Countercyclical Fiscal Policy, Women, and the Poor

Mend the Gap in Economic Opportunities in Europe and Central Asia
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Overview of This Paper

Research Question

- Does countercyclical spending contribute to female employment and incomes of the poor, and how?

Method

- **Cross-country panel regression,** with macro and fiscal data from World Bank, ILO, IMF, UNU-WIDER, etc.

Main Finding

- Fiscal spending is **more beneficial** for gender/income equality **during recessions** than non-recession periods. This strengthens the case for countercyclical fiscal policy on gender and distributional grounds.

Contributions

- Focus on **Europe and Central Asia (ECA),** A region with wide variation in female labor participation and poverty rates.
- **New cross-country empirical evidence from 41 Europe and Central Asian countries** on how fiscal policy interacts with gender and poverty outcomes. **Macroeconomic and distributional goals may complement each other in countercyclical fiscal policy**.

Introduction

The Problem: Fiscal Policy for Social Inclusion?

Macro Fiscal Policy		Policy Goals
• Volume	→	• Economic Growth
• **Timing**		• **Stability**
• Structure		• Equality

Previous Research: Countercyclical Fiscal Policy For Economic Stability

- Countercyclical fiscal policies play a key role in reducing economic volatility and enhancing long-term stability.
- By saving during booms and spending during downturns, they help stabilize aggregate demand. (Chari et al., 1994; Riera-Crichton et al., 2015; Aizenman et al., 2019; Bogetić and Naeher, 2024).

The Problem: Counter-cyclical Fiscal Policy for Social Inclusion?

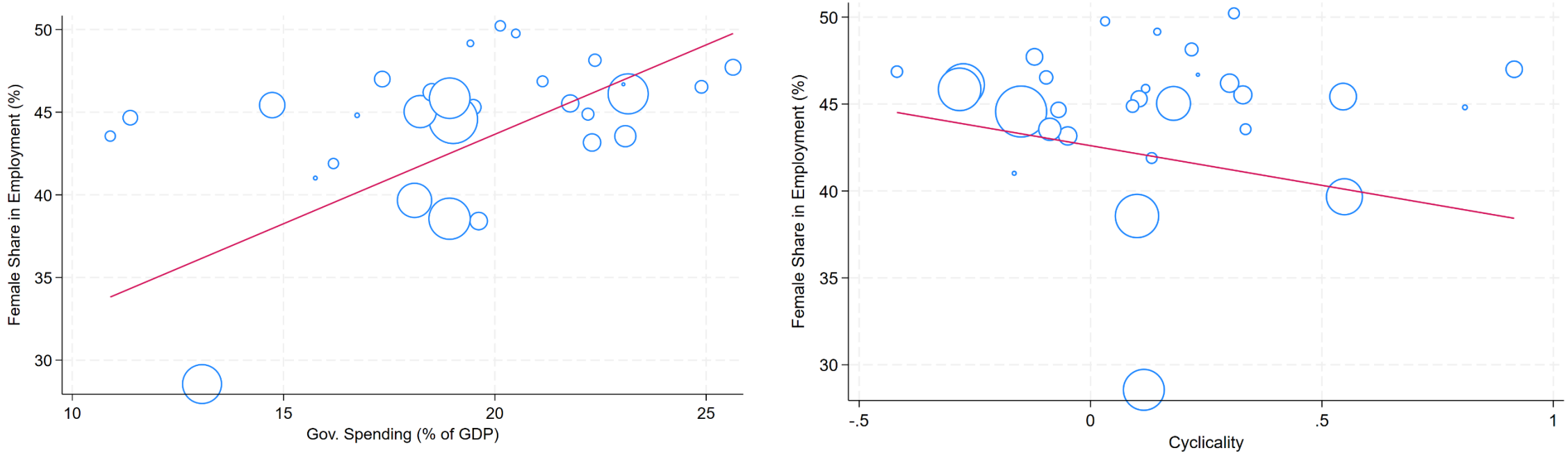
Macro Fiscal Policy	Policy Goals
• Volume	• Economic Growth
• **Timing**	• Stability
• Structure	• **Equality? (Gender, Income)**

Gaps in the Literature: Social Inclusion

- Limited research on how fiscal **cyclicality** impacts gender **equality** and **poverty.**
- Crucial for designing gender- and poverty-sensitive fiscal policies, especially for developing countries.
- Existing studies:
  - Tend to focus on general inequality (e.g., Klein 2024) and combined effects of several categories of spending and combined spending and taxes, using fiscal incidence analysis (Lustig 2015).
  - Focus on specific country or policy.

