The Impact of Globalization on Female Employment: Econometric Evidence for the Selected Transition Countries

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Abstract

Globalization is defined as the exchange of human capital, technology, and culture, along with many other economic, financial, and cultural factors, between countries, and it is regarded as a significant determinant of labor market dynamics and integration. Some studies in the labor economics literature suggest that as the borders between countries close as a result of globalization, the number of employment opportunities available to women increases. This, in turn, might result in releasing restrictions on female employment and leading to reductions in the wage gap among female workers, especially between developing and developed countries. However, other studies indicate that the impact of globalization on female employment during the globalization process remains negative. The principal objective of this study is to decide whether a country's globalization index has impeded female employment in transition countries. The majority of transition countries are associated with developing economies. A panel dataset of the selected 21 transition countries from 1995 to 2017 is employed in the analysis. The results of the Cross-Sectionally Augmented Autoregressive Distributed Lag model (CS-ARDL) indicate that globalization is negatively associated with female employment for the selected transition countries. Thus, globalization might create obstacles among female workers unless policymakers provide optimal policies to keep the labor market dynamics stable during the globalization process.

1 Introduction

Globalization is defined as the accelerated international economic relations, which has developed since the 1980s, and is linked to a higher level of economic liberalization of both international and national economies (Jomo, 2003). Despite the fact that rapid globalization and rapid technological advancement are known to have a significant impact on women's labor market conditions in recent years, there are still many obstacles preventing them from fully participating in society's various facets (Iqbal and Asrar, 2022). In the world, two thirds of the labor force consist of women who also receive 10% of the income along with having 1% of the production resources (Lips, 2017).

Globalization affects women employment both positively and negatively. Positive impact can be observed not just in terms of the rise in the proportion of female workers, however, also as regards to the standard of their working circumstances (Gills and Piper, 2002). Women are being attracted more and more into the labor market as countries liberalize their economies and transnational corporations establish operations there to cut costs. Similar to how positions in financial and office services typically see quick growth during the expansion of international business, certain roles in banking and commercial services also experience rapid growth as a result of globalization by offering specialized services to rapidly growing international businesses (Mears, 1995). Female employment rises as a result of multinational firms' easy access to the cheapest female labor in developing nations (Richards and Gelleny, 2007; Seguino and Grown, 2006; Gaddis and Pieters, 2012). On women's employment and living standards, globalization has had significant and primarily negative effects, too (Acar, 2009), due to the increased competition in the labor market brought about by globalization (Maqsood, 2014).

In comparison to men, who make up 80% of the labor force, women make up only around 55% of the workforce globally. Given that female employment has a strong correlation with globalization, these gender differences are a crucial focus for research on this topic (Okşak and Yalçinkaya Koyuncu, 2017).

The main purpose of this paper is to explore the effect of globalization on female employment. In the econometric analysis we utilized annual data of 21 selected transition economies for the period from 1995 to 2017. The cross-sectionally augmented autoregressive distributed lag (CS-ARDL) modeling approach developed by Chudik et al. (2015) is applied for the empirical study, which takes cross-sectional heterogeneity, time dynamics and cross-sectional dependence into account. When cross-sectional independence is falsely assumed, biases can come from a variety of sources (Phillips and Sul, 2003; Andrews, 2005; Everaert and De Groote, 2016). Therefore, the recent procedure employed in this study takes into consideration the issue of cross-sectional dependence. In this aspect, it gains superiority over other methods.

The rest of the study is framed as follows: The next section discusses the extant literature. Third section investigates female labor force trends in transition economies. In the fourth section, data set, econometric methodology are described and empirical results are reported. The fifth section concludes.

2 Literature Review

The impact of globalization on female employment has been investigated by researchers via different data sets and econometric methods. In their studies FDI (foreign direct investments) and trade openness are used as a proxy for globalization. Empirical findings are found to be different. Some studies report that globalization has positive impact on female employment (Hossain et al., 2022; Voumik et al., 2023; Okşak and Yalçinkaya Koyuncu, 2017; Maqsood, 2014) whereas in others negative impact on female employment (Wacker et al., 2017; Bussmann, 2009) is stated.

Our study can contribute to the existing literature in three ways. Firstly, our study utilizes globalization index from KOF Index as proxy for globalization. Secondly, in the empirical analysis we employ recently developed CS-ARDL framework in order to examine both short run and the long run impacts of globalization on female employment. Thirdly, to the best of our knowledge, this is the first study considering transition economies to investigate the impact of globalization on female employment.

