The Economic Crisis of 2008 and the Added Worker Effect in Transition Countries

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Background

- Transition region includes a heterogeneous group of countries, linked by their socialist past, with per capita GDP in 2011 varying from about US$300 in Tajikistan to over US$12,000 in Slovenia.
- 11 of the 29 transition countries are EU members.
- Gender dynamics in the labor markets particularly salient because of the socialist legacy of gender equality, which has had a long-lasting impact on the region, with the 2011 female labor force participation rate of 60.5% in Tajikistan and 67.4% in Slovenia.

The 2008 crisis and the gender dynamics in the labor markets

- Employment rates of both men and women contracted, but the contraction was deeper for men than for women.

- Unemployment rates of both men and women increased, but men's rate surpassed women's in 2010 for the first time since 2000.

- Women's labor force participation rate increased between 2008 and 2010, whereas men's rate declined.

- These changes have produced arguments that women have been spared the worst impact of the crisis.

Goal

To critically evaluate this claim by exploring whether the increase in female labor force participation rate may have been distress-driven.

Gender differences in the movement of labor markets

- Sectoral changes: male-dominated sectors hit the most during this crisis (ILO, 2010).

- Demand response: a. firms lay off women first (Singh and Zammit, 2000); b. women are hired over men (Cho and Newhouse, 2012).

- Labor supply response

Demand and supply responses can be viewed as second-order impact of crises

Literature

- The paper is rooted in the added worker effect (AWE) literature.

- Original definition: inactive wife's entry into labor force in response to the husband's loss of a job (Lundberg, 1985).

Labor supply responses (household-specific shocks)

- Positive channels:

a. Income channel – individuals increase their labor supply in order to compensate for the drop in income induced by the unemployment shock (McKenzie, 2003).

b. Reservation wage channel – individual reservation wage decreases because the newly unemployed household members are able to take over household responsibilities.

Women are the more likely drivers in both cases.

Labor supply responses (household-specific shocks)

- Negative channel:

Home production channel – households cope with the drop in income by increasing their household production in order to substitute for market goods, exiting the labor force altogether.

Women are the more likely candidates.

Labor supply responses (macroeconomic environment)

- In addition to household-specific shocks, variation in macroeconomic conditions, too, can elicit different labor supply behavior:

a. Positive response: if the reduction in expected income increases the labor supply.

b. Negative response: if search costs are higher (discouraged worker effect); opportunity cost of leisure goes down (with lower wages); lower wage offers result in more people withdrawing from the labor force.

Empirical evidence

- Evidence from developed and developing countries varies

Smaller AWE in developed countries, presumably due to better unemployment insurance systems and stronger financial institutions however there is substantial variation in developing countries, as well.

- Transition countries

a. Cho and Newhouse (2012) find no evidence of the added worker effect for men or women (using data from 17 countries, including 5 middle to high-middle income transition countries)

b. Bhalotra and Umana-Aponte (2010) find no evidence of the added worker effect into employment among women (using data from 63 countries, including 9 lower-income transition countries).

Data

- 2010 Life in Transition Survey, around 1000 respondents from each of the 29 transition countries.

- Includes a module on crisis, which asks respondents how the crisis has affected them.

- Augmented by the WDI-based macroeconomic indicators.

Variables

- **Dependent variable:** Labor force participation status, takes the value of 1 if an individual is active and 0 if an individual is inactive.

- **Explanatory variables**

a. Key variable of interest: Loss of another household member's job

Based on the survey, 41.69% of the households in the transition region have 3 or more adults, as compared to only 19.40% in the United States.

- **Explanatory variables**:

b. Individual and household characteristics:

Gender, marital status, age, education, number of children

c. Macroeconomic variables:

Unemployment rate, per capita GDP, industry share, service share, government share, and export share

Summary Statistics

	Female	Male
Labor force	0.713	0.872
Job loss other	0.145	0.136
Marriage	0.673	0.662
No children	0.492	0.563
1 child	0.243	0.218
2 or more children	0.265	0.219
Age 18–24	0.114	0.136
Age 25–34	0.294	0.312
Age 35–44	0.259	0.246
Age 45–54	0.237	0.209
Age 55–64	0.095	0.098
Secondary	0.348	0.367
Vocational	0.184	0.167
Tertiary	0.242	0.217

Methodology

- Binomial logit,

$$\Pr(y_i = 1 | X_i) = \frac{\exp(X_i' \beta)}{1 + \exp(X_i' \beta)} = \Lambda(X_i' \beta),$$

where y_i takes the value of 1 if individual i is in the labor force and 0 if individual i is not in the labor force.

- We report the result in terms of average marginal effects, which are individual marginal effects averaged over the sample observations.

For continuous variables;

$$ME_i = \frac{\partial \Lambda(X_i' \beta)}{\partial X_i} = \Lambda(X_i' \beta)(1 - \Lambda(X_i' \beta)\beta.$$

For binary variables:

$$ME_i = \Pr(y_i = 1 | \bar{X}_{i \backslash d}, d = 1) - \Pr(y_i = 1 | \bar{X}_{i \backslash d,}, d = 0),$$

where $\bar{X}_{i \backslash d}$ is the mean of the variables in the sample, excluding d.