The Problem: Counter-cyclical Fiscal Policy for Social Inclusion?

Figure: Fiscal Policy and Gender Inclusiveness in ECA Countries, 1990-2019



Stylized Facts:

- **Government spending** is positively associated with gender equality in the labor market.
- **Cyclicality** of gov. spending is negatively associated with gender equality.

Why Fiscal Cyclicality Matters for Gender and Poverty

Disproportionate Impact of Business Cycles on Women and the Poor

- Women and low-income groups are **more exposed** to economic cycles because of the nature of their employment, sectors they occupy, and other institutional and cultural factors.
- Even in G7 countries, which are considered more equitable for women, women's employment is more sensitive to fluctuations due to their concentration in vulnerable sectors (Akitoby et al., 2019).
- Procyclical fiscal policy amplifies inequality by reducing support during downturns (Rasmane, 2015).

Challenges in Developing Economies

- The above effects may be more pronounced.
- Limited fiscal capacity constrains social spending in downturns, worsening poverty (Arnelyn et al., 2015).

Broader Household-Level Effects

- Procyclical fertility patterns observed when women are primary earners (Coskun and Dalgic, 2024).
- Real wage cyclicality also interacts with labor market mobility (Devereux and Hart, 2006).

Methods

Methods

Fiscal **Cyclicality** → ? **Equality** (Gender/Income)

An Empirical Challenge:

- Fiscal cyclicality is **not observed quarterly/yearly**.

Our Solution:

- Approach 1: Compare the effect of fiscal spending during **recession vs non-recession** periods.
- Approach 2: **Long-difference** regression of **Δ Equality** on **Δ Cyclicality**
  - Capturing **long-term effects** of slowly-evolving variables (Acemoglu and Restrepo, 2022; Burke and Emerick, 2016), while **controlling for country-specific confounders**.

Methods

Approach 1: Recession vs Non-recession.

- Data: Cross-country quarterly panel dataset with macroeconomic and fiscal variables.
- Local projection by Jorda (2005), with interaction term between government spending and recession indicator.

$$Y_{i,t+h} - Y_{i,t-1} = \boldsymbol{\beta_h} G_{it} + \sum_{l=1}^{4} \gamma_l^{h\prime} X_{i,t-l} + \alpha_i^h + \lambda_t^h + u_{i,t}^h, \qquad h = 0,1,\dots,10$$

$$Y_{i,t+h} - Y_{i,t-1} = \boldsymbol{\beta_h^r} G_{it} I_{it} + \boldsymbol{\beta_h^n} G_{it}(1 - I_{it}) + \theta I_{it} + \sum_{l=1}^{4} \gamma_l^{h\prime} X_{i,t-l} + \alpha_i^h + \lambda_t^h + u_{i,t}^h$$

Female Share of Employed People (%), Data from ILO labor statistics

Recession indicator, measured by unemployment, output gap, etc.

Government Consumption (% of GDP), Calculated from national account

Lags of **controls**, including lagged female share, GDP growth, etc.

Country and Time FE

Methods

Approach 2: Long-difference Regression.

- Data: **Yearly cross-country panel** (1990-2019) with macroeconomic and fiscal variables.
- Steps:
  - 1. Evenly split the sample period into 1990-2004 and 2005-2019.
  - 2. For each country-period, estimate spending cyclicality.
    - HP filter to obtain cyclical parts of real GDP and gov. spending.
    - Robust regression of cyclical part of GDP (=output gap) on cyclical part of gov. spending.
  - Calculate **Δ Equality** and **Δ Cyclicality** between two periods, and regress:

$$\Delta Female\ Share_i = \beta_0 + \beta_1 \Delta \widehat{Cyclicality}_i + \gamma' X_i + u_i$$

$$\Delta Female\ Share_i = \overline{Female\ Share}_{i,2005-2019} - \overline{Female\ Share}_{i,1990-2004}$$

