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How does globalization affect female employment?: A Panel CS-ARDL analysis for transition countries*

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Abstract

Globalization is considered as a process of development for a country procured from the exchange of human capital, technology, and culture, along with many other economic, financial, and cultural factors at the international level. A wide range of studies in labor economics indicate that globalization and female employment are positively associated as job opportunities are enhanced for both males and females. However, others suggest that as opposed to males, once job opportunities increase, job market becomes more competitive in an unfavorable manner for females. This study intends to examine how globalization process affects female employment in transition countries over the period of 23 years from 1995 to 2017. To do this, a panel data consisting of a selected group of 21 transition countries are utilized in the analysis for which the Cross-Sectionally Augmented Autoregressive Distributed Lag model (CS-ARDL) is employed. Our results suggest that globalization is inversely related to female employment in the long run, which in turn suggests that globalization might create obstacles among females if policymakers do not provide any optimal policies to keep the labor market dynamics stable during the globalization process.

Keywords: Female Employment, Globalization, Transition Countries, Panel Data, CS-ARDL

JEL codes: J01, F66, F62, C33

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1. INTRODUCTION

Globalization could be considered as a magnificent process of world integration that promotes the interchange of ideas across various fields of culture, economy, politics, technology, and society (Hossain et al. 2022). The movement of people, organizations, ideas, discourses, and capital has become widely global as a result of globalization which is regarded as a combination of economic, political, cultural, and geographic activity (Moghadam 1999). Globalization is explained as the enhancing of international economic relations, that has stimulated during the 1980s, and it is further linked to greater economic liberalization at both international and national economic levels (Jomo 2003).

Growth in developing nations is frequently hampered by lagging technology and insufficient savings, which translate into low physical capital. Contrarily, labor is a relatively abundant resource that emerging nations have, making it possible to boost economic growth through the wise use of this resource (Hussain 2012). Encouraging more women, who are typically underrepresented in productive activities in poor nations (Sen 1990), is one of the practical strategies to increase human capital.

There are two key characteristics of globalization that significantly affect labor markets. One is the expansion of cross-border trade in final goods and services whereas the other expansion is the flow of labor, capital, and technology across international borders (Orbeta 2002). In terms of employment, emerging nations can profit greatly from globalization. This is due to the easier access to markets, cheaper transportation costs, easier information access, easier access to technology, and easier access to finance, all of which promise to increase exports, hasten the transfer of technology, and enlarges resources of investment. Increased level of global economic integration also offers considerable promise for the home market (Lall 2002). The conventional trade theory suggests that trade liberalization increases employment by encouraging labor-intensity in domestic and international trade-oriented activities.

Despite the fact that rapid globalization and rapid technological advancement are suggested to have a considerable effect 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, women perform two thirds of the labor, obtain 10% of the income, and possess 1% of the production resources (Lips 2017).

According to Hawkesworth (2006), "Globalization is a gendered phenomenon." This indicates that men and women experience globalization in different ways. The gender and development theory contends that a large portion of the work performed by women, including domestic and caring work, is unpaid (Sen and Grown 1987; Rathberger 1990; Kabeer 1994; Bakker 1994; Connelly et al. 1995; Marchand and Papart 1995 and Marchand 1996). As a result of their lack of access to education and training, as well as their home responsibilities, women are also prohibited from performing some types of highly skilled job. Moreover, women are grouped into occupations that are extensions of their responsibilities at home, such as domesticity and service.

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, but also in terms of 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 corporations establish operations there to cut costs. Similar to how positions in financial and office services typically see quick growth during the enlargement of international business, certain roles in commercial and banking services also experience rapid growth as a result of globalization by offering specialized services to rapidly growing international businesses (Mears 1995). On the other side, according to a theory of global economic restructuring and its effects on the distribution and status of women in labor markets at national level, inclusion in the global economy remarkably increases opportunities for

women but does not prevent obstacles or lessen the preponderance of low-paid, trivial jobs affiliated with women (Joekes and Weston 1994; Mears 1995; Meyer 2001). 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), because of the increased competition in the labor market brought about by globalization (Maqsood 2014).

When compared to men, who consist of 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).

