Lessons from the Rise of Women's Labor Force Participation in Japan

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Figures:

Figures 4a. and 4b. Educational Attainment of Prime-age Women in 2000 and 2016 and Labor Force Participation of Prime-age Women in 2000 and 2016, by Educational Attainment

Source: Authors' calculations; Japanese Statistics Bureau Population Census (2000) and Labour Force Survey (2016); Current Population Survey Annual Social and Economic Supplement, Bureau of Labor Statistics.

Note: Prime-age indicates ages 25–54. Japanese educational attainment categories equated to "High school or less" are "Elementary school or junior high school" and "Senior high school or middle school." "Some college" in the U.S. is aligned with the Japanese category of "Junior college or higher professional school." Total population for Japan excludes those who are currently attending school, those who never attended school, and graduates whose schooling does not fall into the given educational attainment categories. Japanese data for 2016 reported in the tens of thousands.

Figures 5a and 5b. Marital Status of Prime-age Women in 2000 and 2016 and Labor Force Participation of Prime-age Women in 2000 and 2016, by Marital Status

Source: Authors' calculations; Japanese Statistics Bureau Population Census (2000) and Labour Force Survey (2016); Current Population Survey Annual Social and Economic Supplement, Bureau of Labor Statistics.

Note: Prime-age indicates ages 25–54. Total population for Japan excludes those who do not fall into the given marital status categories. Japanese data for 2016 reported in the tens of thousands.

Figure 6. Labor Force Participation and Selected Japanese Policy Developments, 1968–2016

Source: CESifo 2015; Ikuko 2017; Japan Times 2016; Organisation for Economic Co-operation and Development Economic Surveys; Organisation for Economic Co-operation and Development Labour Force Statistics; Rawstron 2011.

Note: Where possible, date is the date of policy enactment rather than passage of law.

Other Calculations:

GDP counterfactual:

"If U.S. prime-age women had gained as much ground from 2000 to 2016 as their Japanese counterparts, one simple calculation suggests that GDP in the United States would have been around $800 billion (over 4%) higher in 2016 than it actually was, increasing GDP per person by nearly $2,500. (page 2)

Source: GDP from Bureau of Economic Analysis; Labor Force Participation Rates from Organisation for Economic Co-operation and Development Labour Force Statistics; Annual earnings from Current Population Survey Annual Social and Economic Supplement; Population from U.S. Census Bureau Annual Estimates of the Resident Population 2016.

Note: For this calculation, we assumed that the additional labor force participants would have annual earnings equal to the mean annual earnings of prime-age female labor force participants in 2016. We further assumed that GDP increases proportionally with workers' annual earnings, i.e., a doubling of aggregate earnings would induce a doubling of GDP.

We estimated the counterfactual GDP using the equation:

$$GDP^{US} \times \frac{\hat{E}_{paw} \cdot N_{paw}}{\hat{E}_{all} \cdot N_{all}} \times \frac{LFPR_{paw}^{US} + \Delta}{LFPR_{paw}^{US}} + GDP^{US} \times \left(1 - \frac{\hat{E}_{paw} \cdot N_{paw}}{\hat{E}_{all} \cdot N_{all}}\right)$$

where all time subscripts above are 2016. Δ is $(LFPR_{paw,2016}^{J} - LFPR_{paw,2000}^{J}) - (LFPR_{paw,2016}^{US} - LFPR_{paw,2000}^{US})$, i.e., the percentage points relative improvement in Japanese prime-age women's participation. $\hat{E}_{paw}$ is mean annual earnings for prime-age women's participation, $\hat{E}_{all}$ is mean annual earnings for all earners, and N is the population count of earners.

Reweighting by age distribution:

"However, the contributions of aging from 2000 to 2016 were negligible in both countries, raising the prime-age participation rate by 0.1 percentage points in Japan and reducing it by 0.1 percentage points the United States." (page 4)

Source: Bureau of Labor Statistics Civilian Noninstitutional Population and Labor Force Participation Rates by age (2000 and 2016); Japanese Labour Force Survey Historical Data.

Note: Counterfactual prime-age labor force participation rates were calculated by applying 2000 prime-age women's LFPRs to 2016 prime-age women's population distributions for the U.S. and Japan, using the following formula:

$$\sum_{i=1}^{n} (LFPR_{i,2000} \times Share_{i,2016})$$

where each i is an age group (25–29, 30–34, 35–39, 40–44, 45–49, and 50–54), n is the number of age groups, and $Share$ is the portion of the total prime-age women's population represented by each age group.

Reweighting by educational attainment:

"However, only 0.2 percentage points of the increase in prime-age Japanese women's participation can be ascribed to shifts in educational attainment… Because labor force participation is more strongly associated with education in the United States, the 2000–16 increase in educational attainment would have been expected to lead to a 1.4 percentage point increase in participation." (page 4)

Source: Current Population Survey Annual Social and Economic Supplement, Japanese Population Census (2000), Japanese Labour Force Survey (2016).