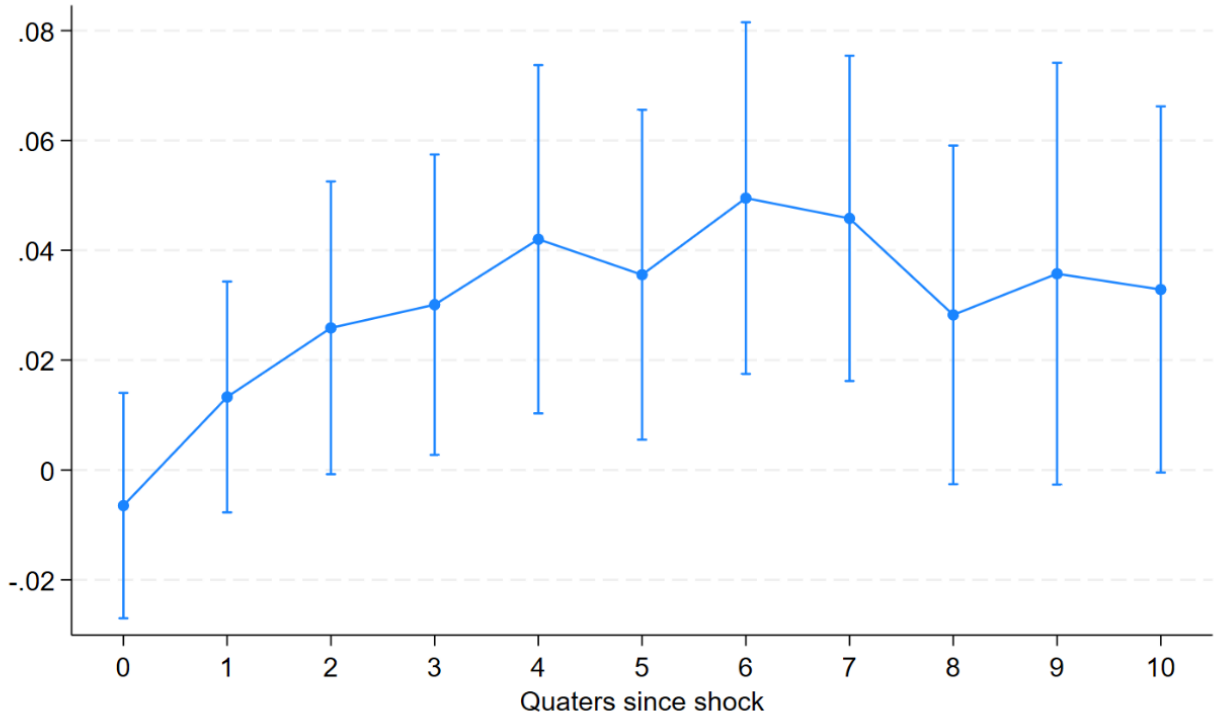
$$\Delta \widehat{Cyclicality}_i = \widehat{Cyclicality}_{i,2005-2019} - \widehat{Cyclicality}_{i,1990-2004}$$

A vector of **control variables**

Results

Result: Fiscal Spending Increases Female Share, on Average

$$Y_{i,t+h} - Y_{i,t-1} = \boldsymbol{\beta_h} G_{it} + \sum_{l=1}^{4} \gamma_l^{h\prime} X_{i,t-l} + \alpha_i^h + \lambda_t^h + u_{i,t}^h, \qquad h = 0,1,\ldots,10$$