3 Female Labor Force Trends in Transition Economies

Since transition countries had shared comparable institutions and beliefs for so long, nations at the beginning of transition shared a variety of traits, such as levels of female labor force participation and educational attainment. Socialists promoted female education and believed that women's participation in the work force was essential to achieving the goals of the plan. Most nations made significant educational investments in women, and as a result, by the early 1990s, several of those nations had higher average levels of education for women than for men—a distinction that has mostly been true ever since. Women in transition nations have education levels that are significantly higher than those of women in developing countries are and almost equal to those of women in high-income countries (Pignatti, 2020).

Socialist nations strongly promoted female involvement in the labor force through a variety of channels, including propaganda and other legislative initiatives. For instance, the state offered working mothers access to affordable childcare options, frequently including infant care, and maternity benefits (Grogan and Koka, 2010). Labor market institutions underwent a significant transformation as a result of the fall of socialist regimes. Women were impacted by these shifts in many ways, sometimes going in the opposite direction (Pignatti, 2020). The prior socialist countries experienced significant economic and social crisis in the early stages of the transition. Due to a combination of causes, female labor force participation saw significant swings, and trends for female and male labor force participation diverged.

4 Data Set, Econometric Methodology and Results

4.1 Data set

Our study consists of 21 transition countries including Belarus, Bosnia and Herzegovina, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Poland, Romania, Russian Federation, Slovak Republic, Slovenia, Tajikistan, Tajikistan, Turkmenistan, Ukraine and Uzbekistan for the period between 1995 and 2017. As a result, the total sample size consists of 483 observations, resulting in a balanced panel data set. Other transition countries have to be excluded due to the unavailability of the data for the analysis period. As the focus of the analysis is to examine the association between female employment and globalization index, the dependent variable is defined as the percentage of female employment to population ratio aged 15 and above collected from the World Development Indicators database along with other control variables such as fertility rate and gross domestic product per capita. In addition, the globalization index is imported from the KOF Swiss Economic Institute database for years from 1995 to 2017. The variables are included in the model in their natural logarithms to avoid any heterogeneity concerns in the data. Table 1 describes all variables employed in the analysis along with their definitions.

Variables	Definitions	Abbreviations	Source
Dependent Variable			
Female Employment	Female employment to population ratio aged 15 and above (%) (modeled ILO estimate)	LFEMEMP	WDI
Independent Variables			
Globalization Index	KOF Globalization Index	LGLOBAL	KOF
Fertility Rate	Fertility rate (total births per woman)	LFERT	WDI
Gross Domestic Product per capita	GDP per capita (constant 2015 US$)	LGDPC	WDI

Note: WDI indicates the World Development Indicator Database (World Bank Official Website) and KOF refers to the KOF Swiss Economic Institute Database.

Table 1. *Definitions and Abbreviations of Variables*

4.2 Econometric methodology and results

As the fundamental aim of this study is to explore the impact of the globalization on female employment among the selected 21 transition countries between 1995 and 2017, the model in Equation 1 is presented based on the previous literature:

$$\text{LFEMEMP}_{it} = \alpha_{1i} + \alpha_2 \text{LGLOBAL}_{it} + \alpha_3 \text{LFERT}_{it} + \alpha_4 \text{LGDPC}_{it} + u_{it} \quad (1)$$

where i=1,…..,21 and t= 1995,……,2017

In Equation (1), i indicates each transition country in the sample and t refers to year. As previously mentioned, all variables are included in the model in their natural logarithmic forms. Before the estimation procedure, we first examine whether the panel exhibits cross sectional dependence and that of the slope homogeneity assumptions hold. The classic panel data estimators such as random or fixed effects assume the non-existence of sectional dependence across units and no slope heterogeneity and if those assumptions do not hold then the parameters estimators would provide misleading and inconsistent inferences (Chudik and Pesaran, 2013:2; Phillips and Sul, 2003:162).

In our data, since T>N, the cross-sectional dependence of errors is initially investigated with the Breusch Pagan (1980) Lagrange Multiplier (LM) test. However, there might appear size distortions with the LM test once T is finite and N is large. Therefore, the bias adjusted LM test is proposed to control the size by providing the exact mean and variance of the test indicator of the test statistic in order to dilute the bias (Pesaran et al., 2008: 105). The null hypotheses of both tests indicate the non-existence of cross-sectional dependence of errors. Table 2 displays the test results of the cross-sectional dependence. The LM and LM_{adj} test statistics are statistically significant at 1% level as such indicating the rejecting of the null hypothesis of zero cross sectional dependence of errors.