Marginal effects, by individual and household characteristics

	Women	Men
Overall	**0.0290**	**-0.0229**
	(0.0117)**	**(0.0118)***
Overall (with spousal loss of a job)	**0.1051**	**-0.0294**
	(0.0310)***	**(0.0174)***
Married	**0.0358**	-0.0195
	(0.0149)**	(0.0133)
Unmarried	0.0035	**-0.0411**

	Women	Men
Age 18–24	0.0444	-0.0510
	(0.0390)	(0.0421)
Age 25–34	**0.0363**	-0.0325
	(0.0207)*	(0.0241)
Age 35–44	-0.0015	-0.0225
	(0.0227)	(0.0204)
Age 45–54	**0.0432**	0.0083
	(0.0188)**	(0.0183)
Age 55–64	0.0103	-0.0605
	(0.0297)	(0.0427)

Marginal effects, by individual and household characteristics

	Women	Men
Secondary	**0.0534**	**-0.0444**
	(0.0206)*	**(0.0225)**
Vocational	-0.0038	-0.0019
	(0.0240)	(0.0290)
Tertiary	0.0131	-0.0496
	(0.0221)	(0.0307)
No children	**0.0370**	-0.0219
	(0.0138)*	(0.0163)
1 child	0.0217	**-0.0470**
	(0.0214)	**(0.0256)***
2 children or more	0.0187	-0.0104
	(0.0276)	(0.0222)

Marginal effects, by individual and household characteristics

	Women	Men
Credit card	0.0153	-0.0217
	(0.0207)	(0.0241)
No credit card	**0.0352**	-0.0224
	(0.0138)**	(0.0153)
Secondary residence	0.0132	-0.0580
	(0.0420)	(0.0486)
No secondary residence	**0.0308**	**-0.0205**
	(0.0128)**	**(0.0117)***

Summarizing the marginal effects, by individual and household characteristics

- Women: added worker effect driven by 45- to 54-year-old married women with secondary education and no children in the household.

- Men: negative labor supply association, present among unmarried men with secondary education and one child.

- These relationships are more pronounced among more vulnerable households, especially for women.

Marginal effects, by macroeconomic characteristics

	Women	Men		Women	Men
Non-EU countries	**0.0437**	-0.0234	GDP per capita less than $1000	-0.0122	-0.0148
	(0.0131)*	(0.0150)		(0.0363)	(0.0351)
EU countries	0.0039	-0.0211	$1,000–$2,000	0.0246	-0.0193
	(0.0191)	(0.0195)		(0.0220)	(0.0247)
			$2,000–$3,300	**0.0557**	**-0.0544**
				(0.0185)*	**(0.0224)**
			GDP per capita $3,300 or higher	0.0165	-0.0049
				(0.0192)	(0.0193)
			Unemployment rate 13 per cent or higher	**0.0322**	**-0.0283**
				(0.0138)	**(0.0138)**
			Unemployment rate <13 per cent	0.0011	-0.0085
				(0.0231)	(0.0198)

Summarizing the marginal effects, by macroeconomic characteristics

- Women: The added worker effect is present in the non-EU countries but is absent in the EU countries. It is pronounced among women in the countries with above average unemployment rate (above 13%) and in the middle of the regional income distribution ($2,000 - $3,300).

- Men: The negative association among men is also more pronounced in the countries with above average unemployment rate and in the middle of the regional income distribution.

Labor force participation and macroeconomic environment

	Women	Men
Unemployment rate	**-0.0022**	**-0.0012**
	(0.0005)*	**(0.0005)**
Log GDP per capita	**0.0662**	-0.0081
	(0.0087)*	(0.0088)

Summarizing the relationship between LFP and macroeconomic environment

- Higher unemployment rate is associated with lower labor force participation rates for both men and women (especially so for women) hinting at some of form of a discouraged worker effect.

- For women, the discouraged worker effect is also present relative to per capita GDP.

Conclusions

- The added worker effect among women is present in the transition region and is a likely contributor to the increased labor force participation rate of women during the crisis.
- It is particularly strong among more vulnerable households and in the countries in the middle of the regional income distribution.
- There are indications of the discouraged worker effect with respect to macroeconomic variables for both men and women although the effect for women is stronger.
- The relationship between income shocks and labor supply response depends on the nature of the income shock (household-specific versus macroeconomic).

Thank you.

Complete results (overall)

	Women	Men
Job loss incidence	0.0290	-0.0229
	(0.0117)**	(0.0118)*
Marriage	-0.1156	0.0195
	(0.0103)***	(0.0100)*
Age 18–24	-0.1602	-0.0382
	(0.0195)***	(0.0190)**
Age 25–34	-0.0997	-0.0039
	(0.0126)***	(0.0125)
Age 45–54	-0.0292	-0.0184
	(0.0119)**	(0.0135)
Age 55–64	-0.122	-0.0946
	(0.0186)***	(0.0186)***
Secondary	0.0876	0.0452
	(0.0112)***	(0.0086)***
Vocational	0.1488	0.0604
	(0.0113)***	(0.0097)***

	Women	Men
# of children	-0.0335	-0.0062
	(0.0051)***	(0.0041)
Unemployment rate	-0.0022	-0.0012
	(0.0005)***	(0.0005)**
Log GDP per capita	0.0662	-0.0081
	(0.0087)***	(0.0088)
Service share	0.0007	0.0013
	(0.0014)	(0.0012)
Industry share	-0.0035	0.0007
	(0.0014)**	(0.0012)
Government share	-0.0025	-0.0059
	(0.0014)*	(0.0015)***
Exports	0.0011	0.0015
	(0.0003)***	(0.0003)***

Summary of the complete results

- Women: marriage lowers the probability of labor force participation as does having children, education increases it, 35 – 44 year olds have the highest probability of LFP

- Men: education raises men's LFP, the youngest and eldest have the lowest LFP, with the youngest group being the least likely to be active.

Summary of the complete results

- Services: surprisingly they don't matter.
- Industry: countries with higher service share have lower female labor force participation rates.
- Government: larger government size is associated with lower female and male labor force participation rates (especially male LFP).
- Exports: more open economies also have higher female and male labor force participation rates.