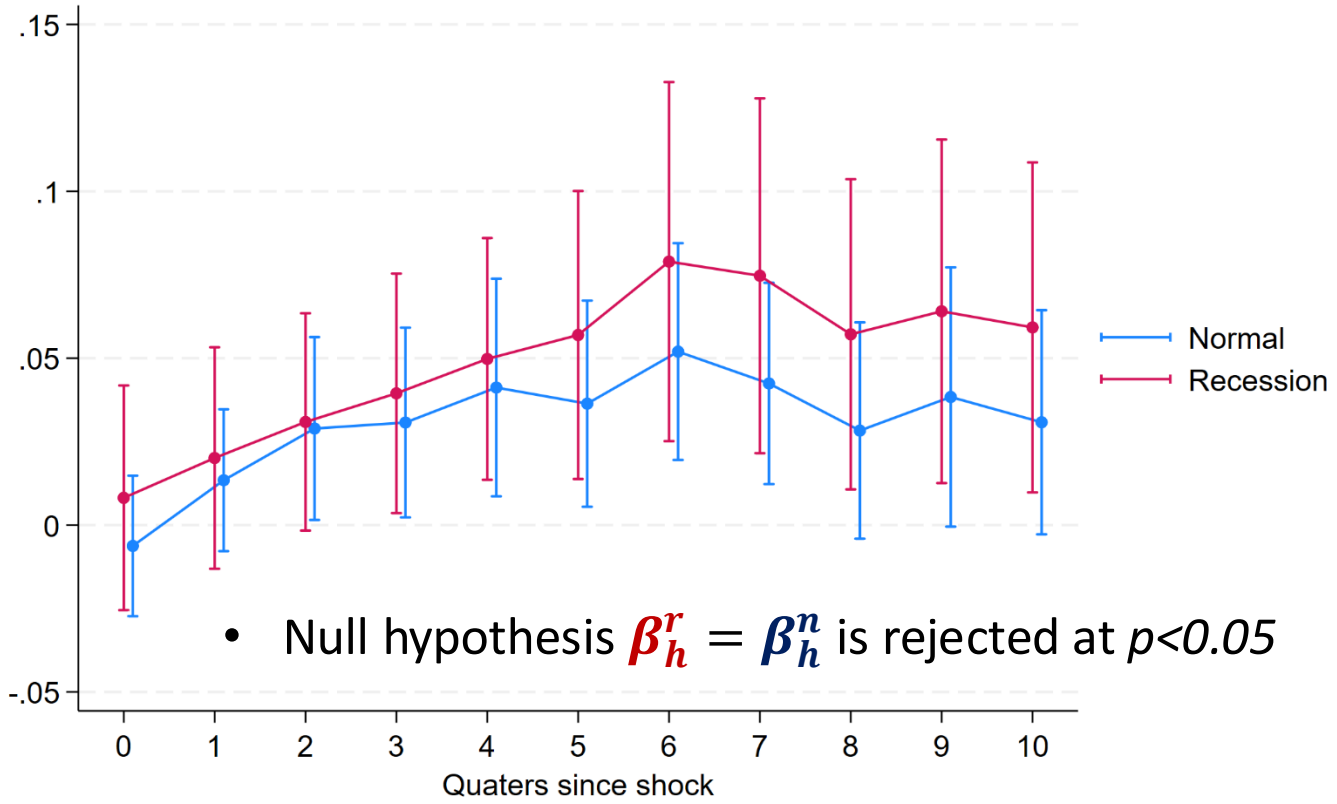


- 1 pp increase in government consumption→0.04 pp increase in female employment share
- Effect **peaks at 0.05 pp 4-6 quarters** after the shock.
- Extension: Large cross-country heterogeneity (Link)

Result: Fiscal Spending is More Pro-female during Recessions

Recession vs Non-recession.

$$Y_{i,t+h} - Y_{i,t-1} = \boldsymbol{\beta_h^r} G_{it}\, I_{it} + \boldsymbol{\beta_h^n} G_{it}(1 - I_{it}) + \theta I_{it} + \sum_{l=1}^{4} \gamma_l^{h\prime} X_{i,t-l} + \alpha_i^h + \lambda_t^h + u_{i,t}^h$$



- Null hypothesis $\boldsymbol{\beta_h^r} = \boldsymbol{\beta_h^n}$ is rejected at *p<0.05*

- Robustness using alternative measure of gov. spending (Link).

Result: Counter-cyclical Spending is Pro-female Employment in the Long Run

Long-term Effect.

- ECA countries have witnessed a decrease in cyclicality and an increase in female share.
- **One-unit decrease in cyclicality** is associated with a statistically significant **1.973 pp increase in the female employment share** ($p<0.05$).
- To put this magnitude into perspective, this effect is **comparable to the estimated impact of a 3-pp increase in government spending**.

