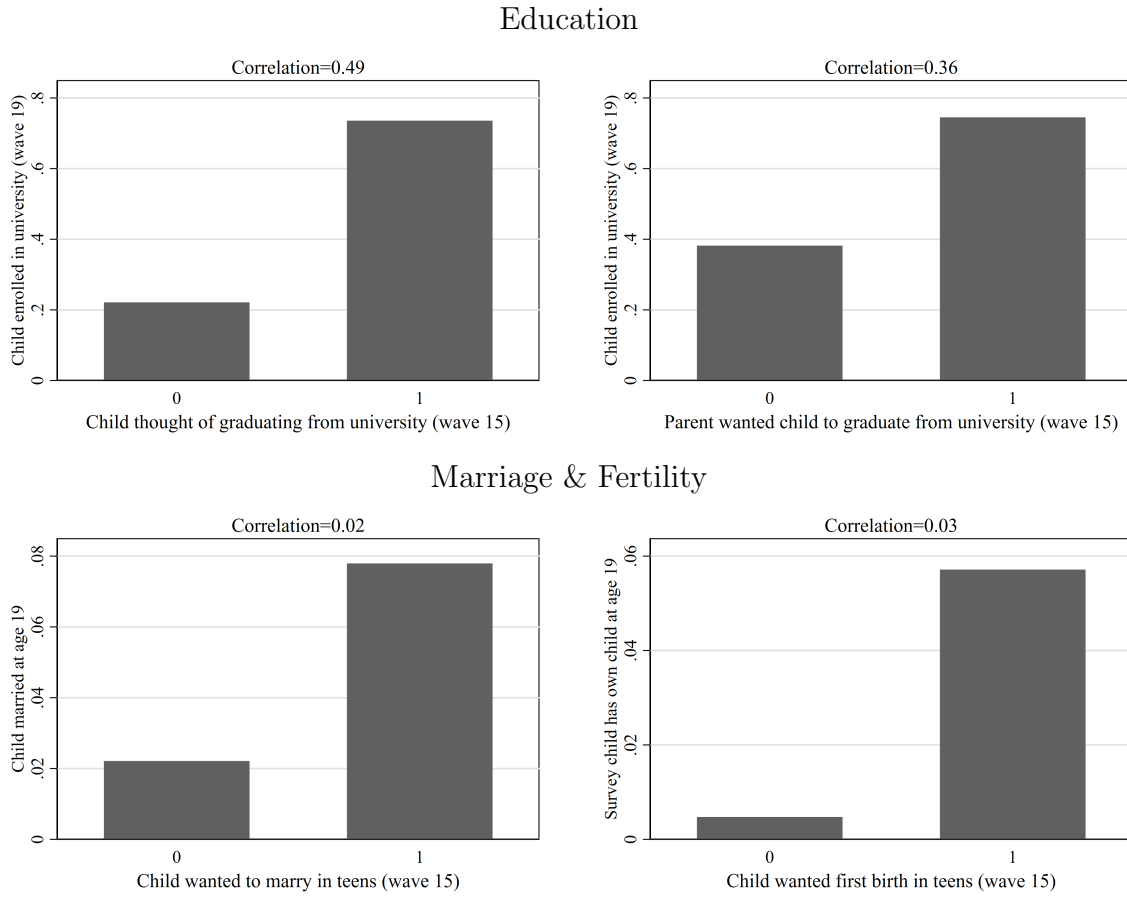
and 38.2 percent among children of parents who hoped for a different route. The correlation between university enrollment and parental aspirations is 0.36. In short, children’s own thoughts about their future education and parental aspirations (to a lesser extent) both have predictive power.

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 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) versus those who did not. 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.

3.2 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. There were 1718 municipalities in Japan as of March 2015, 1575 of which were represented in the survey data. 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 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

Figure 4: Relationship Between Realized Outcomes and Aspirations



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.

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.⁷ 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.

3.3 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. The dataset identifies respondents' prefectures but not their municipalities (which are identified in the main survey data).⁸ We therefore use this dataset to generate prefecture-level measures of perceived gender norms to complement our information about female labor market conditions.

