Does Maternity Leave Affect Labor Force Participation and Productivity?

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Introduction

- Increases in gender equality enhance economic efficiency around the world (World Bank World Development Report, 2012) $\rightarrow$ "smart economics".
  - Increases in economic growth.

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- ↑ Female labor force participation (FLFP) → ↑ economic growth and productivity in the LR for both developing and developed countries.
    - Japan: ↑ FLFP → ↑ economic growth (Steinberg and Nakane, 2012).
    - Canada: ↑ FLFP → ↑ labor productivity (Petersson et al., 2017).

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    - Canada: ↑ FLFP → ↑ labor productivity (Petersson et al., 2017).
- ↑ FLFP → short-term productivity losses when new entrants are older or reintegrating into the work force after a period of inactivity (McGuckin and van Ark, 2005).

Question

- Do policy changes affect FLFP and overall productivity?
  $\hookrightarrow$ We explore whether maternity leave (weekly duration) affects LFP and macroeconomic productivity in middle- and high-income countries that can be classified as emerging financial markets.
  $\hookrightarrow$ We investigate the effect in the short run (a year after a policy change) and at intermediate horizons (5 years after implementation, business cycle frequencies).

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  $\hookrightarrow$ We investigate the effect in the short run (a year after a policy change) and at intermediate horizons (5 years after implementation, business cycle frequencies).
- Financial definition of an emerging market:
  1. Developed enough to attract capital and have significant financial markets and industry, but not fully industrially modernized, or
  2. Industrially modernized, but does not have financial markets or institutions that are fully modernized.

Contribution

- The literature has focused extensively on multi-country analysis for developed OECD countries or low-income countries.
    - Low-income countries $\dashrightarrow$ the size of the informal sector.
    - Developed high-income economies $\dashrightarrow$ LFP can be seen as both economically and socially desirable (Besamuca et al., 2015).

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  - Low-income countries --→ the size of the informal sector.
  - Developed high-income economies --→ LFP can be seen as both economically and socially desirable (Besamuca et al., 2015).
- 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 → emerging financial market.
  - Middle income --→ not working can be considered a luxury good → ↓ LFP as income increases. However, as the economy becomes more capital intensive women could have a comparative advantage over labor-intensive manual labor.

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- We use narrative evidence that identifies the exact dates when legislative changes to maternity leave policies were enacted and enforced.

Mechanisms: Maternity Leave on FLFP

- Two opposing effects:
  1. Facilitate women's reentry into the LF and thus lead to increases in LFP.
  2. Long maternity leave $\rightarrow$ potential loss of skills or employment discrimination $\rightarrow$ $\downarrow$ FLFP.

Sample

- Benchmark group: 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).
    - Heterogeneous in terms of GDP per capita and GDP growth.
    - 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). Large economies (China, Russia).
    - Seven countries are OECD members (Chile, Czech Republic, Greece, Hungary, Korea, Poland, Turkey).
- Comparison group: 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.

Variation in Maternity Leave Duration
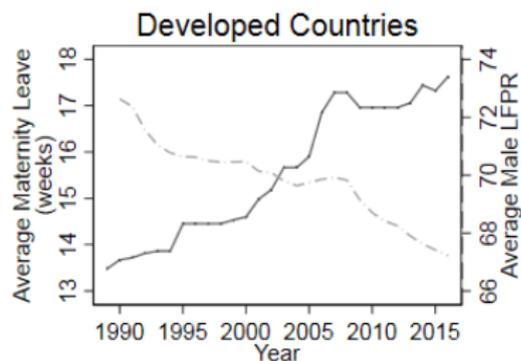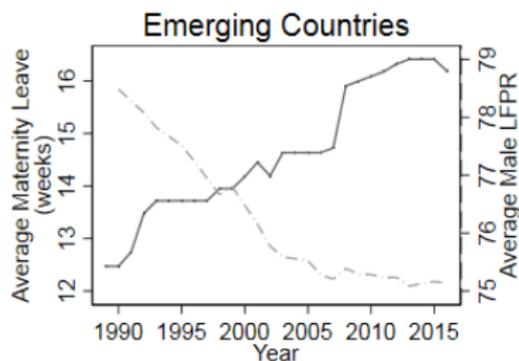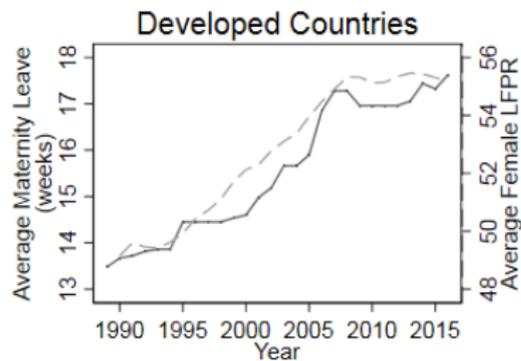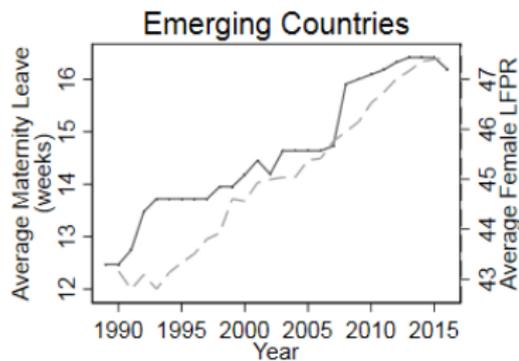
Data

- Maternity leave duration → the ILO's Working Conditions Laws Database
    - Narrative evidence to fill in the missing data.
    - E.g., [*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.

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- The remained of the data is obtained through the World Bank's World Development Indicators (WDI).

Empirical Methodology

$$y_{it} = \alpha_0 + \xi_i + \gamma_t + \alpha_1 m_{it} + X'_{it}\Gamma + \epsilon_{it} \qquad (1)$$

- 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.
- $m_{it} \rightarrow$ maternity leave in terms of weeks across countries.
- 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), and health expenditure (% of GDP).
- In the second set of models, we include log GDP and log GDP squared to account for economic development and potential nonlinearities.
- Year and country fixed effects are captured by γ_t and ξ_i, respectively.

Threats to Identification Strategy

- We include the percentage of women in national parliaments as one of the control variables in our model to mitigate concerns on endogeneity.
- Unemployment rate $\rightarrow$ we use annual instead of quarterly or monthly data, which mitigates potential concerns about reverse causality.
  - To further alleviate these concerns we apply a common strategy of instrumenting unemployment rates with their one-year lag.
- To mitigate potential bias resulting from reverse causality between labor force participation and either education, health expenditure, or log GDP (per capita) we instrument both variables with their one-year lag.
- 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.

LFP: Short-run Implications

	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)
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

LFP: Intermediate-run Implications

	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)
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

Productivity: Short-run Implications

	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)
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

Productivity: Intermediate-run Implications

	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)
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

Conclusions

- Maternity leave has positive but limited effects of FLFP.
- 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 find evidence of substitutability between male and female labor force participation and unemployment rates, and strong evidence in favor of a nonlinear relationship between GDP per capita and labor force participation.
- 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.