Does Maternity Leave Duration Affect Labor Force Participation and Productivity?

Erkmen Giray Aslım[†] Irina Panovska[‡] M. Anıl Taş[*]

February 24, 2019

Abstract

This paper evaluates the effects of maternity leave duration on female and male labor force participation and on overall macroeconomic productivity in emerging markets. We build a comprehensive maternity leave data set for a panel of middle and high-income countries at annual frequency. Our data set augments publicly available data on maternity leave with narrative evidence that identifies the exact dates when legislative changes to maternity leave policies were enacted and enforced. The higher data frequency allows us to study both the short-term and the intermediate-term effects of maternity leave. Maternity leave has positive but limited effects on female labor force participation, but it significantly increases male labor force participation. There is some evidence that increases in maternity leave duration decrease productivity in the short run, but there are no significant adverse effects at longer horizons. We also find evidence of substitutability between male and female workers and strong evidence in favor of a nonlinear relationship between GDP per capita and labor force participation.

Keywords: labor force participation, female labor force participation, maternity leave, maternity leave duration

[†]Private Enterprise Research Center, Texas A&M University, College Station, TX USA 77845. E-mail: easlim@tamu.edu
[‡]Department of Economics, Lehigh University, Bethlehem, PA USA 18015.
[*]Department of Economics, Bilkent University, 06800 Ankara, Turkey.

1. Introduction

Changes in the female labor force participation rate have been receiving increasing attention as potential drivers of economic growth and productivity in the long run. For example, the World Bank's 2012 World Development Report emphasizes that increases in gender equality enhance economic efficiency across the world and argues that gender equality is not only important in its own right, but it is also "smart economics" because it is correlated with increases in economic growth.

Similarly, a large body of economic literature finds that increases in female labor force participation could increase economic growth and productivity in the long run both for developing and developed economies. For example, Steinberg and Nakane (2012) show that higher female labor force participation can lead to economic growth in rapidly aging developed economies such as Japan, and Petersson, Mariscal, and Ishi (2017) show that increases in the female labor force participation in Canada would raise overall labor productivity by 0.2 to 0.3 percentage points a year. Loko and Diouf (2009) show that increases in gender equality lead to total factor productivity gains in developing countries, and De Jong and Tsiachristas (2008) show that female labor force participation leads to productivity growth if workers can adapt to innovation. However, McGuckin and van Ark (2005) point out that increases in female labor force participation could also lead to short-term productivity losses when new entrants are older or reintegrating into the work force after a period of inactivity.

Given the extensively documented evidence that increases in female labor force participation are beneficial for the economy in the long run (where the long run is defined using the conventional macroeconomic definition as effects at lower frequencies 8 or more years after implementation), a natural question that arises in this context is whether policy changes can affect female labor force participation and overall productivity, and whether there are any negative or unexpected short or intermediate-run effects. In this study we focus on exploring whether changes in the duration of maternity leave affects labor force participation and whether it directly affects macroeconomic productivity in the very short run (a year after a policy change) and at intermediate horizons (5 years after implementation, corresponding to business cycle frequencies). We focus both on the short-run and the intermediate horizon responses of male and female labor force

participation and on overall macroeconomic productivity.

One of the innovations of this paper is that we compile a data set at annual frequency for a panel of countries that allows us to compare the effects of a change in the duration of leave both at shorter horizons and at longer horizons. The panel setting allows us to explore how the effects of leave duration depend on the level of economic activity. Many other studies that focus on the effects of leave for a panel of countries use maternity leave data that is only available at 5-year frequencies (for example, the commonly used International Labour Organization, ILO, data set, only provides data sampled ever five years). Higher frequency data not only allows us to study the effects of policy at shorter horizons, it also mitigates potential problems about maternity leave being driven by economic conditions. While it is not implausible that changes in policy over a 5-year horizon can be affected by average economic and social conditions within the last five year window, because of legislative lags, it is unlikely that policy changes respond to economic conditions immediately at higher frequencies.[1]

There is a broad consensus in the literature that better maternity leave has significant development benefits, in particular when it comes to infant mortality and health outcomes (see, for example, Fallon, Mazar, and Swiss, 2017 for evidence that maternity leave decreases infant and child mortality and for a very extensive review of the literature). However, the empirical evidence in favor of a significant positive link between maternity leave and female labor force participation is much more mixed. For example, Zveglich and van der Meulen Rodgers (2003), Jaumotte (2004), Blau and Kahn (2013), and Baum and Ruhm (2016) find evidence of positive link between female labor force participation and maternity leave.[2] On the other hand, Fallon, Mazar, and Swiss (2017) find no link between maternity leave and labor force participation for a panel of 117 developing countries, whereas Besamusca et al. (2015) find that the link varies and is very dependent on the age cohort.

Maternity leave could have two opposing effects on female labor force participation. On the one hand, it could facilitate women's reentry in the labor force and thus lead

[1]The legislative lag assumption is extremely common in the policy literature, especially in the macroeconomic policy literature. Policy variables are allowed to respond to past economic conditions, but they are assumed not to respond to current economic conditions within a shorter time window both because policy makers usually need time to obtain information about and acknowledge changes in economic conditions at higher frequencies, and because of the legislative lags associated with policy proposals.

[2]However, this link varies based on the duration of the leave. Most studies find that the positive link disappears or reverses in cases when the leave provisions are longer than 20 weeks.

to increases in labor force participation. On the other hand, long maternity leave could lead to potential loss of skills or to employer discrimination, thus reducing female labor force participation. Furthermore, when comparing these effects across different countries, the results could be muddled by the fact that the size of the informal sector varies substantially across countries, and by the fact that labor force participation is very likely to be affected by the level of economic development. In order to qualify for benefits, such as maternity leave, an individual usually has to demonstrate some level of attachment to the formal labor force. In low-income developing countries, labor force participation tends to be high due to economic necessity, but it is very likely that a lot of women participate in the informal sector, thus making them ineligible for maternity benefits, and maternity leave is therefore expected to have very small or insignificant effects on labor force participation, as shown by Fallon, Mazar, and Swiss (2017) when they control for the moderating effects of GDP per capita. On the other hand, in developed high-income economies labor force participation can be seen as both economically and socially desirable (Besamusca et al., 2015).

While the literature has focused extensively on multi-country analysis for developed OECD countries or for lower-income countries (see, for example Jaumotte, 2004 or Blau and Kahn, 2013 for studies focusing on OECD countries, or Fallon, Mazar, and Swiss, 2017 for evidence and literature review of studies focusing on developing countries), theory implies that the nonlinear link between economic development, policy, and labor force participation is expected to be particularly strong in the intermediate part of the income distribution or in countries that are moving from the intermediate into the high-income part of the distribution, which broadly corresponds to the definition of an emerging financial market. The conventional definition of an emerging financial market is a country that is well enough developed to attract capital and have significant financial markets and industry, but is either not fully industrially modernized or is industrially modernized but does not have financial markets or institutions that are fully modernized.

In comparison with the lowest and the highest parts of the income distribution, in countries in the middle of the income distribution, these effects can be highly nonlinear. Female labor force participation is the highest in low-income and high-income countries. As a lower-income economy modernizes and industrializes, higher income levels could lead to higher labor force participation due to more economic opportunities. Once an

economy transitions towards the middle income group, not working can be considered a luxury good and thus labor force participation could decrease if income increases. As economic development continues and the economy switches towards more capital intensive sectors from more labor intensive sectors, employers demand more office work or more work which favors fine motor skills, where women could have a comparative advantage over labor-intensive manual labor where males have a comparative advantage (Olivetti, 2006). These effects would lead to an increase in female labor force participation as income continues to increase. Furthermore, as discussed in more detail in the data discussion in Section 2, middle-income countries tend to have larger and more variable year-over-year changes in economic activity when compared to developed economies, and an emerging economy can transition from one end of the distribution towards another within the span of a few years. This means the nonlinear effects may be obfuscated when using lower frequency data.

In this study we focus on exploring to what extent the duration of maternity leave affects female labor force participation, and to what extent changes in the duration of maternity leave directly affect productivity in middle and high-income countries that can be classified as emerging markets. We augment publicly available data on maternity leave with narrative evidence about policy changes that allows us to compile a comprehensive data set at the annual frequency for the period 1989 through 2016. Most publicly available data sets for maternity leave for emerging economies provide comprehensive data sampled every 5 years. In comparison to other studies that study maternity leave in a multi-country setting, our annual data set enables us to explore the effects of changes in maternity leave not only with a 5-year lag, but also within the year it was implemented. Our model evaluates the effects of maternity leave on female and male labor force participation when controlling for the potentially moderating effects of economic development (measured using GDP per capita), the state of the labor market, average education levels, health expenditure, and female representation in politics.

We find that increases in the duration of maternity leave have positive but limited effects on female labor force participation, but significantly increases the overall labor force participation within a year of implementation. Increases in education have unambiguous large and positive effects on the female labor force participation both in the short run and in the intermediate run. Macroeconomic productivity decreases in

the short run, but it is not adversely affected in the intermediate run. We also find evidence of inverse effects on male and female labor force participation and unemployment rates, indicating substitutability. We also find strong evidence in favor of a nonlinear relationship between GDP per capita and labor force participation. Furthermore, the effects for economies with emerging financial markets look substantially different when compared to the results for a panel of countries with mature economies and financial markets.

The rest of the paper is organized as follows. In Section 2.1 we provide a brief description of our maternity leave data set and some stylized facts about the link between maternity leave and labor force participation over time.[3] Sections 2.2 and 2.3 provide a description of our full data set. The empirical methodology is presented in Section 3, and the results, including a comparison of our results with results for a panel of OECD high-income countries with mature financial markets is provided in Section 4. Section 5 concludes.