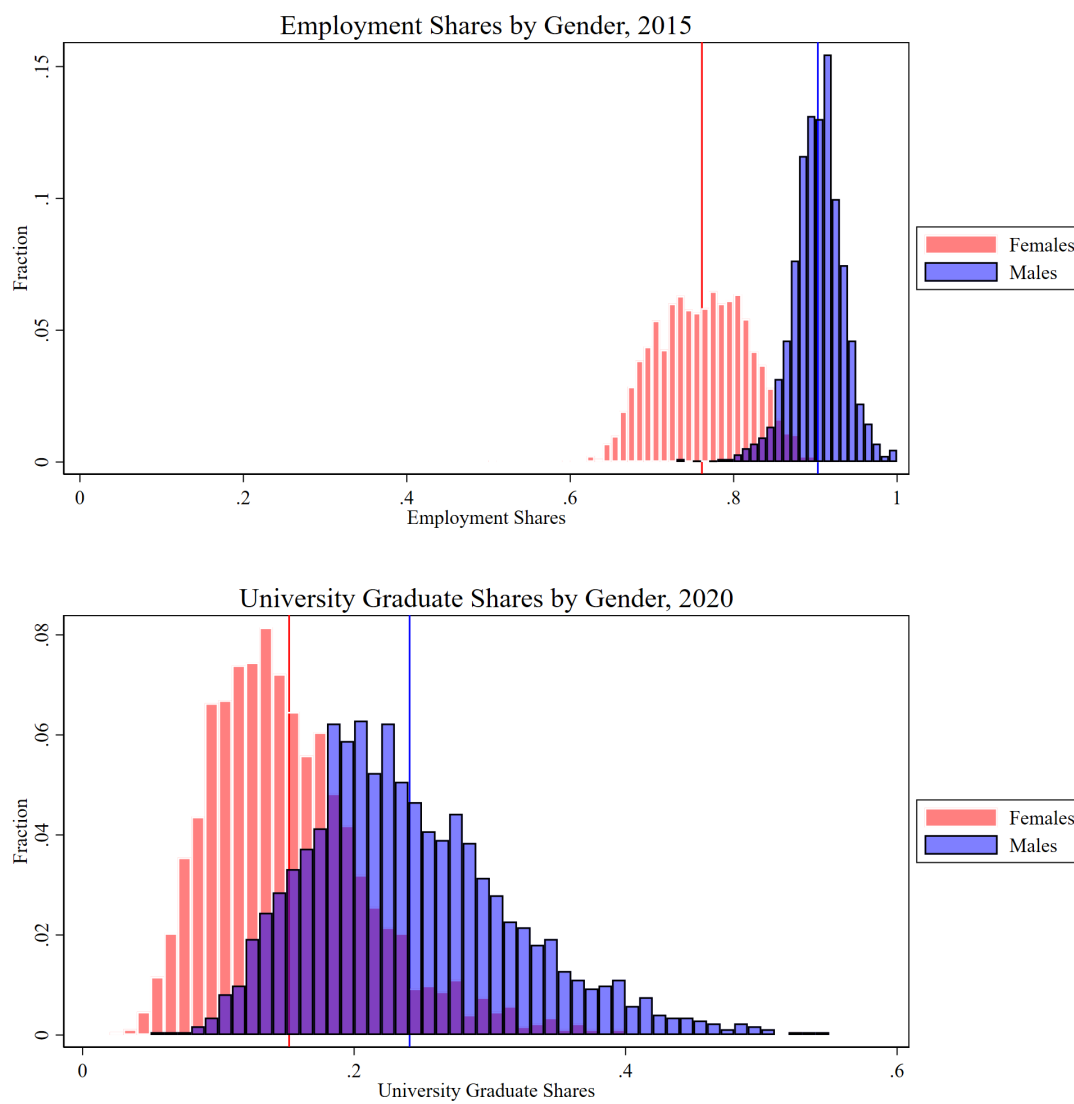
Respondents are asked whether they agree, somewhat agree, somewhat disagree, or disagree with a number of statements. We identify two groups of statements: those capturing beliefs about gender roles relating to the labor market, and those capturing other types of family norms. The labor-related gender-norm 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.
3. Mothers should not be in the labor force and should concentrate on childcare until a child turns 3 years old.

⁷We 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.

⁸There are 47 prefectures and, as of March 2015, 1718 municipalities in Japan.