Before performing the panel unit root test, one should decide if the coefficients of the transition countries in the long run are homogeneous or heterogeneous. The slope homogeneity of our model is tested via delta tests ($\tilde{\Delta}$ and $\tilde{\Delta}_{adj}$) developed by Pesaran and Yamagata (2008). The delta test is considered as a standardized form of the Swamy test (Swamy, 1970). Rejecting the null hypothesis of both tests refers to the slope heterogeneity of the panel. The results are outlined at the bottom part of Table 2. The statistics of the tests suggest that the null hypothesis of homogeneous slope coefficients should be rejected at 1% significance level.

Test	Statistics
Cross Sectional Dependence	
LM	509***
LM_{adj}	30.98***
Slope Homogeneity	
$\tilde{\Delta}$	19.201***
$\tilde{\Delta}_{adj}$	21.705***

(i) *** indicates statistical significance at 1% level.
(ii) $LM = T\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}^2$ where T represents year, N indicates the number of countries in the panel. $\hat{\rho}_{ij}$ refers to the estimate of residuals' pair-wise correlation.
(iii) $\tilde{\Delta} = \frac{1}{\sqrt{N}}\left(\frac{\sum_{i=1}^{N}\tilde{d}_i - k_2}{\sqrt{2k_2}}\right)$

Table 2. *Cross-Sectional Dependence and Slope Homogeneity Tests Results*

In the next stage of our analysis, as our panel is associated with cross sectional dependence and heterogeneous slope coefficients, we test whether the variables in the model are stationary via the cross-sectionally augmented panel unit root (CIPS) test proposed by Pesaran (2007). One of the importance of the test is its consistency even with the small samples under cross sectional dependence.

Variables	CIPS (level)	CIPS (first difference)	Integration
LFEMEMP	-1.584	-3.719***	I(1)
LGLOBAL	-2.409***	-4.369***	I(0)
LFERT	-1.784	-3.283***	I(1)
LGDPC	-2.759***	-3.333***	I(0)

i)H_0: The existence of unit root. ii) *** refers to the significance at 1% level. iii) $\text{CIPS}(N,T) = N^{-1}\sum_{i=1}^{N} t_i(N,T)$

Table 3. *The Unit Root Test Results (CIPS test)*

Table 3 reports the CIPS test results for each variable in the model. Considering the CIPS test results, LGLOBAL and LGDPC are stationary at level (I(0)) whereas LFEMEMP and LFERT are integrated of order one (I(1)). Therefore, the variables in the model are associated with the mixed levels of stationarity. Due to the mixed

stationarity of the variables (I(0) and I(1)) and the existence of cross sectional dependency of errors, the estimation of the model is performed with the Cross-Sectionally Augmented Autoregressive Distributed Lag model (CS-ARDL) introduced by Chudik et al. (2016). One of the main advantages of utilizing this method is that it provides estimates for the short- and long-term impacts between dependent and the independent variables under cross sectional dependence. The mean group estimations are further permitted in the method in the case of heterogeneous slope coefficients (Okumus et al., 2021:56600). Moreover, the method performs well even if there exists endogeneity issue in the model.

The general notation of the CS-ARDL equation is presented below:

$$L\text{FEMEMP}_{i,t} = \alpha_i + \sum_{l=1}^{p_y} \lambda_{l,i} L\text{FEMEMP}_{i,t-l} + \sum_{l=0}^{p_x} \beta_{l,i} X_{i,t-l} + \sum_{l=0}^{p_\varphi} \varphi'_{i,l} \bar{z}_{i,t-l} + \varepsilon_{i,t} \quad (2)$$

where $L\text{FEMEMP}_{i,t}$ is the dependent variable; $X_{i,t}$ is defined as $\text{LGLOBAL}_{i,t}$, $\text{LFERT}_{i,t}$, and $\text{LGDPC}_{i,t}$; $\bar{Z}_{i,t-l}$ equals to $(\overline{L\text{FEMEMP}}_{i,t-l}, \bar{X}_{i,t-l})$ and defined as the lagged cross-sectional averages of all variables. $\varepsilon_{i,t}$ is the error term. l refers to the optimum lag length.