2. Data

2.1. Brief Background on Emerging Markets and Mature Economies Included in the Panel Estimation

In this study we focus on countries in the the middle of the income distribution spectrum that are still undergoing substantial sectoral and institutional changes. The countries in our sample are either middle-income or on the lower end of the high-income spectrum according to the World Bank Classification. In particular, our benchmark group includes Brazil, Chile, China, Colombia, the Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, South Africa, Thailand, Turkey, and the United Arab Emirates (UAE).[4] Our comparison sample includes high-income mature economies that have developed financial markets.[5]

[3]The full description of the narrative data set is provided in the Appendix.

[4]All of these countries are considered emerging markets according to different commonly financial indices and classifications, for example according to the MSCI (financial index) classification.

[5]Developed financial markets are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States.We drop Hong Kong from the data set due to incomplete data.

Our goal is to exploit higher-frequency data to assess the short and intermediate-term effects of policy on labor force participation and productivity. By using a panel of countries, we are able to control for unobserved country-specific factors, including economic, political and legal institutions, that could affect the policy variable, and hence could confound the relationship between maternity leave and the macroeconomic measure of interest. Pairing country fixed effects with year fixed effects and country time-varying controls allows us to explore a causal relationship.

While our sample selection for the benchmark emerging economy group was driven partially by data availability for legislative changes at the annual frequency, it is a representative sample of middle-income countries and high-income countries towards the lower end of the high-income spectrum. In particular, we included countries that are considered emerging financial markets for which there was comprehensive data about the duration of maternity leave, and comprehensive data about labor market variables such as employment and unemployment. Our benchmark sample is heterogeneous in terms of GDP per capita and GDP growth, with three lower middle-income countries (Egypt, India, and the Philippines), six high-income countries (UAE, Chile, Czech Republic, Korea, Hungary, and Poland), and the remainder can be classified as upper middle-income countries. Gross domestic product per capita for 2016 ranges from $1,468 for India to $37,622 for the UAE. Our sample includes transition economies in different stages (Czech Republic, Hungary, Poland, Russia), resource and commodity-rich economies (South Africa, Russia, UAE, Chile), smaller export-focused economies (Korea, Chile), and large economies (China, Russia). Seven countries are OECD members (Chile, Czech Republic, Greece, Hungary, Korea, Poland, Turkey). As discussed in detail below and shown in Table 1 in the next section, our sample is also heterogeneous when it comes to levels of education, unemployment rates, education, female and male labor force participation rates, and female representation in politics. For brevity, in the rest of this paper we will refer to our benchmark sample as emerging economies (middle and high-income countries with emerging financial markets), and to our comparison group as developed economies (high-income countries with mature economies and developed financial markets).

In this study the key policy variable is maternity leave, measured as weekly duration of the leave. The data set on maternity leave is collected by using narrative evidence on legislative changes that capture the exact enactment and enforcement date of maternity

leave duration, with a full description of each change included in the Appendix. Figure 1 plots the average duration of maternity leave and average labor force participation rates. The average duration of maternity leave and female labor force participation have both increased over time. This relationship is depicted in the top panel of Figure 1. Despite the increasing trend for female labor force participation rates, it is important to note that some countries in our sample have not changed the length of their maternity leave allowances. Our sample includes countries that already granted relatively more generous leave at the beginning of our sample. For example, in the Czech Republic women were eligible for 28 weeks of maternity leave at the start of our sample. In Chile, the duration of the leave is 18 weeks. These countries have the longest and second longest leaves, respectively, among other emerging countries that kept their policies unchanged. The UAE allows for 6.43 weeks of maternity leave and has shortest leave among all emerging countries in our sample. The maternity leave policy in Poland is an interesting case. In Poland, the duration of maternity leave has been changed nine times between 1989 and 2016. The initial duration was 16 weeks. Then it increased to 20 weeks in 2000, jumped to 26 weeks in 2001 but plummeted to 16 weeks in 2002. A second phase of changes in the duration started in 2007, when it was extended to 18 weeks. Then it was raised up to 26 weeks until 2013. Finally, it was cut back to 20 weeks in 2016.

The bottom panel of Figure 1 shows the relationship between average male labor force participation rate and the average duration of maternity leave in emerging and developed countries. The male labor force participation rate has a downward trend, which corresponds to the global decline in male labor force participation.

The variation in the duration of maternity leave across emerging countries leads to jumps in the average duration over time. The first one happened in 1992 when the average duration increased from 12.78 to 13.55 weeks. Three countries had policy changes that year. Hungary doubled its maternity leave duration to 24 weeks. The Philippines and Russia extended it from 6.43 to 8.57 weeks and from 18 to 20 weeks, respectively. The second jump is in 2008, which is due to the policy change in Greece. The length of maternity leave was raised from 17 to 43 weeks, thereby lifting the average from 14.86 to 16.1 weeks.

Similarly, the variation across developed countries is not negligible. The average duration of maternity leave increased from 13.86 to 14.45 weeks in 1995. This is mainly

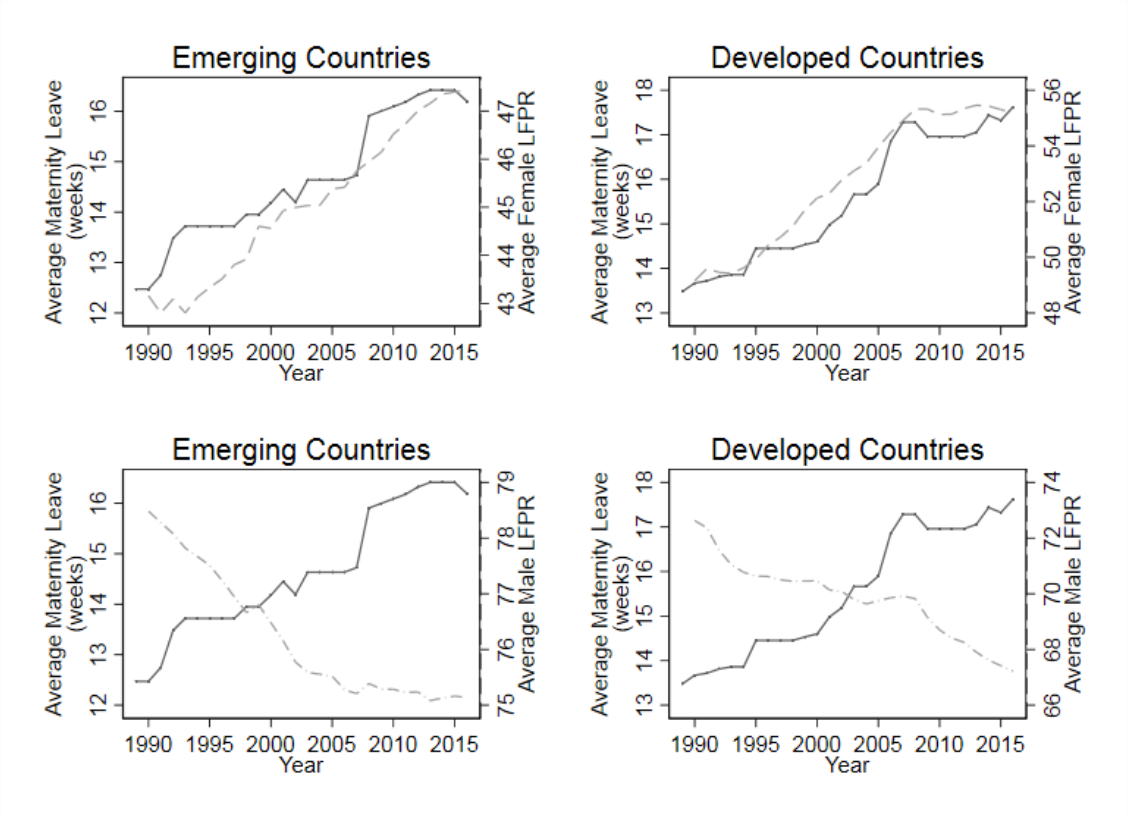

Figure 1: Average weekly duration of maternity leave (——), average female LFPR (- - -) and average male LFPR (-·-·-).

due to a policy reform in Sweden. In 1974, maternity leave was replaced with parental leave in Sweden. In 1995, parental leave was individualized both for mothers and fathers. Additionally, Portugal extended the length of maternity leave from 12.9 to 14 weeks in 1995. The average duration of maternity leave jumped from 15.9 to 16.85 weeks in 2006. This stems from two events. First, a policy reform in Australia introduced 6 weeks of mandatory leave for mothers. Second, Switzerland doubled the length of maternity leave to 14 weeks. The fact that maternity leave has longer duration on average in developed countries than in emerging countries is primarily due to the relatively long allowances in the United Kingdom. Maternity leave in the United Kingdom was extended from 40 to 52 weeks in 2003.

2.2. Policy and Outcome Variables

Our main outcome variables of interest are the female and male labor force participation rates and macroeconomic productivity, and our main policy variable of interest is the

duration of maternity leave in weeks. We also control for income levels and potential nonlinearities in the link between labor market participation and income, for the state of the labor market, for education, and for other economic and development factors, as discussed in detail below. With the exception of maternity leave, productivity, and schooling, the remainder of the data used in this study is mainly obtained through the World Bank's World Development Indicators (WDI). Productivity, measured as the growth of output per person employed, is from the Total Economy Database (TED).[6] We retrieve average years of schooling from the Institute for Health Metrics and Evaluation (IHME).[7]

As discussed in detail in the previous subsection, our benchmark sample includes countries that are considered emerging financial markets, and are either middle-income or on the lower end of the high-income spectrum according to the World Bank Classification, and it represents a fairly heterogeneous sample of emerging economies. Our benchmark group includes Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, South Africa, Thailand, Turkey, and the UAE. Our comparison sample includes high-income economies that have developed financial markets (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States).