Figure 5: Municipality-Level Characteristics, by Gender



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

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).

3.4 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 2004.⁹

⁹The 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.

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.

4 Empirical Strategy

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

$$Y_{ijw} = \beta_1 Female_i + \beta_2 LM_{wj} + \beta_3 Female_i \times LM_{wj} + \mu_j + \delta_w + \epsilon_{ijw}, \quad (2)$$

where Y_{ijw} represents an outcome variable related to 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 conditions in wave w and municipality j .¹⁰ We control for municipality fixed effects (μ_j) as well as wave fixed effects (δ_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. In section 2, we argue that labor market conditions for men should affect aspirations for boys, while labor market conditions for women should affect aspirations for girls, which would suggest the gap between female and male employment rates could be more relevant. However, we note that there is little variation in male employment rates in our data, which means most of the variation in municipality-level gender employment gaps comes from variation in female

¹⁰We are interested in labor market conditions measured at the same time the aspirations are measured because they could in theory have immediate effects on aspirations, primarily through changes in \bar{p}_{jg} and potentially also role models. However, because social norms likely take some time to change (which could also be the case for role models), we also estimate specifications using labor market conditions from five years prior.

employment rates (the correlation between female employment rates and the ratio of female to male employment rates is 0.91). That said, we also estimate specifications where LM_{wj} represents the ratio of female to male employment rates in our robustness tests.

After examining aspirations, we also explore parental investments: child expenditures as well as parental time spent with the child. In all regressions, we cluster our standard errors at the municipality level.

β_1 provides us with the gender gap in outcome Y_{ijw} , and β_2 provides the relationship between our outcome and the labor market variable. Our coefficient of interest is β_3 , which captures heterogeneity in the gender gap with respect to labor market conditions. In our main results, where LM_{wj} represents female employment rates, a negative β_1 and positive β_3 would indicate a gender gap in favor of boys that is smaller in areas with high female employment.

There are many reasons why gender gaps might vary across areas with different female employment rates. To be able to interpret a significant β_3 as evidence of female employment causally affecting the gender gap in aspirations (or investments), there must be no omitted variables correlated with female employment that could also be correlated with these gender gaps (or, put differently, omitted variables correlated with female employment that could be differentially affecting boys' and girls' aspirations).

One threat to identification lies in parental characteristics, which are likely to be correlated with female employment. For example, educated mothers with high-paying jobs might end up living in areas with higher female labor force participation. This would make it difficult to interpret β_3 : a positive β_3 (paired with a negative β_1) could be the result of educated mothers, who live in areas with high female employment, having higher aspirations for their girls or raising their daughters to have higher aspirations (rather than female employment narrowing the gender gap in aspirations). To ensure that our estimate of β_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).¹¹

A second category of identification issues has to do with municipality-level characteristics. Female employment might be correlated with other municipality-level characteristics that could be responsible for differences in gender gaps across municipalities. Although our baseline specification includes municipality fixed effects, these fixed effects do not control for municipality characteristics that have different effects on each gender. That is, if some municipalities tend to have persistently high aspirations for boys and low aspirations for girls (and those with larger gender gaps also have higher female employment), this could bias estimates of β_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 (more rigorous) specification, β_3 is being identified from within-municipality changes in labor market conditions over time.

While municipality-by-gender fixed effects control for gender-specific municipality characteristics that are time-invariant, time-varying municipality variables could also be a concern. For example, municipalities with high female employment may be more urban or have higher female education levels on average, and it could be these characteristics generating different gender gaps across municipalities. To test for this, 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 β_3 is not being driven by variation in the gender gap due to these characteristics. We also estimate specifications with individual fixed effects.

After this extensive set of sensitivity analyses, the remaining threats to identification are time-varying unobserved characteristics. Specifically, we would be unable to interpret our estimates as causal if there are any time-varying municipality or parental characteristics that

¹¹The 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).

are correlated with female employment and not captured by any of the other time-varying controls mentioned above.