The long run mean group estimates of the CS-ARDL are displayed as in Equation (3) (Ditzen, 2021: 691)

$$\hat{\theta}_{CS-ARDL,i} = \frac{\sum_{l=0}^{p_x} \hat{\beta}_{l,i}}{1-\sum_{l=0}^{p_y} \hat{\lambda}_{l,i}}, \hat{\theta}_{MG} = {}^{1}/_{N} \sum_{i=1}^{N} \hat{\theta}_i \quad (3)$$

In Equation (3), separate estimation for each cross-section is indicated by $\hat{\theta}_i$ and the error correction representation (ECM) of the model is shown as follows:

$$\begin{aligned} \Delta Y_{it} = \; & \partial_i \left[Y_{i,t-l} - \hat{\theta}_i X_{i,t} \right] - \alpha_i + \sum_{l=1}^{p_{Y-1}} \lambda_{l,i} \Delta_l Y_{i,t-l} \\ & + \sum_{l=0}^{p_x} \beta_{l,i} \Delta_l X_{i,t-l} \sum_{l=0}^{p_\varphi} \varphi'_{i,l} \Delta_l \bar{Z}_{i,t-l} + u_{it} \end{aligned} \quad (4)$$

The speed of adjustment of the CS-ARDL is defined as ∂_i where this is required to be negative and statistically significant.

Based on the previous literature, the optimal lag selection of the CS-ARDL method in our study is ruled out by model selection criteria such as F joint test and adjusted R^2 (Okumus et al., 2021: 56601). The estimation results of the CS-ARDL (1 1 0 0) model are shown in Table 4.

	Coefficients	**Standard Errors**
Short run estimates		
D(LFEMEMP(-1))	0.227***	0.066
D(LGLOBAL)	-0.180	0.170
D(LGLOBAL(-1))	-0.113	0.076
D(LFERT)	0.130**	0.051
D(LGDPC)	0.222***	0.078
Adjustment term	- 0.772***	0.066
Long run estimates		
LGLOBAL	-0.522*	0.311
LFERT	0.217**	0.089
LGDPC	0.230**	0.100
R^2_{adj}	0.35	
$F_{statistic}$	2.01***	

i) ***, **, and * refer to the significance levels at 1%, 5%, and 10%, respectively.
ii) D refers to the first difference of the given variable.

Table 4. *Estimation Results of the CS-ARDL (1 1 0 0)*

Table 4 reveals that the speed of adjustment is -0.772 that is negative and statistically significant at 1% level. If the speed of adjustment is negative and statistically significant, this refers to the fact that in the long run, all variables are cointegrated. This further suggests that the whole economic system returns to equilibrium in case of a shock (Mabrouki, 2022). The analysis results reveal the existence of an inverse relation between globalization index and female employment among transition countries. However, this result is only statistically significant in the long run (-0.522). Once globalization increases, more job opportunities might be created for both men and women in the labor market for a short period of time. However, it might create obstacles among female workers due to the competitive labor market conditions in the long run. Therefore, female workers have to face with reduced labor demand. Furthermore, fertility rate is positively associated with female employment in the short run as well as in the long run (0.130 and 0.217, respectively). These impacts are statistically significant for both periods. This might imply that increasing number of children in the household might put pressure on women to be a part of the labor market due to the insufficient levels of household income for transition countries. Finally, our analysis reveals that the economic development is associated positively with the employment of women in both periods. Increasing

economic activity might create more job opportunities for women in the labor market due to the increased levels of labor demand.

5 Conclusion

As globalization is reported to affect female employment both positively and negatively by previous studies, our study explores if this impact is negative or positive and to what extent globalization impacts female employment among transition countries for years from 1995 to 2017. The method utilized in the analysis is the CS-ARDL suggested to be employed in the case of mixed stationarity of variables and cross sectionally dependent errors. The method further provides consistent estimates with heterogeneous panels.

Taken together CS-ARDL estimations, our results report that globalization is inversely related to female employment in the short run for transition countries, but this impact is not statistically significant. However, a negative statistically significant impact appears in the long run. Previous literature reports that as globalization increases, more job opportunities are created for both men and women in the labor market. However, due to the social norms and duties females are expected to achieve in the society (i.e., motherhood), females might have to handle with more competitive labor conditions. As a result, increased globalization might lower the level of female employment in the long run. With the aim to keep the labor market dynamics stable during the globalization process, policymakers should take cautions in preventing gender discrimination against women and promoting economic integration of women in the labor market.

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