In this study the policy variable is maternity leave, measured as weekly duration of the leave, both across emerging and developed countries. The data set on maternity leave is collected by using a narrative evidence on legislative changes that capture the exact enactment and enforcement date of maternity leave duration. The legislative changes are tracked through the NATLEX database of International Labour Organization (ILO).[8] This data source provides information on maternity leave duration for certain years up to mid-2012. We expand upon this data source by tracking legislative changes to fill in the missing data on maternity leave duration for each year. A detailed description

[6]TED releases data on output, labor, and labor productivity, spanning the period 1950 to 2017. In the remainder of this paper, we will use "productivity" to refer to output per worker. However, as discussed in Section 5, our results are robust to using alternative measures of productivity.

[7]IHME's Global Educational Attainment data cover the years 1970 to 2015.

[8]Note that ILO's Working Conditions Laws Database has maternity leave data for developed countries but most of our developed countries are also in the OECD's database for maternity leave.

of legislative changes and a full description of the various data sources used for each country used in our sample is provided in the Appendix. The average maternity leave for emerging and developed countries is 15.34 and 16.21 weeks, respectively. Our emerging market specifications use data up to 2015 when health expenditure is excluded as a control variable. Due to data availability, in the specifications that control for health expenditure, the sample ends in 2014.

It is important to note that there are substantial disparities in maternity leave entitlements across countries given the extent of wage compensation and job protection.[9] Some of the entitlements are contingent on eligibility, which requires work tests and depends on the income level, and vary by country, time, and job sector.[10] The changes in these entitlements could be exploited as a natural experiment and could potentially yield different results.[11] Given the structure of our data, however, it is not possible to impute these changes in the entitlements at the annual frequency for the entire panel of countries. Hence, we only exploit the variation in maternity leave duration, which may be a potential limitation of this study.

On average, we observe lower female labor force participation rates and higher male labor force participation rates in our benchmark sample than in our comparison sample of developed economies. In particular, for our benchmark sample of emerging economies, female labor force participation ranges from 19% to 72%, with an average of 47%, and male labor force participation ranges from 57% to 92%, averaging at 75%. In high-income developed economies with mature financial markets (comparison sample) female labor force participation is, on average, 54%, ranging from 34% to 63% and male labor force participation is 69%, ranging from 58% to 79%. Consistent with the macroeconomic and international development literature on growth convergence (see, inter alia, Li and Papell, 1999, Loewy and Papell, 1996, Islam, 2003), the average growth rate for GDP per capita is higher for emerging markets than for mature markets (2.7% versus 1.5%).

[9] Eligible workers in the United States, for example, have 12 weeks of unpaid leave with little job protection, and not all workers are considered eligible, whereas Germany offers a generous paid leave with job protection until 4 months after childbirth.

[10] In Australia, for example, individuals with adjustable taxable income of $150,000 or less and worked at least 10 of the 13 months before childbirth are eligible for paid leave.

[11] Carneiro, Løken, and Salvanes (2015) exploit the transition from 12 weeks of unpaid leave to 4 months of paid leave and 12 months of unpaid leave in Norway, and explore its impact on long-run child outcomes. Albagli and Rau (2017), on the other hand, explore the effect of an increase in paid maternity leave from 12 to 24 weeks in Chile on maternal outcomes.

Table 1: Descriptive Statistics

	Emerging Countries			Developed Countries		
	Mean	Standard Deviation	*N*	Mean	Standard Deviation	*N*
Dependent Variables						
Labor Force Participation (female, 15+)	46.98	11.59	420	53.91	6.15	440
Labor Force Participation (male, 15+)	75.29	13.17	420	69.28	4.69	440
Productivity (per person employed)	2.32	3.52	420	1.02	1.82	420
GDP Growth Rate (per capita)	2.71	3.72	420	1.52	2.69	440
Policy Variable						
Maternity Leave (weeks)	15.34	6.63	420	16.21	9.98	420
Control Variables						
Unemployment (female)	9.97	7.11	420	7.07	4.03	440
Unemployment (male)	7.30	4.92	420	6.71	3.40	440
Women in National Parliaments (% of seats)	14.53	8.51	420	26.83	10.47	420
Average Years of Schooling (female)	9.96	2.37	399	12.80	1.36	399
Health Expenditure (% of GDP)	5.60	1.81	378	9.26	2.23	378
LogGDP	8.61	1.03	420	10.51	0.40	420

Notes: The number of emerging countries and developed countries is 21 for both. See the text for a complete list. Average years of schooling is population weighted and captures the ages between 15 and 44.

2.3. Control Variables

Including a control variable for female representation in the public sector is important for two reasons. First, the duration of maternity leave could be endogenous if more women in politics lead to more female politicians lobbying for longer maternity leave. The second reason is the role model effect (Beaman et al., 2009). Higher female representation could also lead to higher female labor force participation because women in high position could be viewed as role models and it could reduce discrimination. The variable on women in national parliaments is measured in terms of the percentage share of seats held by women in national parliaments.[12]

There is a vast literature on the relationship between schooling and labor force participation (Goldin, 1995, Juhn and Potter, 2006, Blau and Kahn, 2007, Eckstein and Lifshitz, 2011, Klasen and Pieters, 2015), and in particular, on the individual-level returns of schooling (see, for example, Card and Krueger, 1992, Dee, 2004, Jensen, 2010).

[12]For few of the countries in our sample the data on female representation in parliaments was incomplete or sampled at 5-year intervals. In those cases we merged the WDI data with data on national elections from country-based news sources to interpolate for years when the WDI data set was incomplete.

Externalities from schooling also make the aggregate-level analysis relevant. It has been shown that schooling is productivity-enhancing (Mankiw, Romer, and Weil, 1992, Hall and Jones, 1999) and has significant effects on long-run economic growth (Hanushek and Kimko, 2000). We account for these effects by using a population weighted average years of schooling for women between the ages of 15 and 44. Developed countries have higher average years of schooling (12.80 years) than emerging countries (9.96 years).

In addition to factors such as technological progress, age structure, and insurance mechanisms causing disparities in health expenditure across emerging and developed countries, it has been shown that national income is closely linked to health expenditure.[13] Average health expenditure, measured as a percentage share of health expenditures relative to GDP, is higher in developed countries than in emerging countries in our sample, which could be mostly explained by the differences in national income. Furthermore, previous studies have also shown that health-related factors explain a significant portion of the changes in labor force participation (Cai and Kalb, 2006, Bloom et al., 2009, Cai, 2010, Bowen and Finegan, 2015). Therefore, we also control for the changes in health expenditure across countries in our sample.

To capture the potentially moderating and potentially non-linear effects of economic activity, we include log of real GDP per capita in all regression specifications. The use of annual data mitigates concerns that policy changes in maternity leave respond immediately to economic activity. As discussed in the next section, in many of the specifications we also control for past economic activity.

Male and female unemployment rates are used as control variables to capture additional business cycle effects and the state of the labor market aside from the year fixed effects and from the business cycle effects captured by including log GDP. Directly including unemployment rates as control variables also allows us to test for the presence of the added worker effect and discouraged worker effect. Although the female unemployment rate is higher than the male unemployment rate in both groups (10% versus 7.3% for our benchmark group and 7.1% versus 6.7% for the comparison group of developing groups), the unemployment rates both for men and women are higher in emerging markets than in mature economies.

[13] Baltagi and Moscone (2010), for example, found health care to be a necessity good, which stands in contrast to the studies that suggest health care is a luxury good (see, for example, Gerdtham et al., 1992).

3. Empirical Methodology

The main goal of our study is to identify the effect of maternity leave on macroeconomic measures including female and male labor force participation, productivity (per person employed), and GDP growth per capita. In the model, we control for variables that capture both the structural changes in the economy and those that factor into the heterogeneity of maternity leave policies. We use a fixed effects model, which is defined as follows:

$$y_{it} = \alpha_0 + \xi_i + \gamma_t + \alpha_1 m_{it} + X_{it}^{'}\Gamma + \epsilon_{it}, \tag{1}$$

where y_{it} is the macroeconomic measure of interest for country i at year t. We also use 5-year leads of the outcome variables to understand the intermediate-run implications of maternity leave. The policy variable of interest is m_{it}, which captures maternity leave in terms of weeks across countries. Control variables, denoted as X_{it}, include female and male unemployment rates, percentage of women in national parliaments, female average years of schooling (15 to 44 years of age)[14], and health expenditure (% of GDP). In the second set of models, we also include log GDP and log GDP squared to account for economic development and for potential nonlinearities in the relationship between economic development and labor force participation rates. Year and country fixed effects are captured by γ_t and ξ_i, respectively. The error term is ϵ_{it}.

The difference in maternity leave policies could be partially explained by the underlying differences in political structures across countries. Given this heterogeneity, it is crucial to account for the political environment in each country that could drive the generosity of maternity leave policies and have an impact on labor force participation. As discussed in the previous section, we include the percentage of women in national parliaments as one of the control variables in our model to mitigate concerns about having an endogenous policy variable.

Male and female unemployment rates are used as control variables to capture

[14]Our specification is robust to the inclusion of different types of educational attainment variables. Replacing the measure of education with total average years of schooling (25+ years of age), male average years of schooling (25+ years of age), and a human capital index leaves all other coefficients virtually unchanged. The full set of results for all of the robustness checks with different measures of education is available from the authors.

additional business cycle effects and the state of the labor market aside from the year fixed effects and from the business cycle effects captured by including log GDP. Directly including unemployment rates as control variables also allows us to test for the presence of the added worker effect and discouraged worker effect. High unemployment rates could discourage workers from entering the labor market (discouraged worker effect), or the unemployment rate could be temporarily due to increases in labor force participation because people are entering the labor market and it takes certain time to find a job due to lags in the the matching process (added worker effect). Unlike the potential endogeneity of policy, which is much more likely to be a concern when using lower frequency five-year averages, the bidirectional simultaneity between labor force participation and unemployment is a business cycle phenomenon and is more likely to be a concern when using high frequency data. Because use annual instead of quarterly or monthly data, this mitigates potential concerns about reverse causality between unemployment rates and our dependent variables. However, to further alleviate these concerns we apply a common strategy of instrumenting unemployment rates with their one-year lag, as in, for example, Jaumotte (2004).