In order to tease out mechanisms, we repeat our main regressions with additional controls for measures of social norms and measures of female leadership (and their interaction with the female indicator). The primary goal of these regressions is to test whether female labor market conditions are driving differences between boys and girls by changing social norms or increasing the availability of female role models. It is worth noting, however, that the social norms regressions can also shed light on whether norms pose a threat to identification. On the one hand, it is possible that social norms about women working are affected by female employment in a municipality (in which case norms could be viewed as a mechanism). On the other hand, social norms might also drive female employment rates in a municipality, as well as gender gaps in aspirations and investments (in which case norms would pose a threat to identification).

Finally, we examine realized education, marriage, and fertility outcomes at age 19 as dependent variables. Unfortunately, we lose the panel element of the data and therefore interpret these results as merely suggestive evidence on the effects of aspirations on realized outcomes.

5 Results

5.1 Aspirations

We begin by examining educational aspirations (of children and parents) and fertility and marriage aspirations (of children only). In panel A of Table 1, we report the regression results from equation (2). 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 main effect can be interpreted as the change associated with a one standard deviation change in female

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

	(1) Thinking of University	(2) Thinking of University	(3) Parents want University	(4) Parents want University	(5) Wants to Marry after 30	(6) Wants to Marry after 30	(7) Wants First Child after 30	(8) Wants First Child after 30
A. Municipality Fixed Effects								
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 \times 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
B. Municipality-Gender Fixed Effects								
Female Emp.	-0.016 (0.058)	-0.012 (0.056)			-0.026 (0.052)	-0.026 (0.052)	-0.066 (0.070)	-0.067 (0.070)
Female \times Female Emp.	0.088** (0.035)	0.075** (0.034)			0.048 (0.035)	0.047 (0.035)	0.19*** (0.053)	0.20*** (0.053)
Observations	64090	64090	27626	27626	47912	47912	44181	44181
Mean of DV	0.603	0.603	0.441	0.441	0.126	0.126	0.246	0.246
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 survey wave fixed effects and municipality fixed effects (in panel A) or municipality-by-gender fixed effects (in panel B). “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 not thought about the particular issue are excluded from all regressions.

employment.

In columns 1 and 2 of Table 1, the dependent variable is an indicator for whether the child respondent is thinking about going to university (conditional on having thought about their future educational route).¹² Girls are significantly less likely to be thinking about 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 thought about their future aspirations for their child), but this gap is smaller in areas with higher female employment.¹³ 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 columns. This is also true of the remaining columns of this table; we therefore only report the specification with parental controls in subsequent tables.

While municipality fixed effects control for unobserved drivers of aspirations that are time-invariant and specific to a municipality, they do not account for unobserved factors that are gender-specific (for example, societal expectations that are different for boys and girls). In panel B of Table 1, we therefore control for municipality-by-gender fixed effects, which allows for a separate municipality intercept for each gender and relies on changes in labor market conditions over time to estimate the interaction coefficient of interest. Although we cannot estimate this regression for parental aspirations (which are only available in one wave), for all other outcomes the interaction coefficient is either larger than or similar to

¹²See Appendix Table A1, column 5, for the same regression not conditioning on having thought about their future.

¹³See Appendix Table A2, column 5, for the same regression not conditioning on having thought about their aspirations.

the estimates in panel A (and with the exception of the marriage regression, statistically significant). In short, the inclusion of municipality-by-gender fixed effects leaves our conclusions largely unchanged, which alleviates concerns about (time-invariant) municipality unobservables driving the positive interaction terms we estimate.

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, for children and parents respectively. In these regressions, we include respondents who report having no particular thoughts or aspiration for themselves or their child, and we examine having not thought about these issues as its own separate outcome. For both children and parents, 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 employment appears 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 “Haven’t Thought,” 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 thinking they will stay in school longer, potentially because they predict ending up in a state where returns to schooling are high, there are likely also high predicted returns to delaying marriage and fertility.

In Appendix Tables A3 and A4, we examine the entire distribution of marriage and fertility aspirations, including children responding they have not thought concretely about these issues. 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 thought about marriage and fertility at all. 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 range and in having not thought about marriage. 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 not thought about fertility.