According to Fakih and Ghazalian (2015), demand-side factors have gotten significantly less attention than supply-side factors when it comes to empirical research on the factors influencing female labor force participation. Supply-side factors include demographic, socio-economic, and household-related features. This research focuses on this gap and consideres globalization as a demand-side element that can boost female employment in developing nations. The effects of globalization on women's economic outcomes have been elaborated by researchers for developed and developing countries (Chopra 2019; Okşak and Koyuncu 2017; Wacker et al. 2017; Maqsood 2014). The extant literature highlights two opposing theories concerning the connection between globalization and women's involvement in the labor force (Hossain et al. 2022):

(1) Globalization benefits female employment, due to the fact that it generates new employment prospects.

(2) Globalization reduces female employment, because it makes the labor market more competitive for women.

The main purpose of our study is to explore how globalization affects female employment and to what extent. In the empirical analysis, we utilized panel data of 21 selected transition economies for years from 1995 to 2017. The cross-sectionally augmented autoregressive distributed lag (CS-ARDL) modeling approach developed by Chudik et al. (2016) is applied for the empirical study, which takes time dynamics, cross-sectional heterogeneity, and cross-sectional dependence into account as therefore, one would be able to understand both long and short run effects of variables on the dependent variable.

When the units experience both local and global spillovers at the same time, cross-sectional dependence arises. These common factors are typically impossible to observe. Since they represent a group of latent economic forces, ignoring them does not result in a simple problem of an omitted variable (Eberhardt and Teal 2013; Eberhardt and Presbitero 2015). 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, recent procedure employed in this study takes the issue of cross-sectional dependence into account. In this aspect, it gains superiority over other methods.

The study is planned as follows: The next section discusses previous studies. Third section provides information about 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 explored 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 whereas in others negative impact on female employment is stated. Previous studies investigating this association are displayed in Table 1.

Our study aims to contribute to the existing literature in three ways. Firstly, different from above-mentioned papers 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 focusing on the 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

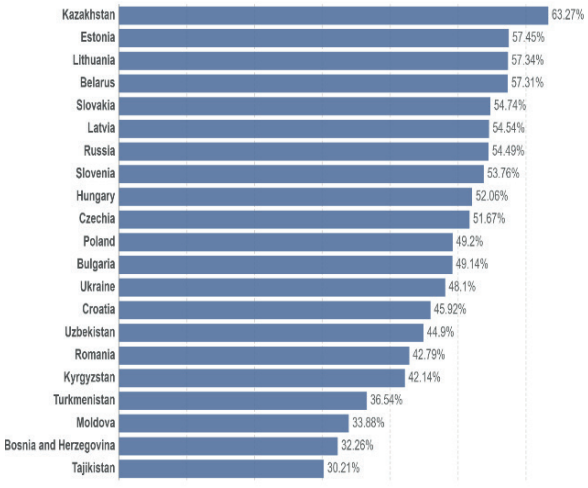
Table 1. Literature Summary

Authors	Country and Period	Method	Result
Voumik et al. (2023)	South Asian countries 1990 -2020	CS-ARDL Model	Trade openness has both a short-term and long-term very favorable effect on female employment.
Hossain et al. (2022)	99 countries 2001–2018 period	System GMM method	The findings indicate that FDI promotes FLFP (Female labor force participation) to some extent, but that low- and middle-income nations see more robust positive effects than high-income countries.
Iqbal and Asrar Mohiuddin (2022)	Pakistan 2000-2019	Regression analysis	The study shows how important globalization is to improving women's empowerment and contributing to gender equality in the country.
Chopra (2019)	163 countries 2016- 2018	The fixed effect regression method	FDI inflows had a profoundly favorable impact on women's wellbeing and contributed to their empowerment.
Okşak and Yalçinkaya Koyuncu (2017)	101 countries 1990-2014	Multivariate fixed time effect model	Globalization and female labor force participation are positively associated
Wacker et al. (2017)	80 developing countries 1980 - 2005	Fixed effects regression analysis	FDI and trade are negatively associated with FLFP
Cooray et al. (2017)	48 countries of Sub-Saharan Africa from 1985–2012	GMM method	Trade liberalization could increase economic efficiency and employment possibilities, but the advantages went disproportionately to men.
Maqsood (2014)	SAARC region 1990-2010	Panel Fixed Effect and Panel Random Effect models	FDI have boosted FLFP.
Cooray et al. (2012)	80 developing countries 1980–2005	Fixed effects regression analysis	FDI and trade have an inverse negative impact on female labor force participation generally.
Bussmann (2009)	134 developed and developing countries from 1970- 2000	GMM estimations	While trade openness results in a drop in FLFP for OECD countries, it improves FLFP for non-OECD countries.
Gray et al. (2006)	180 developed and undeveloped countries 1975-2000	Cross-sectional–time-series regression techniques	Female employment shares are not significantly impacted by trade and FDI.