The variables on schooling and health expenditure reflect the differences in institutional structures across markets. We use average years of schooling and health expenditure to proxy for education and health trend at the aggregate level, respectively. Again, to mitigate potential bias resulting from reverse causality between labor force participation and either education or health expenditure, we instrument both variables with their one-year lag.

From an econometric perspective, there could be arguments both in favor and against including log GDP per capita in our empirical model. On the one hand, there is previous evidence of a strong U-shaped effect of development on labor force participation (Goldin, 1995) and this effect is expected to be particularly pronounced in the middle of the income distribution. On the other hand, increases in labor force participation could have a mechanical positive effect of labor force participation on GDP per capita (Blau and Kahn, 2013) . Therefore, as a robustness check, we also estimate specifications without GDP. In the models where we do include log GDP per capita, we include both log GDP and log GDP squared to test for potential nonlinearities in the relationship between GDP and development, and instrument with the lags of log GDP. When the outcome

variables are productivity and GDP per capita growth rate, we use the lag of log GDP and instrument with the second lag of log GDP. This approach avoids spurious results that might occur when functions of contemporaneous values of GDP are used both as dependent and explanatory variables. Standard errors are clustered at the country level.

4. Results

In this section we show the implications of maternity leave duration on female and male labor force participation and productivity measures in emerging and developed countries. We also assess the intermediate-run implications of maternity leave using 5-year leads.

Table 2 provides the benchmark estimates for female and male labor force participation in emerging countries. We find positive but limited effects of maternity leave on female labor force participation and significant positive effects on male labor force participation. Although maternity leave affects female labor force participation positively, the only statistically significant estimate is in column (2). We find that when we control for year fixed effects but not log GDP, the increase in maternity leave by average duration (15.34 weeks) increases female labor force participation by 1.7 percentage points (3.7 percent). This effect is much lower and not statistically different from zero when log GDP is included. We check the robustness of our estimates to the exclusion of year fixed effects for the specifications that control for log GDP. Since global shocks could be picked up by both GDP and year fixed effects, this may increase collinearity and thus inflate standard errors.

On the other hand, average years of schooling has strong positive effects in all specifications (columns 1-4), but the magnitude varies depending on whether log GDP is included or not. The estimate becomes smaller when log GDP is included due to the variation in female labor force participation captured by business cycles and the level of economic development. However, even with the moderating effects of controlling for log GDP, the effects of schooling on female labor force participation are large and statistically significant at 1 percent. Female labor force participation is negatively related to log GDP but positively related to its square, supporting the findings of Goldin (1995) and Mammen and Paxson (2000). We find a U-shaped relationship, and our results are capturing the turning points of the U-curve. Note that a higher share of women in national parliaments

has a positive effect on female labor force participation, which is consistent with Beaman et al. (2009), but the estimate is not statistically different from zero.

Health expenditure, defined as percent of GDP, also decreases female labor force participation when log GDP is included. As discussed in Section 3, there are multiple factors causing disparities in health expenditure across emerging and developed countries that are also correlated with labor force participation. The health economics literature, for example, has provided evidence on the strong relationship between health insurance systems and labor force participation (Buchmueller and Valletta, 1999, Chou and Staiger, 2001, Garthwaite, Gross, and Notowidigdo, 2014). Implementation of universal health insurance in Taiwan, for example, increased health expenditure (Shou-Hsia and Tung-Liang, 1997) and reduced labor supply (Chou and Staiger, 2001). Another potential driver of this relationship could be increases in the average population age, which increase health expenditure and reduce labor supply.

The effect of maternity leave on male labor force participation is strong, significant, and positive. There could be two potential explanations for this link. On the one hand, maternity leave and policies that encourage life-work balance could potentially lead to long-term structural and institutional changes and general improvements in the labor market that encourages both men and women to enter in and remain in the labor market. On the other hand, it could also be a sign of within-household division of labor: if maternity leave potentially reduces female attachment to the labor force or is unpaid and reduces the family's income, men might be more likely to enter the labor force while their partners are temporarily out of the labor force. The estimate is robust to the inclusion of log GDP and log GDP squared. In column (7), which is the most inclusive specification where we control for log GDP, log GDP squared, and country and year fixed effects, we find that average maternity leave increases male labor force participation by 1.04 percentage points (1.4 percent).

The relationship between the unemployment rate and female labor force participation provides some evidence of both the added worker and the discouraged worker effect and of potential inter-household substitutability, but because the coefficients are not significant, they should be interpreted with caution. On the other hand, the effects for male labor force participation are large and significant. An increase in the female unemployment rate increases male participation in the labor force, and an increase in male unemployment

rate discourages them from joining the labor force. Health expenditure still has a negative effect on labor force participation. We do not observe any statistically significant effects of log GDP, indicating that male labor force participation is stable across different stages of the development cycle, but female labor force participation is very strongly affected by the level of economic development in emerging economies. Similarly, the average education level (as measured by the average years of schooling) has no effect on male labor force participation, but has a strong and very significant effect on female labor force participation in emerging economies.

Table 2: The Effect of Maternity Leave on Labor Force Participation, Emerging Countries

	Labor Force Participation (Female)				Labor Force Participation (Male)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy Variable								
Maternity Leave (weeks)	0.097	0.112*	0.035	0.032	0.083***	0.095***	0.068**	0.074**
	(0.060)	(0.066)	(0.078)	(0.080)	(0.024)	(0.023)	(0.029)	(0.030)
Control Variables								
Unemployment (female)	0.209	0.215	0.230	0.262	0.732***	0.743***	0.745***	0.693***
	(0.328)	(0.372)	(0.374)	(0.383)	(0.162)	(0.167)	(0.162)	(0.164)
Unemployment (male)	-0.373	-0.431	-0.472	-0.535	-0.941***	-0.981***	-0.960***	-0.897***
	(0.373)	(0.414)	(0.420)	(0.422)	(0.169)	(0.176)	(0.172)	(0.174)
Women in National Parliaments	0.024	0.048	0.008	0.037	-0.054	-0.023	-0.025	-0.010
	(0.099)	(0.106)	(0.088)	(0.076)	(0.068)	(0.068)	(0.069)	(0.056)
Average Years of Schooling	12.777***	12.414***	8.340***	3.257***	0.716	0.443	-0.569	-0.548
	(3.327)	(3.337)	(3.111)	(0.714)	(2.513)	(2.455)	(2.445)	(0.685)
Health Expenditure (% of GDP)		-1.170	-1.682***	-1.783***		-0.908***	-1.122***	-1.044***
		(0.718)	(0.630)	(0.543)		(0.281)	(0.260)	(0.292)
LogGDP			-20.621**	-23.248**			-6.998	-7.103
			(8.582)	(9.034)			(5.712)	5.028
LogGDPSq			1.090**	1.215**			0.421	0.462
			(0.508)	(0.554)			(0.351)	(0.314)
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	N	Y	Y	Y	N
N	399	378	378	378	399	378	378	378
R^2 Overall	0.049	0.050	0.054	0.046	0.023	0.077	0.331	0.302
R^2 Within	0.313	0.328	0.404	0.356	0.192	0.222	0.229	0.169
R^2 Between	0.049	0.050	0.050	0.035	0.036	0.070	0.336	0.310

Notes: Standard errors are clustered at the country level. Significance levels are: ***0.01, **0.05, and *0.10.

Next we analyze the intermediate-run implications of maternity leave by using 5-year

leads of our outcome variables. Five years after implementation, maternity leave no longer has positive effects on female labor force participation (see Table 3). In fact, in column (3), maternity leave decreases female labor force participation by 1.15 percentage points (2.5 percent) with 10 percent statistical significance. Male labor force participation also decreases in the intermediate run and the decrease is estimated to be 1.43 percentage points (1.9 percent). The findings for schooling and health expenditure are similar compared to the benchmark case, and both the added worker and discouraged worker effects are still significant 5 years after the policy change. In the intermediate run, log GDP plays an important role in determining male labor force participation.

Table 3: The Effect of Maternity Leave on Labor Force Participation, Emerging Countries (5-Year Lead)

	Labor Force Participation (Female)				Labor Force Participation (Male)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy Variable								
Maternity Leave (weeks)	0.004	-0.005	-0.075*	-0.071	-0.063*	-0.062	-0.093**	-0.089**
	(0.038)	(0.039)	(0.045)	(0.048)	(0.037)	(0.039)	(0.043)	(0.043)
Control Variables								
Unemployment (female)	-0.034	-0.026	0.153	0.239	0.323	0.322*	0.388**	0.375**
	(0.336)	(0.333)	(0.307)	(0.288)	(0.200)	(0.195)	(0.173)	(0.176)
Unemployment (male)	0.032	0.033	-0.172	-0.328	-0.389*	-0.389*	-0.433**	-0.427**
	(0.314)	(0.318)	(0.288)	(0.248)	(0.219)	(0.219)	(0.201)	(0.214)
Women in National Parliaments	-0.046	-0.060	-0.096	-0.050	-0.011	-0.009	-0.015	-0.005
	(0.088)	(0.095)	(0.083)	(0.066)	(0.058)	(0.057)	(0.056)	(0.043)
Average Years of Schooling	11.338***	11.397***	7.331**	2.602***	1.105	1.098	-0.213	-0.171
	(4.032)	(3.968)	(3.065)	(0.630)	(2.278)	(2.299)	(0.189)	(0.530)
Health Expenditure (% of GDP)		0.449	-0.095	-0.240		-0.050	-0.329	-0.275
		(0.527)	(0.636)	(0.659)		(0.461)	(0.544)	(0.512)
LogGDP			-22.131***	-24.637***			-9.697**	-9.377**
			(8.238)	(9.201)			(4.869)	(4.360)
LogGDPSq			1.213**	1.366**			0.586*	0.584**
			(0.487)	(0.556)			(0.309)	(0.285)
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	N	Y	Y	Y	N
N	315	315	315	315	315	315	315	315
R^2 Overall	0.049	0.047	0.042	0.013	0.143	0.128	0.302	0.255
R^2 Within	0.278	0.278	0.391	0.339	0.084	0.085	0.133	0.115
R^2 Between	0.048	0.046	0.036	0.007	0.131	0.116	0.321	0.266

Notes: Standard errors are clustered at the country level. Significance levels are: ***0.01, **0.05, and *0.10.