All of these regressions use female employment rates from the same year the aspiration measures are collected because we argue that current labor market conditions could in theory have immediate effects on aspirations (through the predicted returns to the relevant outcome, or role models). However, because social norms (and potentially also role models in some cases) might be slower to change, we acknowledge that labor market conditions from previous years could also be important. For example, if current social norms are shaped by labor market conditions five years ago, there might be a stronger relationship between today's aspirations and past labor markets. To explore this possibility, we repeat our regressions using female employment rates from five years prior. In Appendix Table A5, we first re-run our original specification (with contemporaneous female employment) for comparison, followed by a regression using female employment from 5 years prior and then a regression that includes both sets of variables. Across all outcomes, the same pattern emerges. When included separately, employment rates from this year and employment rates from 5 years prior each have significant interaction effects, though the magnitude is larger for current employment rates. When included together, however, the magnitude of the contemporaneous female employment interaction remains very similar to its magnitude in the original regression, while the lagged employment interaction term becomes much smaller or even flips sign. This suggests that the relationship between aspirations and labor markets is primarily driven by current as opposed to past labor markets.

5.2 Parental Investments in Children

We now move on to examine whether female labor market conditions affect parental investments in different ways for boys and girls. In panel A of Table 2, we repeat our main regression (2) 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.

Conclusions are similar when we include municipality-by-gender fixed effects in panel B of Table 2. In this specification, the interaction term is positive and significant for total expenditures, weekday and weekend hours of the mother, as well as weekend hours of the father. In addition, Appendix Table A6 shows that contemporaneous labor market conditions appear to be more important than past labor market conditions, as was the case for aspirations.

5.3 Robustness

In this section, we conduct a number of robustness tests. First, Table A7 examines robustness to alternative specifications. In Panel A, we add individual fixed effects, which control for unobserved characteristics at the individual level, meaning that we rely on changes in labor market conditions over time to estimate the interaction coefficient of interest. In Panel B, 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

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)
A. Municipality Fixed Effects					
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
B. Municipality-Gender Fixed Effects					
Female Emp.	0.12*** (0.012)	-0.16*** (0.030)	-0.16*** (0.043)	0.055** (0.027)	-0.064 (0.058)
Female \times Female Emp.	0.012*** (0.0048)	0.17*** (0.024)	0.60*** (0.034)	-0.00015 (0.025)	0.16*** (0.052)
Observations	536818	220685	219612	208511	207477
Mean of DV	1.424	5.100	9.392	1.914	7.814
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 survey wave fixed effects and municipality fixed effects (in panel A) or municipality-by-gender fixed effects (in panel B). “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.

picking up heterogeneity based on these municipality characteristics, which are correlated with female labor market conditions. With a few exceptions (the marriage regression in panel A and the expenditure regression in both panels), interaction coefficients that were statistically significant in the baseline results remain positive, statistically significant, and of similar magnitude.

In Table A8, we explore alternative labor market variables. First, we replace female employment with the share of women in professional or management jobs, to focus on higher-paying jobs that could be more likely to positively affect educational aspirations and investments. Panel A reports results for our baseline specification, while panel B adds municipality-gender fixed effects. In panels C and D, we use the ratio of female-to-male employment rates to account for the possibility that the gap between male and female labor market conditions could be more relevant for the gender gap in aspirations (and investments).¹⁴ Across all four 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 A9), 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 A9, 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

¹⁴As noted in section 4, most of the variation in the ratio of female-to-male employment rates comes from variation in female employment rates.

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 A10, where coefficient estimates are almost identical to those in Tables 1 and 2.

5.4 Norms and Role Models

Having documented that higher female employment disproportionately improves aspirations for and investments in girls relative to boys, we now attempt to shed light on the potential channels. As outlined in section 2, labor market conditions might affect aspirations by changing social norms, role models, or the predicted returns to the relevant outcome (via changes in the perceived probability of ending up in a state where that outcome has high returns). We have data on social norms and female leadership, which we use to assess the importance of the first two channels.

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 3, 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 A11, 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 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.

In short, the finding that female employment rates have gendered effects on aspirations and investments does not appear to be driven by social norms. In addition to ruling out norms (at least those captured by the available data) as a potential mechanism for our initial findings, these results also rule out norms as a potential confounding variable, providing more support for our identifying assumptions.

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 A12, 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.