VARIABLES	(1) Dep. Var.=ΔFemale Share (%)	(2) Dep. Var.=ΔFemale Share (%)
ΔCyclicality	**-1.569***	**-1.973****
	(0.835)	**(0.792)**
ΔGovernment Consumption		0.651**
		(0.309)
ΔTax Revenue		-0.445**
		(0.206)
Log(Initial GDP per capita)	2.182***	1.997***
	(0.541)	(0.499)
Constant	-19.05***	-17.64***
	(5.401)	(4.981)
Observations	31	31
R-squared	0.368	0.510

Note: This table displays results from long-difference regressions. Each column corresponds to one weighted least square (WLS) regression using population as sample weights. The dependent variable is the change in the female share (expressed as a percentage), calculated as the average value from 2005-2019 minus the average value from 1990-2004. The symbol Δ indicates this same long-difference calculation (average 2005-2019 minus average 1990-2004) for the independent variables it precedes (Cyclicality, Government Consumption, Tax Revenue). Standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Result: Government Spending Effects on the Poor—not equalizing but better in recessions

Effects on the Poor.

- Cross-country **annual income distribution** panel from **The World Income Inequality Database** (WIID)
- **Recession** is positively associated with income inequality (column 3-4, row 5).
- **Government consumption** (perhaps surprising) is associated with significant increase in income inequality in non-recession periods (column 3-4, row 1).
- However, government spending helps **buffer against the negative effect of recession** on the poor (column 3-4, row 2).

VARIABLES	(1) Gini	(2) Bottom 20% Income Share	(3) Gini	(4) Bottom 20% Income Share
Government Consumption (% of GDP)	0.313***	-0.108***	0.357***	-0.117***
	(0.103)	(0.0313)	(0.111)	(0.0344)
Recession × Government Consumption (% of GDP)			**-0.103****	**0.0235***
			(0.0442)	**(0.0129)**
Tax Revenue (% of GDP)	-0.0757	0.0181	-0.0825	0.0191
	(0.0541)	(0.0147)	(0.0532)	(0.0140)
Recession × Tax Revenue (% of GDP)			0.0245	-0.00509
			(0.0297)	(0.00900)
Recession			**1.475**	**-0.375**
			(0.975)	**(0.299)**
GDP Per Capita Growth (%)	0.0675*	-0.0230**	0.0762**	-0.0256**
	(0.0356)	(0.0106)	(0.0376)	(0.0107)
Observations	609	609	609	609
R-squared	0.838	0.874	0.839	0.875
Country FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: This table presents the association between government consumption and income inequality. Each column represents a separate OLS regression using yearly income distribution data. Recession is an indicator of negative output gap. Standard errors are clustered at country level. *** p<0.01, ** p<0.05, * p<0.1

Result: Gov.ernment Spending Effects on the Poor

Effects on the Poor.

- Though recession is negatively associated with income share of lower deciles, government spending helps **buffer against the negative effect of recession** on the poor.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Decile Income Share (%)									
VARIABLES	1	2	3	4	5	6	7	8	9	10
Recession	**-0.149**	**-0.225**	**-0.197***	**-0.167**	**-0.144**	**-0.104**	**-0.0482**	**-0.0162**	**0.110**	**0.941**
	(0.156)	**(0.146)**	**(0.116)**	**(0.101)**	**(0.0904)**	**(0.0833)**	**(0.0761)**	**(0.0694)**	**(0.103)**	**(0.664)**
Recession×Government Consumption (% of GDP)	**0.0108**	**0.0127****	**0.0108***	**0.0107***	**0.0109****	**0.0102****	**0.00681***	**0.00500**	**-0.00745**	**-0.0705****
	(0.00690)	**(0.00628)**	**(0.00561)**	**(0.00535)**	**(0.00499)**	**(0.00466)**	**(0.00353)**	**(0.00383)**	**(0.00490)**	**(0.0325)**
Government Consumption (% of GDP)	-0.0645***	-0.0525***	-0.0411***	-0.0304**	-0.0209	-0.0144	0.000615	0.0131	0.0471***	0.163*
	(0.0183)	(0.0168)	(0.0151)	(0.0148)	(0.0148)	(0.0124)	(0.0106)	(0.00943)	(0.0123)	(0.0886)
R-squared	0.868	0.873	0.863	0.815	0.744	0.697	0.654	0.773	0.866	0.738
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: This table presents the association between government consumption and income inequality. Each column represents a separate OLS regression using yearly income distribution data. Recession is an indicator of negative output gap. All regressions include per-capita GDP growth, tax revenue (as a percent of GDP), and its interaction with the recession indicator as controls. Standard errors are clustered at country level. *** p<0.01, ** p<0.05, * p<0.1