The evidence in favor of a positive effect of maternity leave on female labor force participation is much stronger and significant in developed countries (see Table 4). We show that an increase in maternity leave from 0 weeks to the average duration for developed economies (16.21 weeks) increases female labor force participation by 1.56 percentage points (2.9 percent) in column (3), which is the most inclusive specification. Maternity leave also has a positive effect on male labor force participation in developed countries, but the effects are smaller than the effects on female labor force participation, as expected. The added worker and discouraged worker effects are both evident in the regression for female labor force participation. As male unemployment increases, we find that female labor force participation increases, suggesting an added worker effect and potential within-household substitutability effects. The negative relationship between female unemployment and female labor force participation provides evidence in favor of the discouraged worker effect. In comparison with the benchmark developing economy group, we do not find evidence of a discouraged worker effect or an added worker effect for male workers in developed economies. We observe that female average years of schooling is positively associated with female labor force participation whereas the relationship is mixed for male labor force participation. The nonlinearity in female and male labor force participation *vis-á-vis* log GDP follows an inverted U-shape.

Table 4: The Effect of Maternity Leave on Labor Force Participation, Developed Countries

	Labor Force Participation (Female)				Labor Force Participation (Male)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy Variable								
Maternity Leave (weeks)	0.091**	0.080*	0.096**	0.142***	0.068***	0.058**	0.065***	0.098***
	(0.046)	(0.045)	(0.046)	(0.042)	(0.024)	(0.025)	(0.023)	(0.020)
Control Variables								
Unemployment (female)	-0.610***	-0.617***	-0.502***	-0.493***	-0.240	-0.251*	-0.170	-0.147
	(0.202)	(0.191)	(0.165)	(0.170)	(0.158)	(0.147)	(0.105)	(0.126)
Unemployment (male)	0.532**	0.524**	0.524***	0.425**	0.014	0.019	0.028	-0.034
	(0.261)	(0.245)	(0.184)	(0.214)	(0.180)	(0.168)	(0.122)	(0.151)
Women in National Parliaments	-0.039	-0.041	-0.020	-0.011	-0.022	-0.026	-0.007	-0.002
	(0.050)	(0.049)	(0.042)	(0.048)	(0.037)	(0.034)	(0.029)	(0.034)
Average Years of Schooling	5.121***	5.478***	3.492***	0.954*	1.573**	2.149**	0.736	-1.824***
	(1.216)	(1.443)	(0.987)	(0.547)	(0.783)	(1.007)	(0.676)	(0.429)
Health Expenditure (% of GDP)		0.280	0.051	-0.618*		0.417*	0.284	-0.312
		(0.390)	(0.401)	(0.360)		(0.227)	(0.188)	(0.273)
LogGDP			45.157**	61.212***			29.227***	40.392***
			(21.639)	(15.677)			(10.265)	(9.400)
LogGDPSq			-1.881*	-2.751***			-1.182**	-1.791***
			(1.026)	(0.735)			(0.477)	(0.435)
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	N	Y	Y	Y	N
N	399	378	378	378	399	378	378	378
R^2 Overall	0.160	0.174	0.181	0.087	0.156	0.099	0.093	0.007
R^2 Within	0.709	0.718	0.792	0.735	0.604	0.589	0.707	0.588
R^2 Between	0.126	0.142	0.136	0.034	0.120	0.075	0.059	0.0001

Notes: Standard errors are clustered at the country level. Significance levels are: ***0.01, **0.05, and *0.10.

We find limited effects of maternity leave on female and male labor force participation in the intermediate run in developed economies (see Table 5). The effect is statistically insignificant in most of the specifications, especially when log GDP is excluded and year fixed effects are included (see columns 1-2 and 5-6). The discouraged worker effect is also evident for males. We observe a positive relationship between years of schooling and female labor force participation. Thus, schooling still remains as an important factor in determining female labor force participation 5 years after implementation. Health expenditure affects female and male labor force participation negatively but these are limited to specifications that control for log GDP.

Table 5: The Effect of Maternity Leave on Labor Force Participation, Developed Countries (5-Year Lead)

	Labor Force Participation (Female)				Labor Force Participation (Male)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy Variable								
Maternity Leave (weeks)	0.042	0.055	0.085	0.103**	0.050	0.068	0.084**	0.077**
	(0.054)	(0.056)	(0.054)	(0.042)	(0.048)	(0.048)	(0.043)	(0.037)
Control Variables								
Unemployment (female)	-0.344	-0.343	-0.311	-0.365	0.130	0.133	0.133	0.057
	(0.241)	(0.249)	(0.257)	(0.232)	(0.124)	(0.129)	(0.149)	(0.128)
Unemployment (male)	0.193	0.210	0.185	0.152	-0.263***	-0.239**	-0.257**	-0.224**
	(0.210)	(0.223)	(0.215)	(0.215)	(0.097)	(0.107)	(0.114)	(0.111)
Women in National Parliaments	0.071	0.082*	0.072*	0.068*	0.051	0.067**	0.058*	0.039
	(0.046)	(0.048)	(0.043)	(0.041)	(0.033)	(0.032)	(0.033)	(0.034)
Average Years of Schooling	4.137***	3.394**	2.644**	2.398***	0.792	-0.240	-0.430	0.165
	(1.063)	(1.358)	(1.223)	(0.550)	(0.805)	(1.010)	(0.918)	(0.531)
Health Expenditure (% of GDP)		-0.466	-0.793	-0.856**		-0.647	-0.805*	-0.610***
		(0.533)	(0.587)	(0.364)		(0.399)	(0.438)	(0.233)
LogGDP			28.540	34.543			11.711	7.072
			(27.523)	(22.776)			(19.493)	(16.242)
LogGDPSq			-1.391	-1.761			-0.614	-0.469
			(1.285)	(1.072)			(0.916)	(0.774)
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	N	Y	Y	Y	N
N	315	315	315	315	315	315	315	315
R^2 Overall	0.215	0.209	0.147	0.130	0.018	0.004	0.001	0.012
R^2 Within	0.609	0.600	0.594	0.523	0.688	0.691	0.685	0.613
R^2 Between	0.183	0.167	0.095	0.073	0.012	0.001	0.0001	0.004

Notes: Standard errors are clustered at the country level. Significance levels are: ***0.01, **0.05, and *0.10.

Table 6: The Effect of Maternity Leave on Productivity, Emerging Countries

	Productivity (Per Person Employed)				GDP Growth Rate (Per Capita)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy Variable								
Maternity Leave (weeks)	-0.157**	-0.147**	-0.059	-0.083	-0.272***	-0.267***	-0.171***	-0.192***
	(0.062)	(0.058)	(0.057)	(0.054)	(0.067)	(0.054)	(0.059)	(0.048)
Control Variables								
Unemployment (female)	-0.373	-0.434	-0.350	-0.319	-0.009	-0.050	0.089	0.008
	(0.270)	(0.282)	(0.296)	(0.332)	(0.347)	(0.356)	(0.334)	(0.290)
Unemployment (male)	0.391	0.397	0.152	0.149	0.154	0.131	-0.275	-0.132
	(0.305)	(0.307)	(0.339)	(0.361)	(0.368)	(0.359)	(0.348)	(0.281)
Women in National Parliaments	-0.033	-0.028	-0.060	-0.125*	-0.068	-0.079	-0.149*	-0.199*
	(0.040)	(0.048)	(0.055)	(0.066)	(0.064)	(0.080)	(0.084)	(0.107)
Average Years of Schooling	-0.424	-0.532	0.083	2.664***	-1.946	-1.665	-2.714	3.996***
	(1.583)	(1.506)	(1.489)	(0.735)	(2.015)	(2.079)	(3.073)	(0.558)
Health Expenditure (% of GDP)		-0.474	0.119	0.313		-0.636	0.116	0.473
		(0.431)	(0.386)	(0.483)		(0.441)	(0.470)	(0.654)
LogGDP			15.015***	16.161***			12.835**	16.287***
			(2.453)	(3.004)			(6.048)	(5.677)
LogGDPSq			-1.093***	-1.243***			-1.145***	-1.340***
			(0.168)	(0.197)			(0.398)	(0.365)
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	N	Y	Y	Y	N
N	399	378	378	378	399	378	378	378
R^2 Overall	0.204	0.163	0.251	0.069	0.058	0.064	0.101	0.061
R^2 Within	0.249	0.269	0.333	0.140	0.327	0.379	0.493	0.225
R^2 Between	0.203	0.160	0.343	0.111	0.021	0.019	0.150	0.076

Notes: Standard errors are clustered at the country level. Significance levels are: ***0.01, **0.05, and *0.10.

Theoretical models and empirical studies have also found very mixed effects of maternity leave on productivity measures. On the one hand, higher participation has been shown to lead to higher growth in both developed and developing economies (Steinberg and Nakane, 2012 and Loko and Diouf, 2009 respectively). On the other hand, maternity leave can also lead to short-term losses in productivity if new re-entrants are integrating in the labor force after a period of inactivity (McGuckin and van Ark, 2005), especially in a rapidly changing economy. In this section we also analyze the impact of maternity leave on productivity, defined as the growth of output per person employed, and GDP per capita growth rate in emerging and developed countries. We find evidence that maternity

leave has negative effects on productivity and growth in the short run, but no adverse effects at longer horizons. Maternity leave negatively affects productivity and GDP per capita growth rate in emerging countries (see Table 6) on impact in specifications when we do not control for the level of GDP. However, when we use output per hour as our measure of productivity, in specification where we account for economic development, the variation in productivity is mainly absorbed by log GDP and hence maternity leave becomes statistically insignificant. When we use GDP growth as our measure of productivity growth, maternity leave has negative effects on productivity in the short run. The effect of log GDP on productivity and GDP per capita growth rate follows an inverted U-shape in emerging countries. However, maternity leave has no effect on productivity and GDP per capita growth rate 5 years after implementation in any of the specifications (see Table 7), indicating that the productivity losses are temporary. We find that women in national parliaments affect productivity positively in the long run, and the effect is robust across specifications.