These regressions do not suggest an important role for social norms and female leadership,

though we acknowledge that our data are somewhat limited and that better measures of norms and role models could yield different conclusions. Given the lack of evidence for these channels, however, we conclude that the predicted returns (\bar{p}_{jg}) channel is likely to be playing some role. Higher female employment increases a girl’s perceived probability of later getting a job where education, late marriage, and delayed fertility have high returns. This in turn leads her to aspire to obtain more education, get married later, and have children later. This conclusion is also consistent with our finding that contemporaneous labor market conditions matter more than labor market conditions from five years prior. Because social norms and role models take longer to change, we would expect past labor market conditions to be more important if these were the dominant channels.

5.5 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 (2) using female employment rates in panel A, female professional shares in panel B, and the female-male employment ratio in panel C 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). Without multiple waves of data,

we rely solely on cross-sectional variation and therefore view these results as suggestive at best.

Results reported in Table 3 provide evidence that female labor market conditions, in addition to affecting gender gaps in aspirations, may also have 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, exposure to higher female employment during one’s childhood is 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 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: only 2% are married and 1% have had a child.

6 Conclusion

In this paper, we document large gender gaps in aspirations among Japanese youths and their parents: specifically, in children’s own aspirations with respect to education, marriage,

Table 3: Female Employment and Gendered Effects on Realized Outcomes

	(1) Enrolled in School	(2) Enrolled in School	(3) Enrolled in University	(4) Enrolled in University	(5) Married	(6) Married	(7) Has Child	(8) 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)
C. F-M Employment Ratio								
Female	0.099*** (0.013)	0.099*** (0.013)	-0.048*** (0.016)	-0.049*** (0.016)	-0.0046 (0.0056)	-0.0046 (0.0056)	0.0022 (0.0028)	0.0022 (0.0028)
Female \times Female-Male Emp. Ratio	0.014** (0.0061)	0.015** (0.0060)	0.013* (0.0069)	0.012* (0.0067)	0.0027 (0.0022)	0.0030 (0.0021)	0.00055 (0.0011)	0.00061 (0.0010)
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. "Female-Male Emp. Ratio" is the ratio of female to male employment rates 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.

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 higher female employment rates. Consistent with these findings, we also demonstrate that higher female employment is associated with higher parental investments (financial and time) in girls relative to boys.

These results are 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 or individual fixed effects (for outcomes with more than one wave of data). Given that these robustness tests rule out a wide range of alternative explanations, we argue that our results are picking up a causal relationship – that is, female employment affects gender gaps in aspirations and investments. However, we acknowledge that unobserved variables do remain a threat to identification: specifically, time-varying parent or municipality characteristics that are not captured by (or strongly correlated with) the controls that we are able to include in our regressions.

We rule out social norms and role models as the primary mechanisms for the relationships that we document (though more complete information on either of these phenomena could lead to different conclusions). Instead, we hypothesize labor market conditions affect aspirations by changing individuals’ predictions about future returns to the relevant outcomes.

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

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A Appendix

A.1 Basic Aspirations Model

Existing theoretical work typically uses the same basic set-up, where aspirations are modeled as thresholds (Azmat et al., 2020; Dalton et al., 2018; Genicot and Ray, 2017, 2020; La Ferrara, 2019).

We use z to denote some realized outcome from which an individual derives utility, like educational attainment. We use a to denote an individual's aspiration with respect to the realized outcome.¹⁵ The individual's utility function is

$$v(z) + v(\max(z - a, 0)), \quad (3)$$

where $v(\cdot)$ is an increasing, smooth, and strictly concave function, and z is determined stochastically. If an individual's realized outcome surpasses her aspiration threshold, this generates an additional payoff.

The probability distribution of z depends on the amount of effort (h) an individual chooses to exert. Here we assume aspirations are set exogenously, but other work explores the possibility of endogenously chosen aspirations (Azmat et al., 2020; La Ferrara, 2019). In addition to educational attainment, we can also apply this model to aspirations about marriage and fertility, in which case z would represent age of marriage or age of first child.¹⁶

One key point to highlight is that higher aspirations, up until a certain point, lead to higher effort and therefore better outcomes. After this point, effort will drop and remain unchanged by increases in aspirations. Up to this threshold, higher effort shifts the distribution of z such that the expected value of z is higher (i.e., expectations are higher).¹⁷ In short, as

¹⁵ z and a could also represent vectors of different types of outcomes and their relevant aspirations.