Discussions

Policy Implications

1. **Ensure Countercyclicality of Fiscal Policies**:

   Improve automatic stabilizers, targeting, affordability and responsiveness to business cycles.

2. **Focus on Gender-Inclusive Fiscal Policies**:

   Invest in sectors with high female employment (healthcare, education, social services).

3. **Enhance Targeted Social Protection Programs**

4. **Promote Inclusive Growth**:

   Improve access to education, healthcare, finance, and affordable housing.

5. **Monitor and Evaluate Policy Impact**:

   Strengthen data collection frequency and regular evaluations.

Limitations and Future Research

- **Better Identification of Fiscal Shocks.**
- **More Detailed Investigations of Spending Structures:**
  - Using sectoral spending data to evaluate the heterogeneous effects of different spending items (e.g. social spending, public investment, etc.)
  - Rank fiscal instruments by effectiveness on promoting female employment and impact on the poor
- **Extension to More Countries and Other World Regions**
  - Toward better understanding of regional heterogeneity.

Additional Results

Result: Fiscal Spending is More Pro-female during Recessions

Robustness in Yearly Panel & Alternative Spending Measure

- **Gov. Consumption**: GDP=C+I+**G**+NX.
- **Primary Expenditure**: includes **public investments** and **transfer payments** in addition to consumption.
- Use yearly primary expenditure data from IMF *Public Finances in Modern History* dataset (Mauro et al., 2015)
- Our core result that fiscal spending is more pro-female during recessions remains **robust**. (Back)

	(1)	(2)	(3)	(4)
	Dep. Var: Female Share (%)			
	Year t+0	Year t+1	Year t+2	Year t+3
Panel A. Government Consumption				
Government Consumption (% of GDP)	-0.0273	-0.0361	-0.0598	-0.0471
	(0.137)	(0.131)	(0.122)	(0.110)
Government Consumption (% of GDP)×Recession	0.0464**	0.0594**	0.0590**	0.0339*
	(0.0194)	(0.0233)	(0.0245)	(0.0196)
Observations	1,223	1,219	1,213	1,206
R-squared	0.918	0.919	0.920	0.919
Country FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Panel B. Primary Expenditure (Net of Interest Payment)				
Primary Expenditure (% of GDP)	-0.0167	-0.0275	-0.0404	-0.0335
	(0.0558)	(0.0535)	(0.0510)	(0.0514)
Primary Expenditure (% of GDP)×Recession	0.0174	0.0291*	0.0441***	0.0246*
	(0.0159)	(0.0168)	(0.0138)	(0.0134)
Observations	1,086	1,081	1,075	1,069
R-squared	0.902	0.904	0.905	0.905
Country FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

