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The Impact of Work-Life Balance Policies on the Time Allocation and Fertility Preference of Japanese Women *

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Abstract

We analyze the impact of work-life balance policies enacted by the government of Japan on the share of time allocated by Japanese women to paid employment, home production and leisure on a typical working day. Using panel data and employing fixed effects to control for unobserved individual heterogeneity, we find that these policies have had some success in altering cultural norms about the gender division of labour in Japanese households. In particular, we find that these policies increased married women's share of time spent in paid employment. However, the increase in the share of time spent in paid employment is not largely compensated by cutting down the share of time spent in home production. This necessitates the need to cut down the share of time spent for leisure, implying a "double burden" of work for women. Further, work-life balance policies in married men's firms do not appear to significantly influence their time allocation between various activities on a typical working day. We find that although work-life balance policies do not appear to influence the desirability of having a child for all women, they help women with children younger than six years raise the share of time spent in paid employment by largely cutting down their time allocation to home production.

Keywords: Labour market policies; paid employment; home production; women; panel data; Japan

JEL Codes: J08; J13; J16; J18; J22

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1 Introduction

Japan is a highly industrialized country with one of the highest standards of living in the world. However, there exists significant gender gap in both labour market participation and time spent performing unpaid domestic chores and care work. According to the Organization for Economic Co-operation and Development (OECD) statistics, the gender gap in labour market participation in Japan is roughly 10 percent higher than that for Australia, Canada, France, Germany, the United Kingdom and the United States. On the other hand, the time spent by men in home production such as childcare, caring for the elderly and all other routine household tasks is rather low in Japan relative to most advanced economies. The OECD Gender Portal reports the average number of minutes spent by men and women in different activities on a typical day (weekdays and weekends) that include paid jobs as well as unpaid work like routine housework and caring for household members. We found that men spend nearly eight times as much time in paid work than in domestic chores in Japan, while men in all OECD countries together spend around 2.3 times as much time in paid jobs as in home production. This indicates a larger share of time in a day that Japanese women need to spend on unpaid domestic chores and caring for children and the elderly relative to their counterparts in other OECD countries, leaving little time for paid employment. Unlike for men, working full-time posed to be a challenging and almost impossible task for women that could be performed alongside raising children. The working environment in Japan was characterized by lack of work-life balance such as long hours of work, large incidents of overtime work, limited availability of childcare facilities in workplaces, limited availability and uptake of family care leave. Cultural norms about gender roles in the household which emphasized women's role in performing household tasks, childcare and providing care to the elderly; while emphasizing men to be the sole earners of income in a household as well as the aforementioned characteristics of workplaces have potentially contributed to the gender gap in labour market participation and engagement in domestic chores as well as care work in Japan.

One of the earliest legislations that aimed at prohibiting gender discrimination in the labour market in Japan was the Equal Employment Opportunity Law (EEOL), which was enacted in 1986. The EEOL prohibited gender discrimination during recruitment, promotion and retirement as well as worker dismissal on account of personal life events like marriage, pregnancy, childbirth and uptake of maternity leave entitlements. The EEOL, however, had no provisions that could help make workplaces women-friendly through generous provision of family care leave system, limiting long hours of work and

overtime work. Importantly, the EEOL did not have any provision that could encourage men to participate in routine household tasks and childcare. Abe (2011) finds that the EEOL has not led to an increase in regular full-time employment for Japanese women. The period from the late 1990s is marked by the enactment of a number of legislations by the government of Japan with the aim of increasing women's participation in paid employment, men's involvement in childcare and raising Japan's birth rate. These policies taken together are referred to as the work-life balance policies. Unlike in other industrialized countries, work-life balance policies in Japan were not promoted to achieve balance between labour and leisure time; but especially with the purpose of balancing time allocation between husbands and wives between paid employment and domestic chores including care work. These policies include obligation to establish family care leave system that include childcare and (elderly parental) care leave systems to help workers who are taking care of children as well as their elderly parents, limitations on late-night work and overtime work as well as measures to shorten working hours especially for workers who are responsible for taking care of children aged three or less, prohibition of discrimination against workers who take leave in order to promote workers to take up these paid leaves, expansion of family care leave system to part-time employees, extension of the childcare leave period as well as establishment of injured or sick child care leave system. Most of these policies were mandated to be implemented by large-sized firms, especially firms with more than 300 employees and smaller firms were required to take steps to implement these measures. Important policy measures taken by the government to increase men's involvement in childcare include extending the childcare leave period to until the child is one year and two months old if both parents take leave, men being allowed to take childcare leave again even after they have taken eight weeks leave during childbirth as well as abolishing prohibition on men from taking childcare leave if they had non-working wives.

This paper focuses on two major work-life balance policies, namely the provision of childcare leave and parental care leave systems (referred to as work-life balance policies in this paper) in firms and studies their impact on time allocation of women and their husbands between paid employment, home production and other activities (that include leisure and personal care)[1]. We focus on the sample of currently working couples who are not engaged in self-employment. We use panel data from the Japanese Panel Survey of Consumers (JPSC) for our analysis. The JPSC provides information on a rich set of

[1]We focus only on childcare leave and parental care leave provision as work-life balance policies and do not consider other provisions such as limits on overtime work, shortening of working hours etc. as the former policies are much more widespread and relatively better adhered to relative to the latter set of policies.

demographic controls as well as other employment characteristics of couples. We find that throughout our period of analysis, job continuity for women increased and it is associated with the availability of work-life balance policies. However, an important aim of work-life balance policies, as was noted earlier, is not only to raise women's time spent in paid employment, but also to encourage men to spend time in home production and caring for others. This is because increase in time spent in paid employment may not result in significantly reducing the time spent performing domestic tasks, leading to "double burden" of work for women, especially in societies with strict social norms about the gender division of labour within the household. Therefore, we primarily focus on how work-life balance policies affect the time allocation of currently working women between various activities on a typical working day. As a comparison, we also study whether work-life balance policies in men's firms affect their time allocation.

To study the effect of work-life balance policies on time allocation for currently married and working women; we use the fixed effects estimation model that potentially account for unobserved individual heterogeneity, year fixed effects that control for overall macroeconomic trends and other demographic variables that could plausibly influence time allocation between paid employment, home production and other activities. We find that work-life balance policies in the woman's firm increase the share of time women spend in paid employment on a typical working day by 1.3 percentage points. Interestingly, we find that the increase in the share of time spent in paid employment is compensated by a decline in the share of time spent in home production and other activities. In our baseline specification, the point estimates suggest an equal reduction in the share of time spent in home production and other activities to compensate for the increase in time spent in paid employment for currently married, working women. Restricting the sample further to include women who have been working for the same firm throughout the survey period, we continue to see that work-life balance policies have raised the share of time spent in paid employment for women. Although the share of time spent in home production and other activities are found to fall by equal magnitude from the point estimates, but they are no longer statistically significant. One possibility is that when we limit our estimation sample further to include women who are also working for the same firm throughout the survey period, we don't have enough variation in our data to identify significant declines in the shares of time spent on home production and other activities in our fixed effects estimation method. Therefore, our baseline analysis shows that increase in time spent in paid employment is not completely offset by decline in time spent on home production on a typical working day for women. This necessitates a decline in the time spent on other activities such as leisure and personal care. Additionally, we also instrument for

the presence of work-life balance policies in the woman's firm with the past prevalence of work-life balance policies at the industry level to which the woman's firm belongs. Our results from the instrumental variable estimation strategy also show that work-life balance policies raise the share of time spent in paid employment and this is largely compensated by a decrease in the share of time spent performing other activities; whereas home production is largely unaffected for currently married, working women. Further, work-life balance policies do not appear to influence women's time allocation on a typical day off and these policies in men's firms do not appear to significantly influence men's time allocation to various activities on a typical working day. This paper also studies the effect of work-life balance policies on the willingness to have a (or another) child for working women, controlling for the number of children the woman already has. We are not able to find significant effect of work-life balance policies on the willingness to have a/another child in our baseline fixed effects estimation model.