In developed countries we find no effect of maternity leave on productivity and GDP per capita growth rate, which is shown in Table 8. We also find that an increase in male unemployment increases productivity but decreases GDP per capita growth rate. The link between unemployment and output is consistent with all standard macroeconomic models where unemployment rises when GDP falls. The positive link between productivity and male unemployment is due to the measure of productivity used here, which is output per worker. Since the male labor force participation is higher than the female labor force participation across all countries considered here, the male unemployment rate is more closely related to the aggregate unemployment rate and the business cycle. In recessions, workers may both work harder in fear of losing their jobs, or firms may elect to only retain the most productive workers as they downsize (see, inter alia, Panovska 2017). Although we find no significant effects of female unemployment on productivity, there is an increase in GDP per capita growth rate as female unemployment increases. Thus, female and male unemployment rate have opposite effects on GDP per capita growth rate in developed countries. The effect of maternity leave on productivity and GDP per capita growth rate is still statistically insignificant in the intermediate run (see Table 9). The main difference between the short run (1-year effects) and the intermediate horizon (5-year effects) comes from the differential effects of female and male unemployment on productivity.

Contrary to the short-run case, the effect of female unemployment on productivity is statistically significant and negative. Productivity decreases with female unemployment and increases with male unemployment. The link between female unemployment and productivity could be related to female and male capital complementarities, as in Olivetti (2006), especially if high male unemployment is related to secular trend reallocation across industries and slower growth in heavy industries, but female unemployment is related to changes in high-skill sectors. If female unemployment measures employment and development in high-skill sectors, then increases in those sectors would be related to declines in productivity. Although the effect of female unemployment on GDP per capita growth is not statistically different from zero, we observe that GDP per capita growth increases with male unemployment. This is consistent with the macroeconomic literature where high unemployment is indicative of economic slack, and periods of slack are followed by recoveries and bounceback towards the long-term output trend (see, for example, Nelson, 2008 or Morley and Panovska, 2019). The estimates for female and male unemployment are fairly robust to the inclusion of log GDP.

Table A1 provides the results of a counterfactual experiment for male and female labor force participation for the UAE and Greece, where the former has the lowest and the latter has the highest duration (6.43 weeks vs. 43 weeks). In each country male and female force participation increase as maternity leave becomes more generous. In 2014, the increase in female labor force participation is 1.3 percentage points for both countries. For the same year, male labor force participation increases by 2.5 percentage points for both countries. UAE reaches the highest female and male labor force participation in 2008 with 44.33 percent and 97.09 percent, respectively. In Greece, female labor force participation reaches the highest in 2010 with 44.16 percent, and male labor force participation is highest in 1999 with 68.35 percent. It is evident that UAE has higher male labor force participation compared to Greece, but what is crucial is that if UAE is given generous maternity leave benefits, it is possible for women to increase their labor force participation up to a level of an OECD country. This finding has important policy implications for emerging countries that try to increase women's labor force participation and alleviates concerns about longer-lasting negative effects of increases in leave on productivity.

Table 7: The Effect of Maternity Leave on Productivity, Emerging Countries (5-Year Lead)

	Productivity (Per Person Employed)				GDP Growth Rate (Per Capita)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy Variable								
Maternity Leave (weeks)	-0.048	-0.036	-0.012	0.002	-0.012	0.002	0.028	0.032
	(0.033)	(0.035)	(0.044)	(0.033)	(0.041)	(0.037)	(0.052)	(0.057)
Control Variables								
Unemployment (female)	-0.025	-0.035	0.088	0.063	0.201	0.189	0.270	0.321
	(0.189)	(0.207)	(0.207)	(0.280)	(0.298)	(0.311)	(0.255)	(0.284)
Unemployment (male)	0.212	0.211	-0.050	-0.028	0.110	0.109	-0.078	-0.121
	(0.238)	(0.248)	(0.225)	(0.332)	(0.353)	(0.353)	(0.257)	(0.345)
Women in National Parliaments	0.155*	0.177**	0.149**	0.201**	0.159	0.184*	0.165	0.214*
	(0.080)	(0.078)	(0.071)	(0.089)	(0.113)	(0.111)	(0.106)	(0.128)
Average Years of Schooling	1.463	1.378	-0.376	-0.725	2.266	2.168	1.132	-0.865
	(1.723)	(1.668)	(1.229)	(0.550)	(2.552)	(2.429)	(1.973)	(0.593)
Health Expenditure (% of GDP)		-0.653*	-0.387	-0.819**		-0.758*	-0.520	-1.064**
		(0.365)	(0.333)	(0.358)		(0.415)	(0.409)	(0.489)
LogGDP			1.216	0.577			2.971	0.717
			(3.228)	(2.875)			(4.651)	(4.790)
LogGDPSq			-0.291	-0.104			-0.339	-0.075
			(0.199)	(0.210)			(0.306)	(0.307)
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	N	Y	Y	Y	N
N	315	315	315	315	315	315	315	315
R^2 Overall	0.010	0.027	0.269	0.124	0.001	0.004	0.256	0.045
R^2 Within	0.312	0.317	0.363	0.109	0.417	0.421	0.453	0.122
R^2 Between	0.022	0.007	0.279	0.178	0.059	0.057	0.122	0.041

Notes: Standard errors are clustered at the country level. Significance levels are: ***0.01, **0.05, and *0.10.

Table 8: The Effect of Maternity Leave on Productivity, Developed Countries

	Productivity (Per Person Employed)				GDP Growth Rate (Per Capita)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy Variable								
Maternity Leave (weeks)	-0.025	-0.033	-0.022	-0.029	-0.033	-0.086	-0.074	-0.076
	(0.023)	(0.025)	(0.027)	(0.045)	(0.050)	(0.075)	(0.055)	(0.089)
Control Variables								
Unemployment (female)	-0.121	-0.121	-0.107	-0.150	0.479***	0.469***	0.391**	0.494***
	(0.114)	(0.109)	(0.104)	(0.092)	(0.177)	(0.173)	(0.163)	(0.167)
Unemployment (male)	0.171**	0.172**	0.155**	0.288***	-0.328***	-0.376***	-0.376***	-0.293**
	(0.080)	(0.075)	(0.075)	(0.072)	(0.094)	(0.098)	(0.107)	(0.118)
Women in National Parliaments	-0.020	-0.017	-0.021	-0.018	0.035	0.032	0.008	0.022
	(0.021)	(0.026)	(0.026)	(0.028)	(0.031)	(0.033)	(0.029)	(0.040)
Average Years of Schooling	0.686	1.254**	1.010*	-0.637	0.455	0.536	1.330	0.197
	(0.446)	(0.598)	(0.582)	(0.581)	(1.034)	(1.422)	(1.312)	(0.678)
Health Expenditure (% of GDP)		0.291	0.211	0.434		-0.154	-0.123	0.099
		(0.192)	(0.222)	(0.294)		(0.261)	(0.327)	(0.235)
LogGDP			10.697	-0.942			-13.724	-14.853
			(7.691)	(9.632)			(11.233)	(15.864)
LogGDPSq			-0.507	-0.032			0.463	0.536
			(0.367)	(0.463)			(0.508)	(0.752)
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	N	Y	Y	Y	N
N	399	378	378	378	399	378	378	378
R^2 Overall	0.332	0.176	0.221	0.015	0.270	0.362	0.348	0.031
R^2 Within	0.442	0.438	0.439	0.070	0.497	0.623	0.654	0.236
R^2 Between	0.142	0.051	0.063	0.005	0.184	0.057	0.034	0.129

Notes: Standard errors are clustered at the country level. Significance levels are: ***0.01, **0.05, and *0.10.

Table 9: The Effect of Maternity Leave on Productivity, Developed Countries (5-Year Lead)

	Productivity (Per Person Employed)				GDP Growth Rate (Per Capita)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy Variable								
Maternity Leave (weeks)	-0.008	-0.010	-0.018	-0.043	0.043	0.047	0.053	0.020
	(0.020)	(0.020)	(0.030)	(0.036)	(0.028)	(0.029)	(0.040)	(0.042)
Control Variables								
Unemployment (female)	-0.288***	-0.288***	-0.287***	-0.163**	-0.227	-0.227	-0.308	-0.165
	(0.082)	(0.082)	(0.097)	(0.064)	(0.188)	(0.186)	(0.199)	(0.172)
Unemployment (male)	0.181**	0.180**	0.183**	0.170**	0.649**	0.654**	0.664**	0.584**
	(0.072)	(0.070)	(0.078)	(0.086)	(0.292)	(0.286)	(0.279)	(0.297)
Women in National Parliaments	-0.065*	-0.066*	-0.063	-0.058	-0.091**	-0.088*	-0.101*	-0.084**
	(0.037)	(0.039)	(0.043)	(0.044)	(0.045)	(0.048)	(0.052)	(0.039)
Average Years of Schooling	-0.825	-0.753	-0.618	-1.619***	-0.142	-0.356	0.315	-0.696
	(1.011)	(1.067)	(1.217)	(0.433)	(1.196)	(1.250)	(1.636)	(0.513)
Health Expenditure (% of GDP)		0.045	0.114	-0.177		-0.134	-0.018	-0.436
		(0.291)	(0.359)	(0.238)		(0.240)	(0.424)	(0.305)
LogGDP			-5.817	4.788			-17.091	-12.642
			(13.904)	(10.617)			(26.959)	(25.606)
LogGDPSq			0.297	-0.041			0.665	0.720
			(0.679)	(0.503)			(1.263)	(1.222)
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	N	Y	Y	Y	N
N	315	315	315	315	315	315	315	315
R^2 Overall	0.341	0.347	0.357	0.036	0.418	0.418	0.364	0.014
R^2 Within	0.467	0.467	0.465	0.073	0.575	0.574	0.586	0.097
R^2 Between	0.118	0.110	0.094	0.080	0.015	0.001	0.006	0.029

Notes: Standard errors are clustered at the country level. Significance levels are: ***0.01, **0.05, and *0.10.