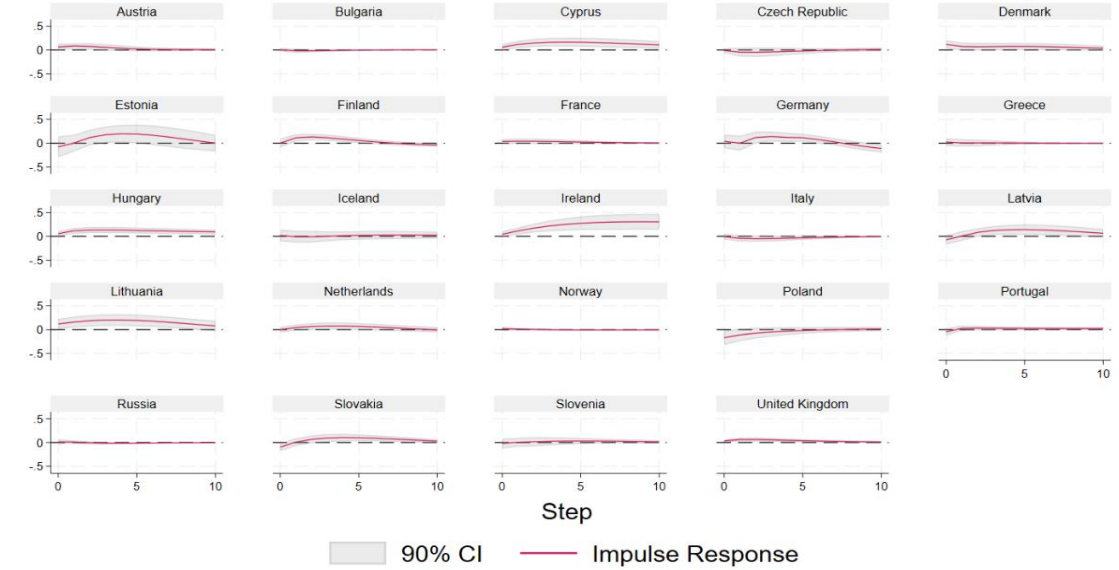
Note: This table displays the estimated effects of government spending on female employment share, from the current year of the spending shock to three years after the shock. In panel A, government spending is measured by government consumption in the national account; in panel B, government spending is measured by primary expenditure net of interest payment. Recession is an indicator which equals 1 if the estimated output gap is negative. All regressions include the recession indicator and lagged per-capital GDP growth rate as controls. Standard errors clustered at country level. *** p<0.01, ** p<0.05, * p<0.1