We also study whether work-life balance policies differentially influence working women who have young children (children younger than 6) and those with no/older children (children older than 6) in the survey year. We find that for both categories of women, work-life balance policies raise the share of time spent in paid employment; however, the point estimate is slightly larger for women with younger children indicating that work-life balance policies especially help raise the share of time spent in paid employment for working women with young children. Interestingly, while work-life balance policies appear to lower the share of time spent in home production for working women with young children, they appear to lower the share of time spent on other activities for women with no/older children to accommodate for the rise in the share of time spent in paid employment. Further, our results do not appear to be driven only by women who work in the public sector.

The existing literature has largely studied the impact of leave policies on labour market outcomes of mothers in European countries, Canada and the United States. Many of these studies have studied the impact of parental leave policies on taking up of leaves by new parents, mothers' post-birth return to the labour market as well as the effect of the duration of the leaves on fertility and job continuity of women (Ondrich, Spiess, Yang, & Wagner, 2003; Lalive & Zweimuller, 2009; Rossin-Slater, Ruhm & Waldfogel, 2013; Schönberg & Ludsteck, 2014; Rossin-Slater, 2018). On the other hand, a growing literature has also focused on the effect of family leave policies on the uptake of leave by fathers, working hours of fathers, men's involvement in childcare and housework in the aforementioned countries. While some studies indicate limited impact of childcare leave policies for fathers on their involvement with housework and childcare (Ekberg, Eriksson

& Friebel, 2013; Kluve & Tamm, 2013); other studies have indicated that paternity leave entitlements are associated with greater involvement of men in childcare, sharing of domestic tasks among couples, likelihood that only the father takes leave so that the mother does not suffer from career interruption as well as both husband and wife taking leave among dual-earner couples and the ability of very young children to relate to their fathers (Nepomnyaschy & Waldfogel, 2007; Tanaka & Waldfogel, 2007; Almqvist, 2014; Bartel, Rossin-Slater, Ruhm, Stearns & Waldfogel, 2016; Bünning & Pollmann-Schult, 2016; Patnaik, 2016).

However, most of the studies in the context of Japan have focused instead on the impact of work-life balance policies on outcomes of firms that implement these policies. In particular, the existing literature has found that work-life balance policies increase a firm's sales and profit (Abe & Kurosawa, 2006) and raise the total factor productivity marginally for some firms in the long run (Yamamoto & Matsuura, 2011). Other studies have analysed the initial gender composition of the firm's employees when firms implement maternity leave policies (Morita, 2005), proportion of female employees when firms provide work-life balance policy entitlements that are higher than those mandated by the law (Takeishi, 2006) as well as the effect of these policies on raising the proportion of women managers, turnover of female employees in Japanese firms (Hui-Yu & Takeuchi, 2009; Kato & Kodama, 2015; Yamaguchi, 2016). However to the best of our knowledge, whether work-life balance policies have been able to change the behaviour of husbands and wives in Japan in terms of their time allocation as well as women's fertility preference after controlling for observed individual, family and firm characteristics of the couples as well as unobserved heterogeneity, has remained largely unexplored in the existing literature. In this regard, this paper is closer to the analysis of Foster and Stratton (2017) who use panel data to study whether labour market events (in their instance, promotions and terminations) influence the intra-household gender division of labour among married or cohabiting mixed-gender couples in Australia.

The main contribution of this paper has been to investigate the impact of work-life balance policies on time allocation between various activities of women and men. This is particularly important in the context of Japan as work-life balance policies were mostly implemented with a view to helping couples balance time between paid labour market activity and unpaid domestic chores, unlike in other industrialized economies. To the best of our knowledge, this is the first paper that has attempted to study the impact of work-life balance policies on time allocation among couples in Japan. As the government's main focus was to bring about a change in time allocation among couples and thereby affect cultural norms about gender division of labour to some extent through

these policies instead of how these policies can likely affect firms' profitability, our paper contributes to the existing literature by analysing the extent to which these policies have been able to meet the aforementioned goals. Another significant contribution of the paper is using panel data for the purpose of our analysis. This paper uses the Japanese Panel Survey of Consumers, a longitudinal dataset that contains rich source of information on the demographic, educational and labour market conditions of women and their husbands as well as detailed information on their children and parents between 1993 and 2013. Further, this survey records low attrition. Therefore, this dataset is unique in the context of Japan as it largely tracks the same couple over time. Further, using panel data for analysis also helps in controlling for potential unobserved heterogeneity, which could otherwise, influence our outcome variables and thereby make it difficult to infer whether changes in the outcome variables are plausibly on account of the change in policy. As far as we are aware of, this is the first paper that uses longitudinal data from Japan to study the impact of work-life balance policies on time allocation among couples as well as fertility preference of Japanese women.

This paper is organized as follows: Section 2 describes the institutional background and our testing hypothesis; Section 3 describes the data used; Section 4 explains the empirical strategy used in this analysis; Section 5 presents the results and Section 6 concludes.

2 Institutional Background and Testing Hypothesis

Work-life balance policies in Japan were mostly targeted to help balance time allocation between labour market work and domestic chores between husband and wife. This is in contrast to most other OECD countries, where work-life balance policies mostly aim at helping individuals balance time spent working and in leisure.

The earliest legislation aimed at preventing gender discrimination in recruitment, promotion and retirement was the Equal Employment Opportunity Law (EEOL) enacted in 1986. However, as was noted earlier, the EEOL had no provisions that could help make workplaces women-friendly through generous provision of family care leave system, limiting long hours of work and overtime work.

A major change in work-life balance policies was brought about in 2003 with the enactment of the Act on Advancement of Measures to Support Raising Next-Generation Children. The Act required firms with more than 300 employees to establish policies for reducing working hours and offering more generous leaves for caring for one's children and elderly parents. Further, it required that these firms should encourage their workers

to take up these paid leaves. The Act also prohibited discrimination against female workers. While it was mandatory for firms with more than 300 employees to take the aforementioned measures, firms with less than 300 employees were required to make attempts to fulfill the requirements of the Act.

Another major change in work-life balance policies in Japan occurred in 2007 on account of the establishment of the Charter for Work Life Balance Policies. The charter declared specific action policies, and set numerical targets to be reached by 2020. These targets included that the proportion of workers working for more than 60 hours per week should be reduced to 5 percent (to be reduced to 10 percent by 2010); taking up paid leaves should be raised up to 70 percent (to be raised upto 47.4 percent by 2010); the proportion of female workers continuing to work after giving birth to the first child should be increased to 55 percent (to be raised to 38 percent by 2010); and the proportion of male workers taking parental leave should be increased to 13 percent (to be raised to 1.23 percent by 2010). The charter also stated that firms should allow workers to choose flexible working hours more easily, especially to encourage male workers with children younger than six years old to increase the time devoted to domestic chores and caring for children.

These government-directed measures have encouraged firms to establish leave policies for the employees. These environmental changes in the work place motivate us to test the following hypotheses. The first one is whether the availability of these "family friendly" work-life balance policies in the firms, such as leave policies for employees, succeeded in raising working hours for women and reducing time spent performing domestic and care work. The second hypothesis that we test is whether work-life balance policies affect men's working hours and involvement in domestic chores to largely compare how work-life balance policies affect men vis-a-vis women. Finally, we also test whether these policies can influence any other behavioral changes, such as willingness to have a child. We will elaborate on the specific testing methods in Section 4.

3 Data

The data used for our analysis come from the Japanese Panel Survey of Consumers (JPSC) conducted by the Institute for Research on Household Economics. This is a panel survey that initially surveyed women who were aged 24-34 years in 1993 with the survey being conducted for each year after that to track these women over time. Over the years, the survey has added women aged between 24 and 29 years to maintain the representativeness of the sample. We use the Waves 4-21 (corresponding to the years 1996

until 2013) of the survey for our analysis. Further, attrition is reported to be low for the JPSC data. The JPSC data provide rich information on the employment characteristics of the women as well as those of their husbands, educational attainments of the wife and the husband, socio-demographic characteristics of the respondent's household (such as family size, the ages of the family members, their relationship with the respondent, residence in large cities), time allocation of the couple to various activities, willingness to have children and so on. This dataset is unique as it provides detailed information of the couple and tracks the woman (and, therefore, her household) over time. To the best of our knowledge, there is no analogous micro-level survey in Japan that is comparable to the JPSC in this regard.