5. Conclusion

The changes in female and male labor force participation are associated with socioeconomic developments in emerging and developing countries. Maternity leave provisions that contribute to gender equality and promote equal employment opportunities for women are considered as effective policy tools in fostering women's involvement in the labor force, as well as accelerating productivity growth in the long run. The length of maternity leave varies across countries and over years depending on the political and economic environment. Given the variation in the duration of maternity leave policies, the link between maternity leave duration and labor force participation is ambiguous. In this study we exploit a novel data set on maternity leave duration to explore its effect on female and male labor force participation and overall macroeconomic productivity for middle and high income countries with emerging financial markets.

The immediate impact of maternity leave duration on female and male labor force participation is positive, but relatively weak for female labor force participation. However, increases in the average years of schooling are positively associated with female labor force participation in the short run and in the intermediate run. Maternity leave affects productivity negatively in the short run but there are no adverse effects 5 years after implementation. Our findings also support the presence of the added worker and discouraged worker effects.

When developed countries are used as a comparison group, we find a strong positive relationship between maternity leave duration and female and male labor force participation. Educational attainment is again observed as an important determinant of female labor force participation both in the short run and long run. Contrary to emerging countries, overall productivity does not respond to changes in maternity leave policies in the short run for developed countries.

Our results indicate that increases in average education have larger effects on female labor participation than changes in the duration of maternity leave policies. However, increases in the duration of maternity leave increase the overall labor force participation. While there is some evidence that productivity per worker declines in responses to changes in maternity leave in the very short run, there are no adverse effects at intermediate horizons. Increases in the share of women in parliament have strong positive effects.

Our results therefore indicate that if the goal of policy is to increase female labor force participation, a multi-pronged policy approach that emphasizes leave, education, and representation may be necessary in emerging economies in the middle part of the income distribution.

References

Albagli, Pinjas and Tomás Rau. 2017. "The Effects of a Maternity Leave Reform on Children's Abilities and Maternal Outcomes in Chile." *Economic Journal* .

Baltagi, Badi H. and Francesco Moscone. 2010. "Health care expenditure and income in the OECD reconsidered: Evidence from panel data." *Economic Modelling* 27 (4):804–811.

Baum, C. L. and C. J. Ruhm. 2016. "The effects of paid family leave in California on labor market outcomes." *Journal of Policy Analysis and Management* 35 (2):333–356.

Beaman, Lori, Raghabendra Chattopadhyay, Esther Duflo, Rohini Pande, and Petia Topalova. 2009. "Powerful women: Does exposure reduce bias." *Quarterly Journal of Economics* 124 (4):1497–1540.

Besamusca, Janna, Kea Tijdens, Maarten Keune, and Stephanie Steinmetz. 2015. "Working Women Worldwide. Age Effects in Female Labor Force Participation in 117 Countries." *World Development* 74:123–141.

Blau, Francine D. and Lawrence M. Kahn. 2007. "Changes in the labor supply behavior of married women: 1980–2000." *Journal of Labor Economics* 25 (3):393–438.

———. 2013. "Female labor supply: Why is the United States falling behind?" *American Economic Review: Papers and Proceedings* 103 (3):251–256.

Bloom, David E., David Canning, Günther Fink, and Jocelyn E. Finlay. 2009. "Fertility, female labor force participation, and the demographic dividend." *Journal of Economic Growth* 14 (2):79–101.

Bowen, William G. and T. Aldrich Finegan. 2015. *The Economics of Labor Force Participation*. Princeton University Press.

Buchmueller, Thomas C. and Robert G. Valletta. 1999. "The effect of health insurance on married female labor supply." *Journal of Human Resources* 34 (1):42–70.

Cai, Lixin. 2010. "The relationship between health and labour force participation: Evidence from a panel data simultaneous equation model." *Labour Economics* 17 (1):77–90.

Cai, Lixin and Guyonne Kalb. 2006. "Health status and labour force participation: Evidence from Australia." *Health Economics* 15 (3):241–261.

Card, David and Alan B. Krueger. 1992. "Does school quality matter? Returns to education and the characteristics of public schools in the United States." *Journal of Political Economy* 100 (1):1–40.

Carneiro, Pedro, Katrine V Løken, and Kjell G Salvanes. 2015. "A flying start? Maternity leave benefits and long-run outcomes of children." *Journal of Political Economy* 123 (2):365–412.

Chou, Yiing-Jenq and Douglas Staiger. 2001. "Health insurance and female labor supply in Taiwan." *Journal of Health Economics* 20 (2):187–211.

De Jong, A. and A. Tsiachristas. 2008. "Can labor force participation growth and productivity growth be combined?" Spring review by the SYSDEM correspondent for the Netherlands, European Employment Observatory.

Dee, Thomas S. 2004. "Are there civic returns to education?" *Journal of Public Economics* 88 (9):1697–1720.

Eckstein, Zvi and Osnat Lifshitz. 2011. "Dynamic female labor supply." *Econometrica* 79 (6):1675–1726.

Fallon, Kathleen M., Alissa Mazar, and Liam Swiss. 2017. "The Development Benefits of Maternity Leave." *World Development* 96:79–101.

Garthwaite, Craig, Tal Gross, and Matthew J. Notowidigdo. 2014. "Public health insurance, labor supply, and employment lock." *Quarterly Journal of Economics* 129 (2):653–696.

Gerdtham, Ulf-G, Jes Søgaard, Fredrik Andersson, and Bengt Jönsson. 1992. "An econometric analysis of health care expenditure: A cross-section study of the OECD countries." *Journal of Health Economics* 11 (1):63–84.

Goldin, Claudia. 1995. *The U-Shaped Female Labor Force Function in Economic Development and Economic History.* University of Chicago Press, 61–90.

Hall, Robert E. and Charles I. Jones. 1999. "Why do some countries produce so much more output per worker than others?" *Quarterly Journal of Economics* 114 (1):83–116.

Hanushek, Eric A. and Dennis D. Kimko. 2000. "Schooling, labor-force quality, and the growth of nations." *American Economic Review* 90 (5):1184–1208.

ILO. 1994. "Conditions of Work Digest: Maternity and Work." Vol. 13, International Labour Office.

Islam, N. 2003. "What have we learnt from the convergence debate?" *Journal of Economic Surveys* 17 (3):309–362.

Jaumotte, Florence. 2004. "Labour force participation of women: Empirical evidence on the role of policy and other determinants in OECD countries." OECD Economic Studies No. 37, 2003/2.

Jensen, Robert. 2010. "The (perceived) returns to education and the demand for schooling." *Quarterly Journal of Economics* 125 (2):515–548.

Juhn, Chinhui and Simon Potter. 2006. "Changes in labor force participation in the United States." *Journal of Economic Perspectives* 20 (3):27–46.

Klasen, Stephan and Janneke Pieters. 2015. "What Explains the Stagnation of Female Labor Force Participation in Urban India?" *World Bank Economic Review* 29 (3):449–478.

Li, Q. and D. Papell. 1999. "Convergence of international output: time series evidence for 16 OECD countries." *Review of Economics and Finance* 8 (3):267–280.

Loewy, M. and D. Papell. 1996. "Are U.S. Regional Incomes Converging? Some Future Evidence." *Journal of Monetary Economics* 38 (3):587–598.

Loko, Boileau and Mame A. Diouf. 2009. "Revisiting the determinants of productivity growth: What's new?" IMF Working Paper 09/225, International Monetary Fund.

Mammen, Kristin and Christina Paxson. 2000. "Women's work and economic development." *Journal of Economic Perspectives* 14 (4):141–164.

Mankiw, N. Gregory, David Romer, and David N. Weil. 1992. "A contribution to the empirics of economic growth." *Quarterly Journal of Economics* 107 (2):407–437.

McGuckin, R. and B. van Ark. 2005. "Productivity and participation: An international comparison." Research Memorandum GD-78, Groningen Growth and Development Centre.

Morley, James and Irina Panovska. 2019. "Is Business Cycle Asymmetry Intrinsic in Industrialized Economies?"

Nelson, Charles R. 2008. "The Beveridge-Nelson Decomposition in Retrospect and Prospect." *Journal of Econometrics* 146 (2):202–206.

Olivetti, Claudia. 2006. "Changes in women's hours of market work: The role of returns to experience." *Review of Economic Dynamics* 9 (4):557–587.

Panovska, I. 2017. "What Explains the Recent Jobless Recoveries?" *Macroeconomic Dynamics* 21 (3):708–732.

Petersson, Bengt, Rodrigo Mariscal, and Kotaro Ishi. 2017. "Women are key for future growth: Evidence from Canada." IMF Working Paper 17/166, International Monetary Fund.

Shou-Hsia, Cheng and Chiang Tung-Liang. 1997. "The effect of universal health insurance on health care utilization in Taiwan: Results from a natural experiment." *Jama* 278 (2):89–93.

Steinberg, Chad and Masato Nakane. 2012. "Can women save Japan?" IMF Working Paper 12/248, International Monetary Fund.

Zveglich, Joseph E. and Yana van der Meulen Rodgers. 2003. "The impact of protective measures for female workers." *Journal of Labor Economics* 21 (3):533–555.