¹⁶This assumes that individuals derive utility from delaying marriage and fertility, but we could also model the utility function for these aspiration domains as $v(-z)$, which assumes the opposite.

¹⁷This is shown in Azmat et al. (2020), where z is assumed to have an exponential distribution of the following form: $f(z) = \frac{1}{h}e^{-\frac{1}{h}z}$, which implies that the expected value of z is equal to h .

long as aspirations are not too high, aspirations and expectations will move together.

A.2 Tables and Figures

Table A1: Female Employment and Gender Gaps in Children’s Thoughts about Future Education

	(1)	(2)	(3)	(4)	(5)	(6)
	Work After JH	Vocational After JH	Work After HS	Vocational After HS	Work After Uni	Haven’t Thought
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 \times 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 not thought about their future education are included in all regressions.

Table A2: Female Employment and Gender Gaps in Parental Aspirations for Child's Education

	(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	Haven't Thought
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 \times 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 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 not thought about their child's future education are included 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	Haven't Thought
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 \times 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 not thought about their future marriage are included in all regressions.

Table A4: Female Employment and Gender Gaps in Fertility Aspirations

	(1) Teens	(2) 20-24	(3) 25-29	(4) 30-34	(5) 35-39	(6) 40+	(7) Don't Know Timing	(8) Don't Want Kids	(9) Haven't Thought
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 \times 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. “(t-5)” indicates Female Emp. is taken from five years before the relevant survey wave. 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 not thought about their future fertility are included in all regressions.

Table A5: Lagged Female Employment and Gender Gaps in Aspirations

	(1) Thinking of University	(2) Thinking of University	(3) Thinking of University	(4) Parents want University	(5) Parents want University	(6) Parents want University	(7) Wants to Marry after 30	(8) Wants to Marry after 30	(9) Wants to Marry after 30	(10) Wants First Child after 30	(11) Wants First Child after 30	(12) Wants First Child after 30
Female	-0.082*** (0.0075)	-0.067*** (0.015)	-0.082*** (0.013)	-0.10*** (0.0078)	-0.10*** (0.017)	-0.11*** (0.012)	-0.087*** (0.0052)	-0.096*** (0.013)	-0.086*** (0.0088)	-0.17*** (0.0072)	-0.16*** (0.017)	-0.17*** (0.011)
Female × Female Emp.	0.032*** (0.0077)		0.031 (0.026)	0.023*** (0.0080)		0.046 (0.030)	0.018*** (0.0053)		0.013 (0.018)	0.022*** (0.0076)		0.0022 (0.023)
Female Emp.	0.011 (0.057)		0.0038 (0.058)				-0.0035 (0.045)		-0.0035 (0.045)	0.053 (0.061)		0.056 (0.061)
Female × Female Emp. (t-5)		0.029*** (0.0064)	0.0011 (0.025)		0.019** (0.0076)	-0.023 (0.029)		0.016*** (0.0052)	0.0045 (0.018)		0.020*** (0.0073)	0.019 (0.021)
Female Emp. (t-5)		0.081* (0.045)	0.084* (0.046)					0.015 (0.035)	0.021 (0.037)		0.070 (0.047)	0.067 (0.049)
Observations	64170	64185	64170	27985	27995	27985	48025	48033	48025	44307	44313	44307
Mean of DV	0.60	0.60	0.60	0.44	0.44	0.44	0.13	0.13	0.13	0.25	0.25	0.25
Controls	Parental	Parental	Parental	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. “(t-5)” indicates Female Emp. is taken from five years before the relevant survey wave. 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 A6: Lagged Female Employment and Gender Gaps in Investments