The work-life balance policies that we consider are the provision of childcare leave and parental care leave policies in the respondent's firm. We create a dummy variable that assumes the value 1 if the respondent's firm has either or both of these policies and is 0 otherwise in the survey year. We do not focus on the provision of limiting unpaid overtime work as anecdotal evidence suggests that limiting overtime work is largely not adhered to on account of cultural norms about the employer-employee relationship in Japan. We analyse the impact of work-life balance policies prevalent in the respondent's firm on her time allocation to paid employment, home production and other activities (such as leisure and personal care) as well as her fertility preference. We also analyse the impact of work-life balance policies prevalent in the respondent's husband's firm on his time allocation between paid employment, home production and other activities. However, as the information on the prevalence of leave policies in the husband's firm is not available for the entire sample period (that is, available for the years from 1996 to 2002), we present these results in the appendix.

For our analysis, we restrict our sample to include only married women who are currently in the labour market throughout the survey years. This is because we are primarily interested to study the time allocation of currently married women. Also, in order to abstract away from the possibility of selectively choosing one's employer on the basis of work-life balance policies, we further restrict our sample to women who have worked for the same firm throughout the sample period and report the results for these alternative specifications [2]. We focus on the impact of these policies on the

[2]There is a possibility that some individuals drop out of our sample due to leaving the labour market and re-enter our sample on account of re-entering the labour force after a few years. This might result in underestimation of the impact of work-life balance policies. However, this is unlikely to be of much concern as it is likely to provide a lower bound on the impact of these policies on intra-household gender division of labour. However, we also report the correlation between job continuity and the prevalence of work-life balance policy in the following section and find that work-life balance policies are associated with a higher probability of job continuity.

intensive margin (that is, time allocation of currently working women) as opposed to the extensive margin (that is, whether or not women choose to enter the labour force). This is because, although work-life balance policies are likely to raise job continuity, it would be interesting to study how working women are able to allocate time to paid and domestic work especially in Japan where limited involvement of men in domestic chores might translate into higher burden of work (of both paid and unpaid domestic work) on women while limiting their time for leisure and personal care. Also, the intention of work-life balance policies is not only raising women's entry into the labour market, but also to guarantee equitable division of labour within the household between paid work and domestic chores. Further, we also exclude those who are self-employed. This is because the role of work-life balance policies is difficult to analyse for those who are self-employed. Lastly, as births outside marriage are rare in Japan, the impact of work-life balance policies on the willingness to have children are largely relevant for currently married women.

3.1 Outcome Variables

The outcome variables that we consider are those with regard to time-use on a typical working day for currently married and employed women. In particular, we consider the proportion of time on a typical working day spent in paid work, home production (which includes time spent performing unpaid domestic chores and care work), other activities (which include leisure and personal care) and commuting. We also consider the unwillingness to have a child as an indicator of fertility preference for women which assumes the value 1 if the respondent is unwilling to have a child and is 0 otherwise. These are our primary outcome variables of interest. In addition, we also look at the aforementioned time-use variables for women on a typical day off and time allocation of the husbands of these women on a typical working day. We report the summary statistics for our sample of analysis in Table 1 here.

Table 1 shows that, on an average, a respondent spends 2% of her time commuting, 29% of her time in paid work, 19% of her time in home production and 51% of her time in other activities on a typical working day. This translates to spending around 28 minutes commuting, 7 hours in paid employment, 4.6 hours in home production and 12 hours in other activities. Comparing with the share of time spent by the husband on similar activities on a typical working day in Table 1, we find that, on an average, 4% of his time is spent commuting (57.6 minutes), 44% of his time in paid employment (10.6 hours), 2% of his time in home production (28.8 minutes) and 50% of his time in other activities (12

Table 1: Descriptive Statistics of Outcome Variables

Sample for Analysis: Variable	Mean	SD	Obs
Share of Wife's Time on a Working Day in:			
Commuting	0.02	0.03	10,941
Paid Employment	0.29	0.10	10,941
Home Production	0.19	0.12	10,941
Other Activities	0.51	0.10	10,941
Share of Wife's Time on a Day Off in:			
Commuting	0.001	0.01	10,882
Paid Employment	0.01	0.05	10,882
Home Production	0.28	0.15	10,882
Other Activities	0.71	0.16	10,882
Share of Husband's Time on a Working Day in:			
Commuting	0.04	0.04	20,916
Paid Employment	0.44	0.09	20,916
Home Production	0.02	0.04	20,916
Other Activities	0.50	0.09	20,916
Share of Husband's Time on a Day Off in:			
Commuting	0.001	0.01	20,818
Paid Employment	0.02	0.06	20,818
Home Production	0.11	0.13	20,818
Other Activities	0.87	0.14	20,818
For Women:			
Unwillingness to Have a Child	0.48	0.51	11,222

Note: Data source is JPSC (1996-2013). The sample is restricted to include currently married women who are employed (not self-employed) throughout the sample period (1996-2013) for the outcome variables corresponding to the proportion of wife's time in her typical working day, day-off and unwillingness to have children. The sample is restricted to husbands who are employed (not self-employed) throughout the sample period (1996-2013) for the outcome variables corresponding to share of husband's time in a typical working day and day-off. The variable "unwillingness to have a child" is a dummy variable that assumes the value 1 if the variable description is true and is 0 otherwise.

hours). We find that although husbands, on an average, are found to spend more time in paid employment; however, large disparity exists between husband and wife in the share of time spent on home production on a typical working day. We also report the summary statistics for the share of time spent on different activities on a typical day-off in Table 1. For both women and their husbands, the share of time spent commuting and in paid employment are very low as it is a day-off. Bulk of the time is spent in home production and other activities on a typical day-off. We find that women are found to spend 28% of their time on home production (6.7 hours), men are found to spend around 11% of their time on home production (2.6 hours) on a typical day-off. 71% of women's time is spent

on other activities (17 hours), while 87% of men's time is spent on other activities (20.8 hours) on a typical day-off. It is important to note that while both women and men spend more time on home production on a typical day-off, the disparities between women's and men's time on home production remains on a day-off as well. The lowermost panel of Table 1 shows that about 48% of women are unwilling to have a child in our sample. Appendix Table A.1 reports the summary statistics on women's time-use during a typical working day and day-off as well as their fertility preference for the sample of currently married, working women who have been working for the same firm during the sample period. We find that the summary statistics of these variables as reported in Appendix Table A.1 are largely similar to those reported in Table 1 here.

3.2 Explanatory Variables

We include a number of variables that are likely to influence time-use and fertility preference of women in our analysis in addition to our key explanatory variable of interest, that is, whether the respondent's firm has childcare leave or careleave policy or both in our main specifications. The summary statistics of these variables are reported in Table 2 here.

Table 2: Descriptive Statistics of Explanatory Variables

Variable	Mean	Standard Deviation	Observations
Childleave/Careleave in firm	0.45	0.50	11,222
Firm Less than 100 Employees	0.47	0.50	11,222
Wife's Age (yrs.)	37.40	6.72	11,222
Husband's Age (yrs.)	39.82	7.75	11,222
Number of Children	1.69	1.03	11,222
Lives in a Big City	0.84	0.37	11,222
Wife is atleast college educated	0.34	0.47	11,222
Husband is atleast college educated	0.36	0.48	11,222
Wife's/Husband's Parents Live with Couple	0.34	0.47	11,222
Husband's Firm Less than 100 Employees	0.45	0.50	11,222

Note: Data source is JPSC (1996-2013). Table 2 is restricted to include currently married women who are employed (not self-employed) throughout the sample period (1996-2013).