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 formerly 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 both male and female labor force participation diverged.

Figure 1 shows female labor force participation among transition countries in 2021. As can be seen from the figure, among transition countries female labor force participation rate is higher in Kazakhstan (63.27%) and lower in Tajikistan (30.21%).

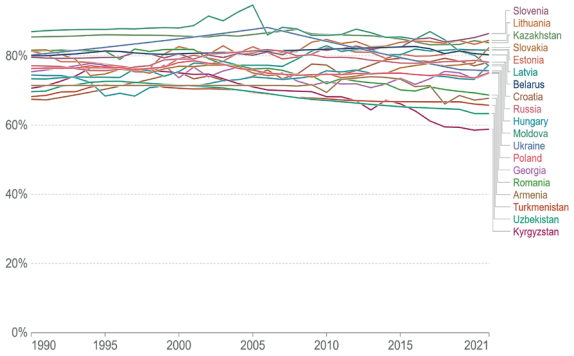
Figure 1. Female labor force participation in 2021



Source: Our World in Data (2023)

Despite recent gains in female participation rates, women are still likely to participate in the job market at a lower rate than men. In order to examine the trend in the ratio of female to male labor force participation rates, Figure 2 is illustrated. The figure shows that the percentages are typically well below 100%, indicating that participation rates for women are typically lower than those for men.

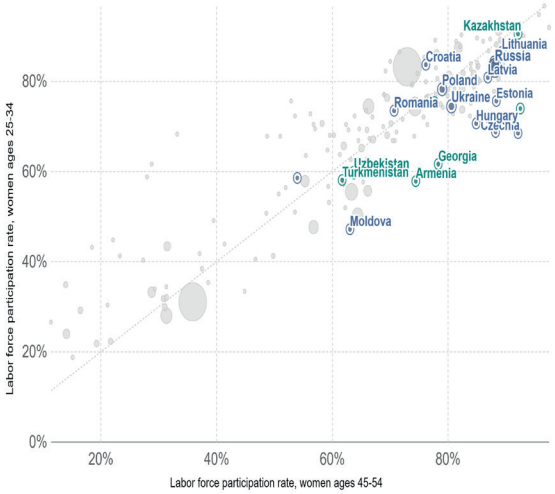
Figure 2. Ratio of female to male labor force participation rates, 1990-2021



Source: Our World in Data (2023)

The next figure (Figure 3) contrasts the participation of younger and older women in the labor force. Specifically among women in the 25–34 and 45–54 age groups. As we can observe, only a small number of countries are situated on the diagonal line; as a result, the participation of women in the labor force typically varies by age group. Figure 3 further reports that in transition economies labor force participation rate is a slightly higher among older women than younger ones.

Figure 3. Younger versus older women's labor force participation rates, 2021

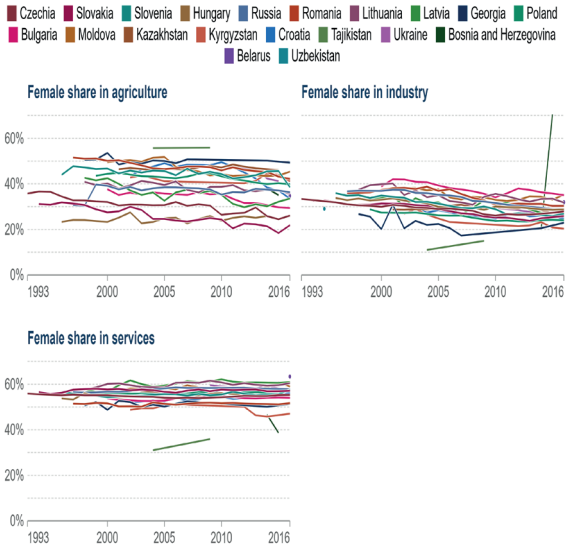


Source: Our World in Data (2023)