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Log Expenditures	Log Expenditures	Log Expenditures	Weekday Hours (Mother)	Weekday Hours (Mother)	Weekday Hours (Mother)	Weekday Hours (Mother)	Weekend Hours (Mother)	Weekend Hours (Mother)	Weekday Hours (Father)	Weekday Hours (Father)	Weekend Hours (Father)	Weekend Hours (Father)	Weekend Hours (Father)	Weekend Hours (Father)
Female	0.021*** (0.0038)	0.027*** (0.0072)	0.026*** (0.0040)	0.085*** (0.014)	0.083** (0.033)	0.097*** (0.016)	0.30*** (0.019)	0.20*** (0.049)	0.32*** (0.021)	0.0039 (0.013)	-0.061** (0.030)	0.010 (0.014)	0.044* (0.026)	-0.095 (0.070)	0.029 (0.029)
Female \times Female Emp.	0.0059** (0.0030)		0.012 (0.0079)	-0.0028 (0.014)	0.069 (0.055)	0.071*** (0.018)	0.43*** (0.084)	0.15 (0.013)	0.015 (0.013)			-0.058 (0.048)	0.046* (0.025)		0.17 (0.11)
Female Emp.	0.13*** (0.013)		0.047*** (0.011)	-0.016 (0.031)	-0.20*** (0.047)	0.10** (0.040)	-0.14* (0.071)			0.026 (0.026)		0.093** (0.041)	-0.026 (0.057)		-0.005 (0.086)
Female \times Female Emp. (t-5)		0.0049 (0.0032)	-0.0076 (0.0084)		-0.0058 (0.014)	-0.074 (0.051)		0.010 (0.019)	-0.35*** (0.075)	0.014 (0.013)	0.072* (0.042)			0.017 (0.029)	-0.12 (0.099)
Female Emp. (t-5)		0.097*** (0.010)	0.091*** (0.010)		-0.12** (0.047)	-0.065 (0.054)		0.15** (0.066)	0.29*** (0.076)	0.11*** (0.040)	0.056 (0.047)			-0.057 (0.082)	-0.010 (0.098)
Observations	536832	407551	407527	220710	178104	178104	219637	177149	177149	208546	167226	167226	207514	166356	166356
Mean of DV	1.42	1.53	1.53	5.10	4.83	4.83	9.39	9.35	9.35	1.91	1.83	1.83	7.81	7.76	7.76
Controls	Parental	Parental	Parental	Parental	Parental	Parental	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. “(t-5)” indicates “Female Emp.” is taken from five years before the relevant survey wave. 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 A7: Alternative Specifications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Thinking of 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. Individual Fixed Effects									
Female \times Female Emp.	0.058* (0.035)		-0.0061 (0.031)	0.13** (0.052)	0.0075 (0.0050)	0.18*** (0.025)	0.61*** (0.036)	0.021 (0.023)	0.24*** (0.052)
B. Municipality Characteristic Interactions									
Female \times 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
Mean of DV	0.603	0.440	0.126	0.246	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 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 A8: Alternative Labor Market Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Thinking of 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 Professional Share: Baseline Specification									
Female \times 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)
B. Female Professional Share: Municipality-Gender Fixed Effects									
Female \times 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)
C. F-M Employment Ratio: Baseline Specification									
Female \times Female-Male Emp. Ratio	0.028*** (0.0068)	0.020** (0.0080)	0.012** (0.0055)	0.015* (0.0078)	0.0080** (0.0031)	0.015 (0.012)	0.070*** (0.018)	0.0098 (0.012)	0.045* (0.026)
D. F-M Employment Ratio: Municipality-Gender Fixed Effects									
Female \times Female-Male Emp. Ratio	0.097** (0.039)		0.047 (0.040)	0.21*** (0.061)	0.017*** (0.0043)	0.15*** (0.020)	0.49*** (0.029)	0.0023 (0.021)	0.11*** (0.043)
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.

“Female-Male Emp. Ratio” is the ratio of female to male employment rates 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.

Table A9: Attrition

	(1) Attrited	(2) Attrited	(3) 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 \times 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 \times Mother's Ed: High School			-0.058 (0.036)
Female \times Mother's Ed: Non-University Post-Secondary			-0.073** (0.036)
Female \times Mother's Ed: University			-0.074** (0.036)
Female \times Father's Ed: High School			0.052 (0.033)
Female \times Father's Ed: Non-University Post-Secondary			0.053 (0.035)
Female \times 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 A10: Weighted Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Thinking of 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 \times 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 A11: Social Norms, Female Employment, and Gender Gaps

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Thinking of 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 \times 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 \times Non-Traditional Norms (Labor)	0.0075 (0.0057)	0.0044 (0.0066)	0.0070 (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 \times 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 A12: Female Leadership, Female Employment, and Gender Gaps

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Thinking of 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 \times 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 \times 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.