Table 2 shows that throughout the sample period 45% of respondents report that their firm has a leave policy. About 47% of the respondents work for firms with less than 100 employees. The average ages of the respondent and the husband are 37.4 years and 39.8 years respectively with low standard deviations. We also find that on an average there are 1.7 children per family and the standard deviation is quite low as well. This indicates that our sample mostly consists of relatively young couples and that the number of children per family is not high. About 84% of the respondents live

in a big city. 34% respondents and 36% husbands are atleast college educated. This shows that the average difference in educational attainment between women and men is low. Also, 34% respondents report that their/their husband's parents live in the same house/compound as the couple. Lastly, 45% husbands work for firms with less than 100 employees. Appendix Table A.2 reports the summary statistics on these variables for the sample of currently married, working women who have been working for the same firm throughout the sample period. Again, we find that the mean and the standard deviations of these variables reported in Appendix Table A.2 appear to be largely similar to those reported in Table 2 here.

4 Estimation Strategy

4.1 Fixed Effects

We estimate the following equation:

$$y_{it} = \mu_i + \theta_t + \beta WLB_{it} + \gamma X_{it} + \varepsilon_{it} \tag{1}$$

Here, y_{it} is the outcome variable for woman i in year t. Our main specification is based on the sample consisting of women who are currently working (but not in self-employment) throughout the survey period. In an alternative specification, we further restrict the sample to include currently married, working women who have been working for the same firm throughout the sample period. The outcome variables we consider are the share of one's typical working day devoted to commuting, paid employment, home production and other activities (including personal care, leisure) for women on a typical working day. We also report the results for similar variables for time-use of women on a typical day-off. Further, we consider the unwillingness to have a /another child as an indicator of fertility preference for women as another outcome variable of interest. The main focus of our study is how leave policies affect time allocation of women. Further, as the information on leave policy availability in the husband's firm is only available until 2002, we present the results for men's time allocation in the appendix for the purpose of comparison with our findings for women.

WLB_{it} is a dummy variable that assumes the value 1 if the woman i 's firm has either childcare leave policy or parental care leave policy or both in year t ; and is 0 otherwise. This is our explanatory variable of interest and thus β is our coefficient of interest. X_{it} is the vector of controls used in our analysis. In particular, we control for demographic characteristics such as ages of the wife and the husband, the number of

children in the household, whether the wife has at least college education, the husband has at least college education, if the couple lives in a large city, the wife's/husband's parents live in the same house/lot as the couple. We also control for whether the wife and the husband work in a firm with less than 100 employees [3]. θ_t are the year fixed effects that are included to control for overall macroeconomic trends that could likely influence time allocation to various activities as well as fertility preferences. μ_i are time-invariant individual/family fixed effects [4]. These are included to control for time-invariant factors at the level of the individual/families such as cultural norms about the household division of labour, fertility preferences. The panel nature of our dataset enables us to control for these fixed effects. ε_{it} is the regression disturbance term that is clustered at the level of the individual/family to account for serial correlation in the errors within families over time.

Our main estimation strategy is individual fixed effects. In order to identify the effect of the leave policy on our outcomes, it is important that the presence of leave policy varies for atleast some individuals for some years. Appendix Table A.3 shows that it is indeed the case in our data. This is largely on account of gradual provision of leave policies by firms during our sample period.

4.2 Instrumental Variable

Additionally, we also present results from instrumental variable (IV) estimation. Our estimation equations are as follows:

$$WLB_{ifht} = \eta_t + \alpha Z_{ih} + \delta X_{ifht} + \upsilon_{ifht} \tag{2}$$

$$y_{ifht} = \theta_t + \beta \widehat{WLB_{ifht}} + \gamma X_{ifht} + \varepsilon_{ifht} \tag{3}$$

Here we instrument for the availability of work-life balance policies at the woman i's firm f in industry h in year t (denoted by WLB_{ifht}) by Z_{ih}, the fraction of firms in the respondent's industry that had work-life balance policies before the start of the JPSC survey (that is, prior to 1993). Therefore, we use past prevalence of work-life balance policies at the industry level as an instrument for current work-life balance policies at the

[3]When we present the results on husband's time allocation in the appendix, the main explanatory variable of interest is whether his firm has a childcare leave or parental care leave policy.

[4]The unit of observation in the JPSC data is the woman. The data collect information on the respondent's household (socio-demographic characteristics as well as employment characteristics of her husband) from the respondent. Therefore, individual fixed effects are analogous to family/household fixed effects in the JPSC data.

firm level of the respondent [5]. Equation (2) is the first stage equation where we regress WLB_{ifht} on the proposed instrument Z_{ih}. Equation (3) is the second-stage equation of the IV estimation. The IV estimation results on the impact of work-life balance policies on time allocation as well as fertility preferences of women are used to investigate whether findings on the impact of work-life balance policies differ across alternative estimation strategies. The validity of the instrument Z_{ih} depends on whether Z_{ih} is correlated with WLB_{ifht} (first stage) and if Z_{ih} influences our outcomes of interest only via WLB_{ifht}, conditional on other controls (exclusion restriction).

Now, the first stage can show us whether Z_{ih} is correlated with WLB_{ifht}. However, the exclusion restriction cannot be tested. Instead, we try to argue that the exclusion restriction is likely to be valid. Individuals are more likely to choose the firms for which they work on the basis of one's skills, specialization relative to considerations about the prevalence of work-life balance policies historically in the industries to which their firms belong. Therefore it is unlikely that historic prevalence of work-life balance policies is likely to influence time allocation and fertility preference of women, except through the current availability of work-life balance policies in the woman's firm, conditional on the controls.

Lastly, we do not conduct a difference-in-difference estimation strategy to understand the effect of work-life balance policies on time allocation and fertility preference. This is because the period from 1996-2013 was marked by a gradual introduction of work-life balance policies by Japanese firms. This was because government policies during this period encouraged firms to introduce these policies, instead of mandating them to do so. In particular, smaller sized firms were given more time to introduce these policies relative to larger sized firms. Figure 1 here shows that throughout the period of our analysis, the availability of work-life balance policies have gradually increased and a greater share of larger firms (those with 100 employees or more) are reported to have work-life balance policies relative to smaller firms. As there was no sudden increase in the availability of these policies at the firm level, we use fixed effects estimation as our main estimation strategy in this setup.

[5]We do not include individual fixed effects in our IV estimation equation. This is because our proposed instrument is historical prevalence of work-life balance policies at the industry level which is time-invariant. Therefore, inclusion of fixed effects would leave with almost no variation in our instrument for the purpose of identification.

Figure 1: Availability of Work-Life Balance Policies by Firm Size

5 Results

5.1 Continuity in the Labour Market

At first, we check whether there exists any association between work-life balance policies at the individual's firm and the probability of continuing in the labour market; before studying the effects of these policies on time allocation of currently working women. Figure 2 here shows the fraction of women who are employed each year starting with 1997, by employment status in the previous year. We observe that during 1997-2013, the fraction of women continuing to work in a year (that is, given that they have been working in the previous year) is higher than the fraction of women joining the labour market. Further, the fraction of women continuing to work is also slightly increasing during this period. Therefore, it would be interesting to see whether work-life balance policies could be associated with the increase in the likelihood of job continuity among women.

Table 3 here presents the correlation between the probability of job continuity and the presence of work-life balance policies in the woman's firm. Here, the outcome variable of interest is whether the woman respondent is working in the current year and the explanatory variable of interest is if her firm has a childcare leave/parental care leave. The sample is restricted to include those women who have been working in the previous year. Column (1) of Table 3 regresses the probability of working this year on leave policy in the woman's firm and individual fixed effects. Column (2) adds year fixed effects and Column (3) further adds socio-demographic characteristics that include ages of the woman and her husband, dummies for whether the woman and her husband are atleast college educated and the number of children she has. Across all the columns of Table

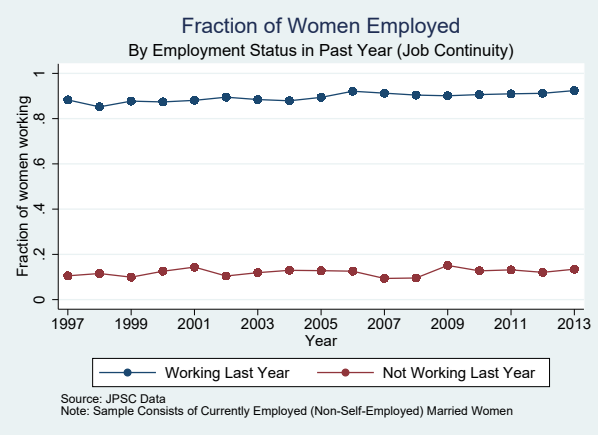

Figure 2: Employment Status This Year Given Employment Status Last Year

3 we find that work-life balance policies have increased the probability that a woman working in the previous year is still working this year. In other words, work-life balance policies are found to be associated with an increased probability of job continuity among women.