The percentage of women in various economic sectors is plotted in Figure 4. Based on the figure, we could observe that there is "occupational segregation" in the majority of countries: Women are disproportionately concentrated in particular occupations. The figure also suggests that in

transition economies female share in services is higher compared to other sectors of economy. In 2016, female employment rate in Belarus was 63.34 % and in Kyrgyzstan 47.08%. Female share in industry is 20.33% (in Kyrgyzstan)-35, 28 % (in Moldova). Female share in agriculture is 49.31% (in Georgia)-21.84% (in Slovakia)

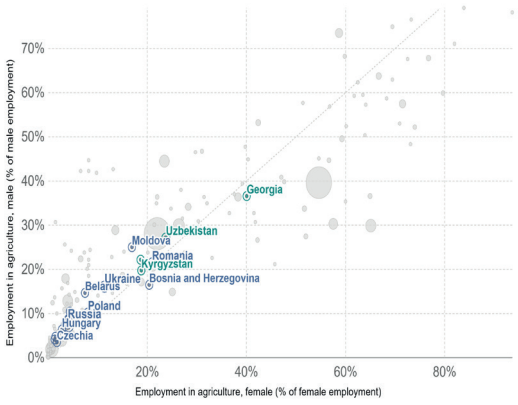
Figure 4. Percentage of female employees by economic sector, 1993 to 2016



Source: Our World in Data (2023)

Figure 5 illustrates the sectors in which women are employed. As can be observed from the figure, the distribution of female employment across sectors is different. Compared to women, men are more likely to work in industry. Furthermore, more women than men often work in the service sector. The distribution of employment between men and women is almost equally distributed in agriculture (Figure 5).

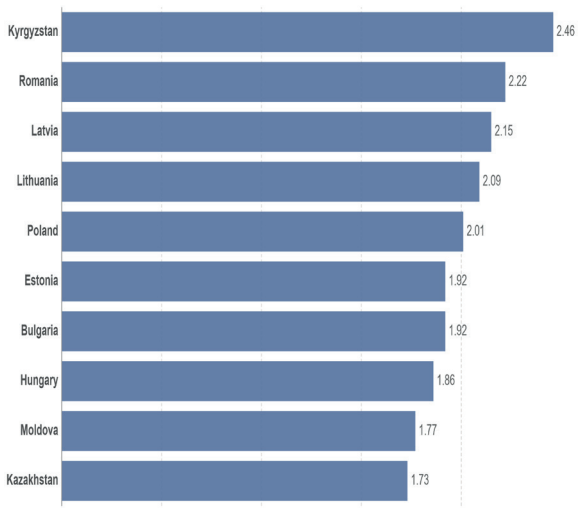
Figure 5. Employment ratio of men and women in services, industry, and agriculture in 2019



Source: Our World in Data (2023)

Figure 6 displays the time spent by men and women performing household chores, caring for family members, and volunteering in the community. Females allocate more time to these tasks compared to males. Transition economies are not exception. On the low end of the scale, women in Kazakhstan provide unpaid care for their families for 73 % more hours compared to men. On the opposite end of the scale, in countries like Kyrgyzstan, women labor 2.5 times as much on these activities as men do. Therefore, it could be seen that women allocate far more time to unpaid care tasks than men do.

Figure 6. Female to male ratio of time devoted to unpaid care work, 2014



Source: Our World in Data (2023)

Overall countries exhibit differences and similarities in patterns of female employment. It can be concluded that in transition economies, labor force participation rate is higher among older women and they are concentrated more in services sector. Like any woman in the world women in countries under studied devote much time to unpaid work. Women still have a lower participation rate in the labor force than men do in the countries under studied.