Note: Counterfactual prime-age labor force participation rates were calculated by applying 2000 prime-age women's LFPRs to 2016 prime-age women's educational distributions for the U.S. and Japan, using the following formula:

$$\sum_{i=1}^{n} (LFPR_{i,2000} \times Share_{i,2016})$$

where each i is an educational attainment group (high school or less, some college, and college or above), n is the number of groups, and $Share$ is the portion of the total prime-age women's population represented by each group.

Reweighting by marital status:

"Indeed, 1.7 percentage points of the increase in Japanese prime-age women's participation can be accounted for by shifts in marital status. A similar calculation for the United States explains only a 0.5 percentage point increase in the U.S. participation rate." (page 5)

Source: Current Population Survey Annual Social and Economic Supplement, Japanese Population Census (2000), Japanese Labour Force Survey (2016).

Note: Counterfactual prime-age labor force participation rates were calculated by applying 2000 prime-age women's LFPRs to 2016 prime-age women's population distributions for the U.S. and Japan, using the following formula:

$$\sum_{i=1}^{n} (LFPR_{i,2000} \times Share_{i,2016})$$

where each i is a marital status group (never married, married, and divorced or widowed), n is the number of groups, and $Share$ is the portion of the total prime-age women's population represented by each group.

Part-time calculation:

"the excess increase in Japanese women's part-time employment (above that of men) was 4.3 percentage points, nearly half of the increase in prime-age women's labor force participation." (page 8)

Source: Organisation for Economic Co-operation and Development Labour Force Statistics; Bureau of Labor Statistics Employment and Civilian Noninstitutional Population, Japanese Labour Force Survey Historical Data.

Note: The share of labor force participation increase attributed to increases in women's part-time work was calculated with the following equation:

$$\left(\frac{PT_{paw,2016}}{Pop_{paw,2016}} - \frac{PT_{paw,2000}}{Pop_{paw,2000}} \right) - \left(\frac{PT_{pam,2016}}{Pop_{pam,2016}} - \frac{PT_{pam,2000}}{Pop_{pam,2000}} \right)$$

where PT is the number of prime-age Japanese workers, Pop is the total prime-age population, paw is prime-age women, and pam is prime-age men.

Long-term care calculation:

"In Japan, growth in long-term care employment would have produced a 0.8 percentage point increase in women's participation from 2005 to 2015, given the initial gender composition of long-term care employment and all else equal; the equivalent increase in the United States was also 0.8 percentage points."(endnote 4)

Source: Organisation for Economic Co-operation and Development Health Statistics; Bureau of Labor Statistics Employment and Civilian Noninstitutional Population, Japanese Labour Force Survey Historical Data.

Note: The increase in women's labor force participation related to growth in the long-term care services sector was calculated in each country with the following equation:

$$\frac{F_{Y1} \times Emp_{paw,2015} \times LTC_{2015}}{Pop_{paw,2015}} - \frac{F_{Y1} \times Emp_{paw,2005} \times LTC_{2005}}{Pop_{paw,2005}}$$

where F_{Y1} is the share female of long-term care workers in the earliest year available (2003 for Japan and 2005 for the U.S. due to data limitations), Emp_{paw} is the share of all female employment attributable to prime-age women in a given year, LTC is the reported number of formal long-term care workers in a given year, and Pop_{paw} is the total prime-age female population in a given year.

Earnings calculations:

"However, the post-2000 patterns of Japanese and U.S. women's wage growth belie this explanation: annual real wage growth has been 0.3 percent and 0.4 percent for Japanese prime-age women and U.S. women, respectively." (page 5)

"Both Japanese and U.S. men's inflation-adjusted wages have been roughly stagnant from 2000 to 2016." *(page 6)*

"This may be related to the much smaller Japanese wage premium associated with college degrees — where prime-age college graduate women make 48 percent more than those with only a high school education — compared with the 98 percent bonus enjoyed by college-educated U.S. women." (endnote 6)

Source: Japanese Basic Survey on Wage Structure; Japanese Statistics Bureau 2015-Base Consumer Price Index; Current Population Survey Outgoing Rotation Group; Bureau of Labor Statistics CPI-U-RS.

Note: Japanese weekly earnings were calculated with the following equation:

$$\left(Monthly\ contractual\ cash\ earnings\ +\ \frac{Annual\ special\ cash\ earnings}{12} \right) \div 4.34524$$

Where 4.3452 is the standard monthly to weekly conversion coefficient and contractual cash earnings represent both scheduled earnings and unscheduled overtime earnings. This is deflated using the Japanese Statistics Bureau 2015-Base Consumer Price Index. The Basic Survey on Wage Structure is limited to employees at establishments with five or more regular employees, and excludes the public sector and some non-regular workers.

While the Japanese data is reported in averages, U.S. earnings were reported as a median due to top-coding in the CPS dataset, and used the IPUMS-generated EARNWEEK variable for weekly earnings.

Note on Labor Force Participation Rates:

Throughout the paper, the denominator for the labor force participation rate differs slightly between the U.S. and Japan. U.S. rates refer to the portion of the civilian, non-institutional population that is currently working or looking for work. Japanese data, however includes institutionalized and armed forces members in its denominator.