Table 3: Association between Job Continuity and Leave Policy for Women

Variable: *If Working this Year*	(1)	(2)	(3)
Leave Policy in the Woman's Firm	0.243***	0.240***	0.240***
	(0.013)	(0.014)	(0.014)
Observations	9,781	9,781	9,781
Individual Fixed effects	Yes	Yes	Yes
Year Fixed Effects	No	Yes	Yes
Socio-Demograhic Controls	No	No	Yes

Note: Data source is JPSC (1996-2013). Individual fixed effects estimation results are reported. Sample is restricted to included women who have been working in the previous year. Robust standard errors clustered at the individual level are reported in parentheses. ***, **,* indicate statistical significance at the 1%, 5% and 10% level of significance respectively. Socio-demographic controls include controls for the ages of the woman and husband, dummies for whether the woman and husband are atleast college educated and the number of children.

Figure 2 and Table 3 here show us that continuity in the labour market is more prevalent relative to joining the labour market and that work-life balance policies appear to be positively correlated with the likelihood of continuing to work for women. However, these findings do not tell us how the time allocation of working women are changing on account of these policies. Firstly, this does not tell us whether women are likely to raise the number of hours worked by assuming full-time working position, for example. Additionally, it is also of great importance as greater number of hours spent in paid employment for women may not lead to a decline in the number of hours spent performing domestic chores or other unpaid care work, especially in countries with strong social

norms about traditional gender roles. This can result in "double burden" of work for women.

5.2 Baseline Results: Time Allocation and Fertility Preference of Working Women

Before studying the impact of work-life balance policies on time allocation of working women, we first consider the trends in the shares of time devoted in performing various activities during 1996-2013. Figure 3 here shows the average time spent performing different activities by currently married, working women on a typical working in Japan during 1996-2013. The figure plots the share of time spent in paid employment, home production and other activities (which include leisure/personal care) averaged across all women for each year.

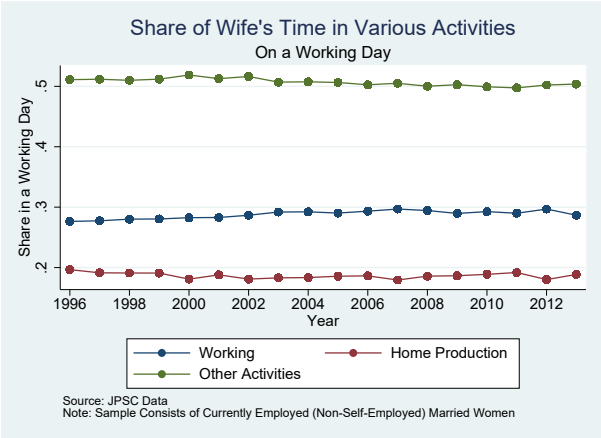

Figure 3: Time Allocation of Employed Married Women in a Working Day

Figure 3 here shows that the average share of time spent in paid employment has been increasing, while the average share of time spent performing other activities, in particular are declining. The share of time spent in home production, on average, appears to be declining during the initial years and relatively stable for the later years during the period of our analysis. Although this figure shows us the shares of time spent in different activities, but these are averaged across all women for each year. However, Figure 3 is helpful in showing the changing patterns of time allocation, on average, across all women during this period.

Table 4 here presents our results on our outcomes of interest. The outcome variables in Panels A, B, C and D are the share of time on a typical working day a working woman spends in paid employment, home production, leisure/personal care and commuting respectively. The sample is restricted to include married and currently working women in

Columns (1) and (2) and to married, currently working women who have been working in the same firm throughout the period of analysis in Columns (3) and (4). Columns (3) and (4) are included to check whether findings in Columns (1) and (2) are not merely being driven by selectively choosing to work for firms that have work-life balance policies. All estimations are individual fixed effects estimations. All columns include controls for ages of the woman and her husband, dummies for whether she and her husband are atleast college educated, the number of children she has, whether her/her husband's parents live with the couple in the same house/compound, whether she lives in a big city and if she works for a firm with less than 100 employees. Columns (2) and (4) also include a dummy for whether her husband works for a firm with less than 100 employees. Year fixed effects are included in all columns. For the purpose of interpretation of the results, we will focus on Columns (2) and (4) of Table 4.

We find that work-life balance policies in the woman's firm significantly raise the proportion of time she spends on a working day in paid employment. Work-life balance policies do not affect the fraction of time spent on a working day commuting. Column (2) of Panel A shows that work-life balance policies raise the fraction of time spent in paid employment on a working day by 1.3 percentage points. Column (2) of Panels B and C show us that work-life balance policies in the woman's firm are found to reduce the fraction of time spent in home production and in leisure/personal care on a typical working day by 0.7 percentage points each. Therefore, the increase in time spent in paid employment is attained by cutting down on both home production and leisure/personal care from Column (2) of Table 4. Relative to the respective means, this translates to around 4.4% increase in the share of time spent in paid employment and a reduction of 3.6% in the share of time spent on home production and 1.3% of the share of time spent on leisure/personal care on a typical working day. When we consider Column (4) of Table 4 which restricts the sample to working women who have been working for the same firm throughout the period of analysis we find that work-life balance policies have raised the fraction of time spent in paid employment on a working day by 1 percentage point and is largely compensated by cutting down on time spent on home production and leisure/personal care (but these estimates are not significant). Therefore, although work-life balance policies are found to raise women's involvement in paid employment; the point estimates suggest that the increase in time spent on paid employment is achieved not by largely cutting down on the time spent on home production on a typical working day. Appendix Table A.4 presents the same analysis as in Table 4 by including additional controls. These controls are dummies for whether the woman is a full time worker and if she works for less than 43 hours a week. The even numbered columns of Appendix Table

Table 4: Share of Women's Time in Different Activities on a Typical Working Day in:

Panel A: *Paid Employment*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	0.012***	0.013***	0.008**	0.010***
	(0.003)	(0.003)	(0.003)	(0.004)
Observations	10,941	9,715	8,209	7,329
Panel B: *Home Production*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	-0.005	-0.007*	-0.004	-0.006
	(0.003)	(0.004)	(0.004)	(0.004)
Observations	10,941	9,715	8,209	7,329
Panel C: *Leisure/Personal Care*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	-0.008**	-0.007**	-0.004	-0.005
	(0.003)	(0.003)	(0.004)	(0.004)
Observations	10,941	9,715	8,209	7,329
Panel D: *Commuting*	(1)	(2)	(3)	(4)
Leave Policy in Wife's Firm	0.001	0.001	-0.00003	0.0003
	(0.001)	(0.001)	(0.001)	(0.001)
Observations	10,941	9,715	8,209	7,329
Socio-Demograhic Controls	Yes	Yes	Yes	Yes
Individual Fixed effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Note: Data source is JPSC (1996-2013). Individual fixed effects estimation results are reported. The sample is restricted to married, currently employed (not self- employed) women working throughout the period in Columns (1) and (2) and to married, currently employed (not self- employed) women working in the same firm throughout the sample period in Columns (3) and (4). Robust standard errors clustered at the individual level are reported in parentheses. ***, **,* indicate statistical significance at the 1%, 5% and 10% level of significance respectively. Socio-demographic controls include controls for the ages of the woman and the husband, dummies for whether the woman and the husband are atleast college educated, the number of children, dummies for whether the woman's/her husband's parents live with the couple, whether residence is in a large city and whether the woman works in a firm with less than 100 employees Even numbered columns also include a dummy for whether the husband works in a firm with less than 100 employees.