Appendix

Data Description

Data on the length of maternity leave for the period 1989 to 2016 are collected from different sources. Our sample includes both OECD member and non-member countries. The single source for OECD member countries, except for Chile is the OECD Gender Data Portal. The latter group of countries requires an elaborate survey of other sources including country-specific laws. One of the most comprehensive data sources for that purpose is the ILO Working Conditions Laws Database. While it provides maternity leave data for select years between 1994 and 2012, it does not provide information for all years considered in our sample. Another data source is Women, Business and the Law database of the World Bank, which contains maternity leave data for even years between 2010 and 2016. We also resort to ILO Legislative Series, ILO (1994), the NATLEX database of ILO and various local sources to build a comprehensive panel data set. For the sake of formality and coherence, we base our data on laws as described below.[15] Note that although there may be more amendments belonging to some of the articles referred to below, we mention only the ones that are related to the duration of maternity leave. The NATLEX database is of particular interest in our study. It provides the legislation including repeals and amendments in a chronological order, so that we can match any law to the period in which it is effective.

Brazil. 1989–2016: (i) Constitution of the Federative Republic of Brazil, Article 7(18), (ii) Consolidated Labor Laws, Article 392.

Chile. 1989–2002: Act No. 18.620 approving the Labor Code, Article 181. 2003–2016: (i) Labor Code, Article 195, (ii) Act No. 20.545, Amendment to Labor Code, Article 1.

China. 1989–1994: Regulations Governing Labor Protection for Female Staff Members and Workers, Article 8. 1995–2011: Labor Law, Article 62. 2012–2016: Order of the State Council No. 619, Special Rules on the Labor Protection of Female Employees, Article 7.

Colombia. 1989–1990: Labor Code, Article 236(1). 1991–2010: Law No. 50, Amendment

[15] A more detailed description of sources is available upon request.

to Labor Code, Article 34(1). 2011–2016: Law No. 1468, Amendment to Labor Code, Article 1.

Egypt. 1989–2002: Act No. 137, Labor Code, Article 154. 2003–2016: (i) Law No. 12, Labor Law, Article 91, (ii) Law No. 126, Amendment to Child Law, Article 1(70).

India. 1989–2016: Act No. 53, Maternity Benefit Act, Article 5(3).

Indonesia. 1989–2002: Law No.1, Labor Law, Article 13(2). 2003–2016: Act No. 13, Manpower Act, Article 82(1).

Malaysia. 1989–2016: (i) Act No. 265, Employment Act, Article 37(1)(a), (ii) Act No. 265, Employment Act (with amendments), Articles 37(1)(a)(i) and 37(1)(d)(ii).

Peru. 1989–1995: Legislative Decree No. 22482, Grant of Health Benefits, Article 28. 1996–2015: (i) Law No. 26644, Extent of the Right to Prenatal and Postnatal Leave for Pregnant Workers, Article 1, (ii) Supreme Decree No. 005-2011-TR regulating Law No. 26644, Article 2. 2016: Law No. 30367, Amendment to Law No. 26644, Article 2.

Philippines. 1989–1991: (i) Republic Act No. 1161, Social Security Act (ii) Presidential Decree No. 1202, Amendment to Republic Act No. 1161, Section 7, (iii) Presidential Decree No. 1636, Amendment to Republic Act No. 1161, Section 11. 1992–1996: Republic Act No. 7322, Amendment to Republic Act No. 1161, Section 1. 1997–2016: Republic Act No. 8282, Amendment to Republic Act No. 1161, Section 1.

Russia. 1989–1990: (i) Labor Code of the Russian Soviet Federative Socialist Republic, Article 165, (ii) Amendment to Labor Code of the RSFSR, Article 4. 1991: Resolution of the Supreme Soviet of the USSR No. 1420-1, Urgent Measures for the Improvement of the Status of Women, the Protection of Mothers and Children, and the Strengthening of the Family, Article 6. 1992: Law No. 2660-1, Additional Measures for the Protection of Maternity and Childhood, Article 1. 1993–1996: Law No. 3543-1, Amendment to Labor Code of the RSFSR, Article 101. 1997–2001: Law No. 131-FZ, Amendment to Labor Code of the RSFSR, Article 1. 2002–2016: Law No. 197-FZ, Labor Code of the Russian Federation, Article 255.

Singapore. 1989–1995: (i) Act No. 17, Employment Act, Section 95(1), (ii) Bill No. 20, Amendment to Employment Act, Section 19, (iii) Bill No. 22, Amendment to

Employment Act, Section 24. 1996–2004: Employment Act (Revised Edition 1996), Article 76(1)(a). 2005–2008: (i) Act No. 41, Amendment to Employment Act, Section 7, (ii) Act No. 13, Children Development Co-Savings Act, Section 9(1)(a), (iii) Act No. 42, Amendment to Children Development Co-Savings Act, Section 4. 2009–2016: Act No. 28, Amendment to Children Development Co-Savings Act, Section 5.

South Africa. 1989–1997: Act No. 3, Basic Conditions of Employment Act, Section 17(b). 1998–2016: Act No. 75, Basic Conditions of Employment Act, Section 25(1).

Thailand. 1989–1992: Announcement of the Ministry of Interior Respecting Labor Protection (B.E. 2515), Section 18. 1993–1998: Notification No. 13, Notification of the Ministry of Interior on Labor Protection. 1999–2016: Labor Protection Act (B.E. 2541), Section 41.

United Arab Emirates. 1989–2016: Law No. 8, Regulation of Employment Relationships, Article 30.

Counterfactuals

Table A1: Counterfactuals

	Labor Force Participation (Female)				Labor Force Participation (Male)			
	United Arab Emirates		Greece		United Arab Emirates		Greece	
	6.43 weeks	43 weeks	6.43 weeks	43 weeks	6.43 weeks	43 weeks	6.43 weeks	43 weeks
1997	29.816	31.109	39.222	40.515	90.461	93.957	64.733	67.228
	(1.390)	(3.222)	(1.114)	(1.904)	(0.943)	(1.275)	(0.378)	(0.872)
1998	30.252	31.545	39.580	40.873	91.780	94.276	65.177	67.673
	(1.525)	(3.640)	(1.108)	(2.008)	(0.788)	(1.362)	(0.392)	(0.892)
1999	32.505	33.798	40.431	41.724	93.033	95.529	65.855	68.351
	(1.439)	(3.660)	(1.219)	(2.247)	(0.663)	(1.285)	(0.436)	(0.944)
2000	32.912	34.205	41.096	42.389	90.248	92.744	65.325	67.821
	(0.906)	(2.959)	(1.172)	(2.046)	(0.623)	(1.105)	(0.480)	(1.054)
2001	34.195	35.489	40.303	41.596	91.773	94.269	63.885	66.381
	(0.959)	(3.256)	(1.190)	(2.066)	(0.481)	(1.148)	(0.437)	(0.973)
2002	34.616	35.907	40.492	41.784	91.006	93.501	63.609	66.104
	(0.771)	(3.176)	(1.091)	(2.035)	(0.367)	(1.087)	(0.437)	(0.861)
2003	35.354	36.647	41.320	42.613	89.448	91.944	63.642	66.137
	(0.707)	(2.818)	(1.237)	(1.818)	(0.390)	(0.984)	(0.560)	(0.616)
2004	36.389	37.682	42.119	43.412	89.534	92.029	64.498	66.994
	(0.710)	(2.628)	(1.438)	(1.716)	(0.551)	(1.074)	(0.786)	(0.637)
2005	38.253	39.546	41.103	42.396	89.650	92.146	63.098	65.593
	(1.032)	(2.610)	(1.277)	(1.688)	(0.714)	(1.131)	(0.685)	(0.591)
2006	39.609	40.902	41.363	42.656	89.928	92.423	62.313	64.808
	(1.027)	(2.579)	(1.408)	(1.518)	(0.565)	(1.001)	(0.768)	(0.535)
2007	40.905	42.198	42.118	43.411	90.009	92.504	62.492	64.987
	(1.349)	(2.628)	(1.588)	(1.471)	(0.642)	(1.047)	(0.807)	(0.551)
2008	43.038	44.330	41.909	43.202	94.598	97.094	61.298	63.793
	(1.431)	(3.192)	(2.040)	(1.230)	(0.881)	(1.294)	(1.112)	(0.644)

Table A1: Counterfactuals (continued)

	Labor Force Participation (Female)				Labor Force Participation (Male)			
	United Arab Emirates		Greece		United Arab Emirates		Greece	
	6.43 weeks	43 weeks	6.43 weeks	43 weeks	6.43 weeks	43 weeks	6.43 weeks	43 weeks
2009	40.606	41.899	42.653	43.946	89.933	92.429	61.785	64.281
	(1.025)	(2.803)	(2.054)	(1.247)	(0.688)	(1.329)	(1.152)	(0.631)
2010	41.209	42.502	42.869	44.162	89.811	92.306	61.169	63.665
	(1.069)	(2.690)	(2.238)	(0.913)	(0.696)	(1.366)	(0.912)	(0.344)
2011	42.069	43.362	40.887	42.179	90.288	92.784	59.221	61.717
	(0.902)	(2.614)	(2.438)	(0.959)	(0.696)	(1.374)	(0.890)	(0.415)
2012	42.776	44.069	40.633	41.925	90.812	93.307	58.588	61.083
	(0.836)	(2.525)	(2.925)	(1.316)	(0.554)	(1.234)	(1.116)	(0.712)
2013	42.669	43.962	40.240	41.533	90.729	93.225	58.017	60.512
	(0.817)	(2.520)	(3.125)	(1.528)	(0.483)	(1.178)	(1.260)	(0.907)
2014	42.095	43.388	42.539	43.832	90.740	93.235	59.375	61.871
	(0.851)	(2.454)	(3.235)	(1.397)	(0.440)	(1.079)	(1.368)	(1.002)