Heterogeneous Responses of Female Employment to Gov. Spending

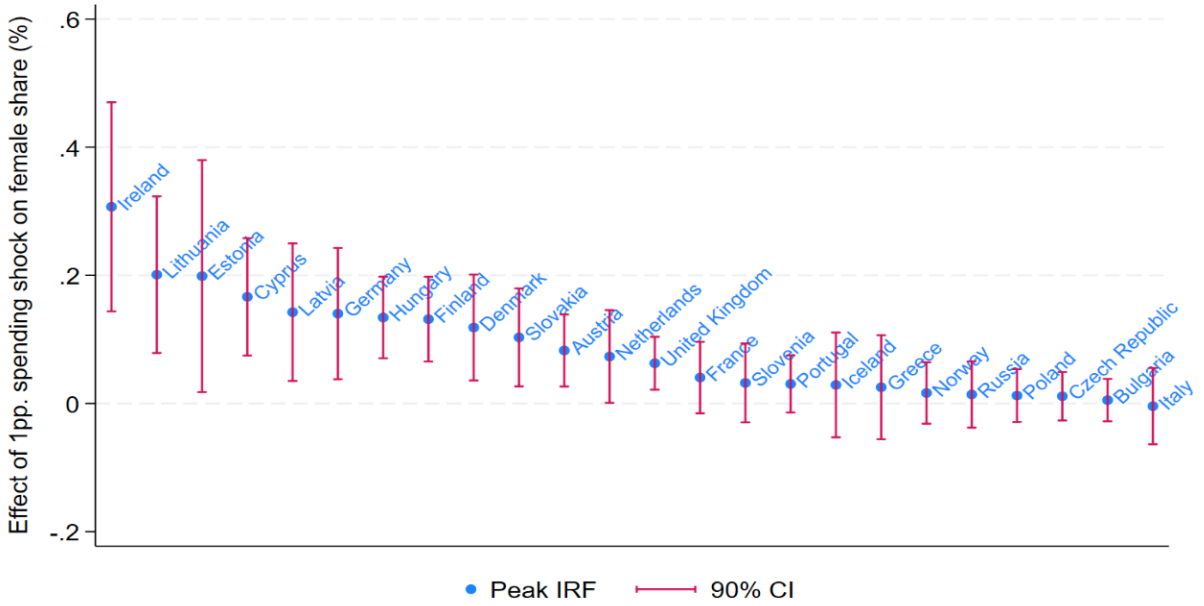
- **Country-by-country VAR**

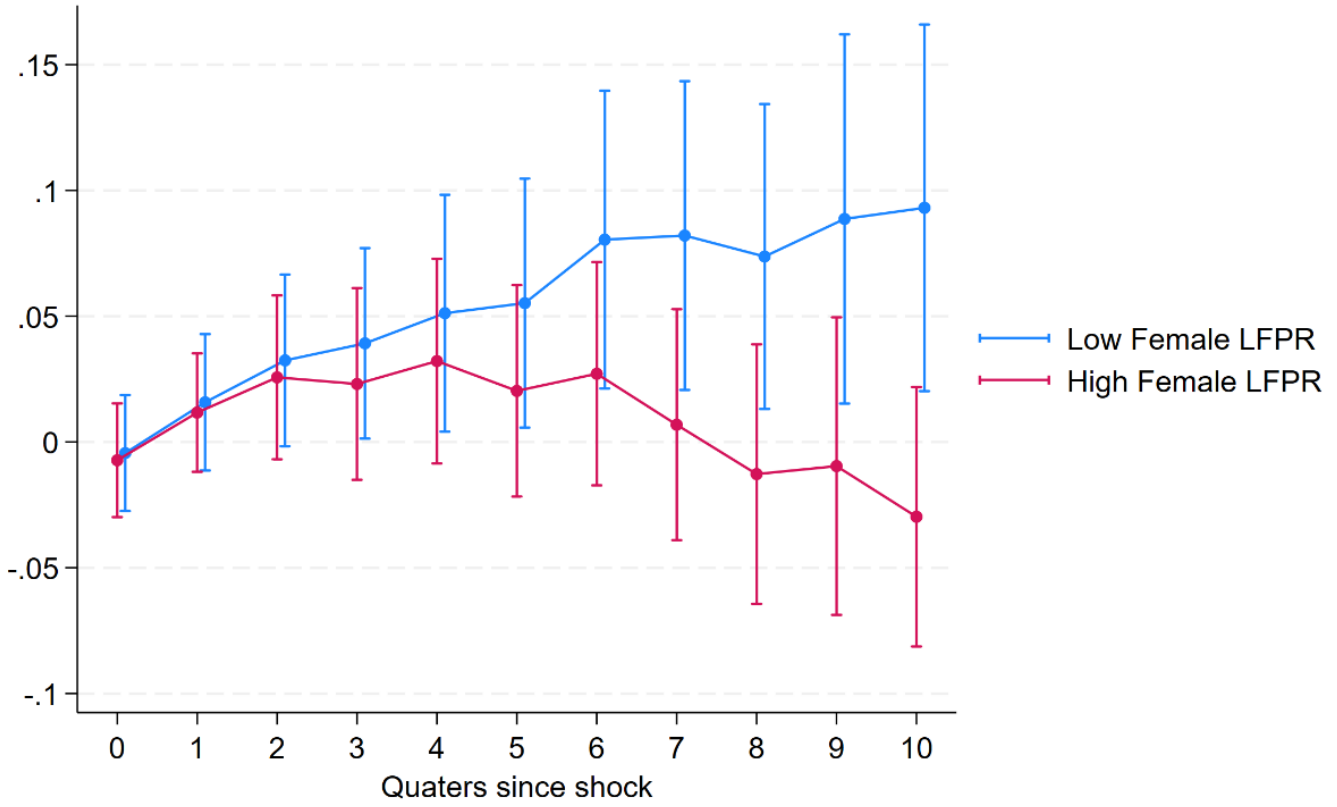
$$BX_t = \sum_{l=1}^{L} A_l X_{t-l} + f(t) + e_t$$

- X_t includes government consumption (% of GDP), government revenue (% of GDP), QoQ real GDP growth rate, unemployment rate, and female share of employment.
- $f(t)$ a deterministic time trend up to the second order (Akitoby et al., 2019)
- B reflects the contemporaneous effects between variables. Identification achieved by Blanchard and Perotti (2002)



Graphs by country



Heterogeneous Responses of Female Employment to Gov. Spending

- Gov. spending is **more effective** in promoting female employment when the country's **female labor force participation is low**. (Back)