A.4 includes analogous controls for the woman's husband [6]. We find that our findings from Appendix Table A.4 are largely similar to those we found in Table 4.

In Appendix Table A.5, we report the impact of work-life balance policies in the husband's firm on his time allocation on a typical working day. Regression specifications are analogous to those in Table 4. For the purpose of interpretation, we focus on the even numbered columns of Appendix Table A.5, where Column (2) is restricted to include husbands who are working and Column (4) is further restricted to include husbands who have been working for the same firm throughout the period of analysis. Now, as

[6]The reason we do not include these controls in our main estimation specification is because these controls are likely to be highly correlated with each other and thereby result in multicollinearity. Therefore, we did not include them in our main preferred specification as reported in Table 4.

the information on the availability of work-life balance policies in the husband's firm is available only until 2002, the sample period is restricted to include the years 1996-2002. This is also the reason why we report the findings for the husband's time allocation in the appendix. Columns (2) and (4) of Appendix Table A.5 show that work-life balance policies in the husband's firm do not appear to influence the share of time that is spent on paid employment, home production and other activities on a typical working day, atleast during the period 1996-2002. For the purpose of comparison with Appendix Table A.5, we re-do our analysis of Table 4 for women by restricting the period of analysis to 1996-2002 and report the findings in Appendix Table A.6. In particular, we report the findings for currently married and employed women throughout the sample period. Columns (1) and (2) in Appendix Table A.6 are analogous to Columns (1) and (2) of Table 4. We find that for the period 1996-2002, the share of time on a working day that women spend in paid employment is higher on account of work-life balance policies in the woman's firm. However, the increase in time spent on paid employment appears to be largely compensated by a decline in time spent on other activities such as leisure and personal care as the share of time spent in home production appears to be largely unaffected. Therefore, we find that work-life balance policies do not appear to influence men's time allocation, but continue to have similar effect on women's time allocation as reported in Table 4 even for the limited number of years for which we have the information on the availability of work-life balance policies for both the woman and her husband.

Table 5 here presents analogous results for the impact of work-life balance policies on the share of time spent performing various activities on a typical day-off for working women. Overall, Table 5 suggests that work-life balance policies do not influence time allocation of women on a typical day-off. This is perhaps not surprising as work-life balance policies are likely aimed at helping individuals balance between paid employment and domestic responsibilities which are relevant for a working day. Binding time constraints do not arise on a day-off as individuals usually do not work on their day-off.

In Table 6 we study whether work-life balance policies can influence fertility preference of working women. The regression specifications are analogous to those in Tables 4 and 5. In particular, we include the number of children the woman already has (we included this as a control in Tables 4 and 5 as well). Table 6 shows us that work-life balance policies do not appear to influence the willingness to have a/another child. This is true even after we restrict our sample to include currently working women who have been working for the same firm throughout the period of analysis (Columns (3) and (4) of Table 6).

Table 5: Share of Women's Time in Different Activities on a Typical Day Off in:

Panel A: *Paid Employment*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	-0.00001	-0.001	-0.0002	-0.0005
	(0.001)	(0.002)	(0.002)	(0.002)
Observations	10,882	9,670	8,159	7,293
Panel B: *Home Production*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	0.003	0.003	0.007	0.006
	(0.004)	(0.004)	(0.005)	(0.006)
Observations	10,882	9,670	8,159	7,293
Panel C: *Leisure/Personal Care*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	-0.003	-0.002	-0.007	-0.005
	(0.004)	(0.004)	(0.005)	(0.006)
Observations	10,882	9,670	8,159	7,293
Socio-Demograhic Controls	Yes	Yes	Yes	Yes
Individual Fixed effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Note: Data source is JPSC (1996-2013). Individual fixed effects estimation results are reported. The sample is restricted to married, currently employed (not self- employed) women working throughout the period in Columns (1) and (2) and to married, currently employed (not self- employed) women working in the same firm throughout the sample period in Columns (3) and (4). Robust standard errors clustered at the individual level are reported in parentheses. ***, **,* indicate statistical significance at the 1%, 5% and 10% level of significance respectively. Socio-demographic controls include controls for the ages of the woman and the husband, dummies for whether the woman and the husband are atleast college educated, the number of children, dummies for whether the woman's/her husband's parents live with the couple, whether residence is in a large city and whether the woman works in a firm with less than 100 employees Even numbered columns also include a dummy for whether the husband works in a firm with less than 100 employees.

Table 6: Fertility Preference for Women: Unwillingness to Have a Child

Variable: *Unwillingness to have a child*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	-0.003	0.001	-0.017	-0.012
	(0.011)	(0.011)	(0.012)	(0.013)
Observations	11,222	9,950	8,398	7,484
Socio-Demograhic Controls	Yes	Yes	Yes	Yes
Individual Fixed effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Note: See table notes of Table 4 for details about data source, controls, standard errors.

5.3 Results: Excluding Public Sector Workers

In this subsection, we report the results on time allocation of working women, but we exclude women working for the public sector. This is because there might be some concern that the effect of work-life balance policies on women's time allocation might be driven only by women working for the public sector. Although 10% of the working

women in our sample work for the public sector, we drop all women working for the public sector from our sample and re-estimate the impact of the availability of work-life balance policies on time allocation of working women. The regressions specifications are analogous to Columns (2) and (4) of Table 4. We report these results in Table 7.

Table 7 shows us that the presence of work-life balance policies increases the share of time spent in paid employment and this is largely compensated by reducing the share of time spent in other activities (Column (1)). These findings are similar to the findings in Table 4. In other words, it is unlikely that our findings for all working women found in Table 4 is driven by women working for the public sector. Work-life balance policies also do not appear to influence the willingness to have a/another child as in Table 6.

Table 7: Women's Time Allocation On a Working day and Fertility Preference: Excluding Public Sector Workers

Panel A: *Paid Employment*	(1)	(2)
Leave Policy in the Woman's Firm	0.011***	0.009**
	(0.003)	(0.004)
Observations	8,612	6,374
Panel B: *Home Production*	(1)	(2)
Leave Policy in the Woman's Firm	-0.005	-0.004
	(0.004)	(0.004)
Observations	8,612	6,374
Panel C: *Leisure/Personal Care*	(1)	(2)
Leave Policy in the Woman's Firm	-0.007**	-0.005
	(0.004)	(0.004)
Observations	8,612	6,374
Panel D: *Unwillingness to have a child*	(1)	(2)
Leave Policy in the Woman's Firm	0.001	-0.006
	(0.012)	(0.014)
Observations	8,838	6,374
Socio-Demograhic Controls	Yes	Yes
Individual Fixed effects	Yes	Yes
Year Fixed Effects	Yes	Yes

Note: The sample excludes women working in the public sector. The sample is restricted to married, currently employed (not self- employed) women working throughout the period in Column (1) and to married, currently employed (not self- employed) women working in the same firm throughout the sample period in Columns (2). Regression specification is analogous to even numbered columns in Tables 4,5,6. For all other details about controls, standard errors; see table notes of Table 4. For ease of exposition, the impact of leave policy on the share of time spent commuting is omitted here.

5.4 Results: Presence of Children

We study the impact of work-life balance policies on the time allocation of women by the presence of children younger than 6. We divide the sample to include those who have children younger than 6 and those whose children are older than 6, including who do not have children in the survey year and report these results in Table 8. We look at the effect of work-life balance policies on currently married, working women in Columns (1) and (2) and those who have been working for the same firm throughout the survey years in Columns (3) and (4). The regression specifications are analogous to even numbered columns of Table 4.

Table 8: Women's Time Allocation On a Working day: Presence of Children

	Young Children	Older/No Children	Young Children	Older/No Children
Panel A: *Paid Employment*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	0.016**	0.009**	0.013	0.006
	(0.007)	(0.004)	(0.010)	(0.004)
Observations	3,125	6,590	2,128	5,201
Panel B: *Home Production*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	-0.015*	-0.0005	-0.013	0.002
	(0.008)	(0.003)	(0.012)	(0.004)
Observations	3,125	6,590	2,128	5,201
Panel C: *Leisure/Personal Care*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	-0.0001	-0.009**	0.002	-0.008*
	(0.006)	(0.004)	(0.009)	(0.004)
Observations	3,125	6,590	2,128	5,201
Socio-Demograhic Controls	Yes	Yes	Yes	Yes
Individual Fixed effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Note: Data source is JPSC (1996-2013). Individual fixed effects estimation results are reported. The sample is restricted to married, currently employed (not self- employed) women working throughout the period in Columns (1) and (2) and to married, currently employed (not self- employed) women working in the same firm throughout the sample period in Columns (3) and (4). The sample is restricted to women having children 6 years or younger in Columns (1) and (3); and having children older than 6 years or no children in Columns (2) and (4). Regression specification is analogous to even numbered columns in Table 4,5, and 6.

Columns (1) and (2) of Table 8 show us that work-life balance policies raise the share of time spent in paid employment for both categories of women. The point estimate is slightly larger for women with children younger than 6. However, we find that for women with children younger than 6, work-life balance policies appear to reduce the share of time spent on home production. In other words, Column (1) of Table 8 shows that

increase in the share of time spent in paid employment on account of work-life balance policy is compensated by cutting down the share of time spent in home production for working women with children younger than 6. Column (2), however shows that for women with children older than 6 or no children, the increase in time spent in paid employment is largely compensated by cutting down the time spent in other activities. However, restricting the sample to include currently married and working women who have been working for the same firm throughout the survey period, we are not able to find any significant effect of work-life balance policies on time allocation of women by the presence of children of various age groups. A possibility could be that as we divide and impose further restriction on the sample for analysis, we are likely losing power to estimate the effect of work-life balance policies using fixed effects estimation.

5.5 Results: Instrumental Variable

In addition to the fixed effects analysis, we also conduct an instrumental variable analysis. As was described earlier in the section on "Estimation Strategy", we use past prevalence of work-life balance policies at the industry level as an instrument for current work-life balance policies at the firm level of the respondent. The information on historic prevalence of work-life balance policies at the industry level was provided by the Social Science Japan Data Archive, Center for Social Research and Data Archives, Institute of Social Science, The University of Tokyo. We report the results of the instrumental variable estimation in Table 9 here. Column (1) reports the results for currently married and working women, while Column (2) reports the results for currently married, working women who have been working for the same firm throughout the survey period.

The first stage is reported in the lowermost panel of Table 9 here. It shows that firms in industries that historically had a higher fraction of firms with work-life balance policies are themselves more likely to have work-life balance policies at present. The F-Stat on the excluded instrument in both columns show us that the instrument is strongly correlated with the presence of work-life balance policies in the respondent's firm. Comparing across different panels in both the columns we find that work-life balance policies increase the share of time women spend in paid employment on a typical working day. Further, we find that although the share of time spent in employment rises, the increase is largely accounted for by decrease in the share of time spent on other activities as the share of time spent on home production is largely unaffected. Therefore, our instrumental variable estimation results are largely qualitatively similar to our fixed effects estimation results reported earlier.

Table 9: Women's Time Allocation On a Working day and Fertility Preference: Instrumental Variable Results

Panel A: *Paid Employment*	(1)	(2)
Leave Policy in the Woman's Firm	0.116***	0.122**
	(0.043)	(0.048)
Observations	9,666	7,301
Panel B: *Home Production*	(1)	(2)
Leave Policy in the Woman's Firm	-0.049	-0.042
	(0.043)	(0.047)
Observations	9,666	7,301
Panel C: *Leisure/Personal Care*	(1)	(2)
Leave Policy in the Woman's Firm	-0.092**	-0.102**
	(0.043)	(0.047)
Observations	9,666	7,301
Panel D: *Unwillingness to have a child*	(1)	(2)
Leave Policy in the Woman's Firm	-0.312**	-0.350**
	(0.141)	(0.161)
Observations	9,893	7,452
First Stage:	(1)	(2)
Outcome: Leave Policy in the Woman's Firm		
Fraction of firms in the industry that had any WLB policy before JPSC	0.119***	0.125***
	(0.024)	(0.028)
F-Stat on Excluded Instrument	23.71	19.22
Observations	9,666	7,301
Socio-Demograhic Controls	Yes	Yes
Individual Fixed effects	Yes	Yes
Year Fixed Effects	Yes	Yes

Note: The sample excludes women working in the public sector. The sample is restricted to married, currently employed (not self- employed) women working throughout the period in Column (1) and to married, currently employed (not self- employed) women working in the same firm throughout the sample period in Columns (2). Regression specification is analogous to even numbered columns in Tables 4,5,6. For all other details about controls, standard errors; see table notes of Table 4. For ease of exposition, the impact of leave policy on the share of time spent commuting is omitted here.

6 Conclusion

We have studied the effect of work-life balance policies, specifically childcare and parental care leave policies, enacted by the government of Japan on time allocation of married, currently working women between paid employment, home production and other activities that include leisure/personal care for the period 1996-2013 using the JPSC panel data. At first, we find that the likelihood of continuing to work increased during this period for women and this appears to be associated with the presence of work-life balance policies in firms. Using fixed effects estimation, we find that work-life balance policies raise the share of time women spend in paid employment. However, the rise in the share

of time spent in paid employment is compensated by reducing the time spent in other activities, including leisure as the share of time spent in home production does not fall to the extent that it can largely compensate for the increased share of time spent in paid employment. Further, work-life balance policies are especially found to raise the share of time that women with younger children spend in paid employment. However, these policies do not influence men's time allocation on a typical working day. Further, we don't find that work-life balance policies have significantly influenced the willingness to have children for women during this period.

Our findings show the importance of policies in raising the time that women can spend in paid employment. However, work-life balance policies appear to have limited influence on the ability of women to largely reduce the time they need to spend on home production in this case. This is likely because of relatively strict gender norms about the intra-household gender division of labour. Therefore, even though labour market policies can encourage women to spend more time working; however, this necessitates decrease in the share of time spent in other activities such as personal care and leisure. On one hand, greater engagement in paid work is welfare-enhancing for women. But the loss of welfare from reduction in the time for leisure and personal care on account of inability to largely cut down the share of time spent performing domestic tasks is also seen to occur during the survey period. How these phenomena can influence subjective well-being of working women in Japan is an interesting topic for future research.

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Appendix Tables

Table A.1: Descriptive Statistics of Outcome Variables: Married, Working Women and Working for the Same Firm

Variable	Mean	SD	Obs
Share of Wife's Time on a Working Day in:			
Commuting	0.02	0.03	8,209
Paid Employment	0.30	0.10	8,209
Home Production	0.18	0.12	8,209
Other Activities	0.50	0.10	8,209
Share of Wife's Time on a Day Off in:			
Commuting	0.001	0.01	8,159
Paid Employment	0.01	0.04	8,159
Home Production	0.28	0.15	8,159
Other Activities	0.71	0.16	8,159
For Women:			
Unwillingness to Have a Child	0.51	0.50	8,398

Note: Data source is JPSC (1996-2013). The sample is restricted to include currently married women who are employed (not self-employed) and working for the same firm throughout the sample period (1996-2013) for the outcome variables corresponding to the proportion of wife's time in her typical working day and unwillingness to have children.

Table A.2: Descriptive Statistics of Explanatory Variables: Married, Working Women and Working for the Same Firm

Variable	Mean	Standard Deviation	Observations
Childleave/Careleave in firm	0.49	0.50	8,398
Firm Less than 100 Employees	0.45	0.50	8,398
Wife's Age (yrs.)	38.31	6.54	8,398
Husband's Age (yrs.)	40.70	7.60	8,398
Number of Children	1.70	1.02	8,398
Lives in a Big City	0.83	0.37	8,398
Wife is atleast college educated	0.35	0.48	8,398
Husband is atleast college educated	0.37	0.48	8,398
Wife's/Husband's Parents Live with Couple	0.36	0.48	8,398
Husband's Firm Less than 100 Employees	0.43	0.49	8,398

Note: Data source is JPSC (1996-2013). The sample is restricted to include currently married women who are employed (not self-employed) and working for the same firm throughout the sample period (1996-2013).

Table A.3: Leave Policy Availability for Married Working Women

Panel A: *All Women* Year	No Leave Policy	Has Leave Policy	Total
1996	387	0	387
1997	264	211	475
1998	274	208	482
1999	279	204	483
2000	287	208	495
2001	304	207	511
2002	303	197	500
2003	365	272	637
2004	354	269	623
2005	351	280	631
2006	359	288	647
2007	342	295	637
2008	363	361	724
2009	379	379	758
2010	378	392	770
2011	388	392	780
2012	369	413	782
2013	408	492	900
Total	6,154	5,068	11,222
Panel B: *Working for Same Firm* Year	No Leave Policy	Has Leave Policy	Total
1996	285	0	285
1997	146	151	297
1998	184	174	358
1999	183	184	367
2000	193	189	382
2001	206	177	383
2002	219	168	387
2003	203	171	374
2004	233	224	457
2005	245	234	479
2006	266	235	501
2007	254	257	511
2008	262	274	536
2009	280	318	598
2010	278	333	611
2011	273	337	610
2012	270	357	627
2013	270	365	635
Total	4,250	4,148	8,398

Note: Data source is JPSC (1996-2013). The sample is restricted to include currently married women who are employed (not self-employed) throughout the sample period (1996-2013) in Panel A and is restricted to include currently married women who are employed (not self-employed)and working for the same firm throughout the sample period (1996-2013) in Panel B.

Table A.4: Additional Controls: Share of Women's Time in Different Activties on a Typical Working Day & Fertility Preference:

Panel A: *Paid Employment*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	0.007***	0.009***	0.005	0.008**
	(0.003)	(0.003)	(0.003)	(0.003)
Observations	10,941	9,715	8,209	7,329
Panel B: *Home Production*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	-0.003	-0.005	-0.003	-0.005
	(0.003)	(0.003)	(0.004)	(0.004)
Observations	10,941	9,715	8,209	7,329
Panel C: *Leisure/Personal Care*	(1)	(2)	(3)	(4)
Leave Policy in the Woman's Firm	-0.004	-0.005	-0.001	-0.003
	(0.003)	(0.003)	(0.004)	(0.004)
Observations	10,941	9,715	8,209	7,329
Panel D: *Commuting*	(1)	(2)	(3)	(4)
Leave Policy in Wife's Firm	0.001	0.001	0.0001	0.0003
	(0.001)	(0.001)	(0.001)	(0.001)
Observations	10,941	9,715	8,209	7,329
Panel E: *Unwillingness to have a child*	(1)	(2)	(3)	(4)
Leave Policy in Wife's Firm	-0.002	0.001	-0.016	-0.011
	(0.011)	(0.011)	(0.012)	(0.013)
Observations	11,222	9,950	8,398	7,484
Socio-Demograhic Controls	Yes	Yes	Yes	Yes
Additional Controls	Yes	Yes	Yes	Yes
Individual Fixed effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Note: Data source is JPSC (1996-2013). Individual fixed effects estimation results are reported. The sample is restricted to married, currently employed (not self- employed) women working throughout the period in Columns (1) and (2) and to married, currently employed (not self- employed) women working in the same firm throughout the sample period in Columns (3) and (4). Robust standard errors clustered at the individual level are reported in parentheses. ***, **,* indicate statistical significance at the 1%, 5% and 10% level of significance respectively. Socio-demographic controls include controls for the ages of the woman and the husband, dummies for whether the woman and the husband are atleast college educated, the number of children, dummies for whether the woman's/her husband's parents live with the couple, whether residence is in a large city and whether the woman works in a firm with less than 100 employees. Even numbered columns also include a dummy for whether the husband works in a firm with less than 100 employees. Additional controls include controls for whether the woman is a full-time worker and whether she works for less than 43 hours in a week. The even numbered columns include analogous controls for the woman's husband.

Table A.5: Share of Husband's Time in Different Activties on a Typical Working Day in:

Panel A: *Paid Employment*	(1)	(2)	(3)	(4)
Leave Policy in the Husband's Firm	0.003	0.002	0.004	0.003
	(0.003)	(0.005)	(0.003)	(0.005)
Observations	6,335	2,894	5,774	2,626
Panel B: *Home Production*	(1)	(2)	(3)	(4)
Leave Policy in the Husband's Firm	0.002	0.0001	0.002	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	6,335	2,894	5,774	2,626
Panel C: *Leisure/Personal Care*	(1)	(2)	(3)	(4)
Leave Policy in the Husband's Firm	-0.006**	-0.002	-0.008***	-0.001
	(0.003)	(0.005)	(0.003)	(0.005)
Observations	6,335	2,894	5,774	2,626
Panel D: *Commuting*	(1)	(2)	(3)	(4)
Leave Policy in Husband's Firm	0.002	0.0001	0.001	-0.001
	(0.001)	(0.002)	(0.001)	(0.002)
Observations	6,335	2,894	5,774	2,626
Socio-Demograhic Controls	Yes	Yes	Yes	Yes
Individual Fixed effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Note: Data source is JPSC (1996-2002). Information on the husband's leave policy is available only upto 2002. Therefore, the sample is restricted only upto 2002 here. Individual fixed effects estimation results are reported. The sample is restricted to husbands of currently employed (not self- employed) women working throughout the period in Columns (1) and (2) and to husbands of currently employed (not self- employed) women where the husbands have been working in the same firm throughout the sample period in Columns (3) and (4). Robust standard errors clustered at the individual level are reported in parentheses. ***, **,* indicate statistical significance at the 1%, 5% and 10% level of significance respectively. Socio-demographic controls include controls for the ages of the woman and the husband, dummies for whether the woman and the husband are atleast college educated, the number of children, dummies for whether the woman's/her husband's parents live with the couple, whether residence is in a large city and whether the husband works in a firm with less than 100 employees. Even numbered columns also include a dummy for whether the woman works in a firm with less than 100 employees.

Table A.6: Restricted upto 2002: Share of Women's Time in Different Activties on a Typical Working Day in:

Panel A: *Paid Employment*	(1)	(2)
Leave Policy in the Woman's Firm	0.018***	0.018***
	(0.004)	(0.004)
Observations	3,270	2,921
Panel B: *Home Production*	(1)	(2)
Leave Policy in the Woman's Firm	-0.005	-0.005
	(0.005)	(0.006)
Observations	3,270	2,921
Panel C: *Leisure/Personal Care*	(1)	(2)
Leave Policy in the Woman's Firm	-0.012**	-0.012**
	(0.005)	(0.006)
Observations	3,270	2,921
Panel D: *Commuting*	(1)	(2)
Leave Policy in Wife's Firm	-0.001	-0.001
	(0.002)	(0.002)
Observations	3,270	2,921
Socio-Demograhic Controls	Yes	Yes
Individual Fixed effects	Yes	Yes
Year Fixed Effects	Yes	Yes

Note: Data source is JPSC (1996-2002). The data are restricted upto year 2002. Individual fixed effects estimation results are reported. The sample is restricted to married, currently employed (not self- employed) women working throughout the period in Columns (1) and (2). Robust standard errors clustered at the individual level are reported in parentheses. ***, **,* indicate statistical significance at the 1%, 5% and 10% level of significance respectively. Socio-demographic controls include controls for the ages of the woman and the husband, dummies for whether the woman and the husband are atleast college educated, the number of children, dummies for whether the woman's/her husband's parents live with the couple, whether residence is in a large city and whether the woman works in a firm with less than 100 employees Even numbered columns also include a dummy for whether the husband works in a firm with less than 100 employees.