4. DATA SET, ECONOMETRIC METHODOLOGY AND RESULTS

4.1. Data Set

The data of the study consist of 21 transition countries namely 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. Due to the availability of the data, we are only able to limit the period from 1995 to 2017 (T = 23). As therefore, remaining transition countries have to be omitted form the data for the analysis period. As the primary aim is to explore the association between female employment and globalization index, "the percentage of female employment to population ratio aged 15 and above" is the preffered dependent variable of the analysis where fertility rate and gross domestic product per capita are regarded as the control variables (Table 2). The variables in the model are all in the form of their natural logarithms, which in turn, would avoid any heterogeneity concerns in the panel data.

Table 2. Descriptions of Variables

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.

4.2. Econometric Methodology and Results

With the aim to examine how globalization affects female employment in the selected 21 transition countries from 1995 to 2017, the classic panel data model presented in Equation 1 is utilized:

$$\text{LFEMEMP}_{it} = \partial_{1i} + \partial_2 \text{LGLOBAL}_{it} + \partial_3 \text{LFERT}_{it} + \partial_4 \text{LGDPC}_{it} + e_{it} \quad (1)$$

where i=1,…..,21 and t= 1995,……,2017

Each transition country in the sample is represented by i and t is the year and all variables are included in the model in their natural logarithmic forms (Equation (1)). Before the estimation procedure, we first examine whether the panel exhibits cross sectional dependence and that of the slope homogeneity assumptions hold. Panel data estimators such as fixed or random effects could be utilized under the assumption of the non-existence of cross sectional dependence

across units and no slope heterogeneity and if those assumptions do not hold then the parameters estimators would associated with 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 N is large and T is finite. 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 LM test statistic in order to dilute the bias (Pesaran et al. 2008: 105). The null hypothesis of both tests indicate the non-existence of cross sectional dependence of errors. The test statistics are calculated as follows respectively:

$$LM = T\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}^2 \quad (2)$$

where T represents year, N indicates the number of countries in the panel. refers to the estimate of residuals' pair-wise correlation defined as in Equation (3):

$$\hat{\rho}_{ij} = \hat{\rho}_{ji} = \frac{\sum_{t=1}^{T}\hat{u}_{it}\hat{u}_{jt}}{\left(\sum_{t=1}^{T}\hat{u}_{it}^2\right)^{1/2}\left(\sum_{t=1}^{T}\hat{u}_{jt}^2\right)^{1/2}} \quad (3)$$

where $\hat{u}_{it}$ and $\hat{u}_{jt}$ represent residuals for units i and j at time t respectively.

The LM_{adj} test statistic is calculated as below (Pesaran et al. 2008: 108):

$$LM_{adj} = \sqrt{\frac{2}{N(N-1)}}\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\frac{(T-k)\hat{\rho}_{ij}^2-\mu_{Tij}}{V_{Tij}} \quad (4)$$

where the exact mean of $(T-k)\hat{\rho}_{ij}^2$ is defined as μ_{Tij} and V_{Tij} is the variance.

The results of the cross sectional dependence tests for our model are reported in Table 3. The LM and LM_{adj} test statistics are statistically significant at 1% level. This indicates the rejection 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 test developed by Pesaran and Yamagata (2008). The test is developed as a standardized form of the Swamy test (Swamy 1970). Rejecting the null hypothesis of the test refers to the slope heterogeneity of the panel. The delta test statistics is calculated as in Equation (5) (Pesaran and Yamagata 2008: 57):

$$\tilde{\Delta} = \frac{1}{\sqrt{N}}\left(\frac{\sum_{i=1}^{N}\tilde{d}_i-k_2}{\sqrt{2k_2}}\right) \quad (5)$$

where k_2 is the number of strictly exogenous regressors and $\tilde{d}_i$ represents the weighted difference between the cross-sectional unit-specific estimate and the pooled estimate for the model (Bersvendsen and Ditzen 2021: 53).

If errors are associated with a normal distribution, the mean-variance bias-adjusted delta test could be employed to test the slope homogeneity of coefficients:

$$\tilde{\Delta}_{\text{adj}} = \sqrt{N}\left(\frac{N^{-1}\sum_{i=1}^{N}\tilde{d}_i-k_2}{\sqrt{\text{Var}\left(\tilde{z}_{i,T_i}\right)}}\right) \quad (6)$$

where $\left(\tilde{z}_{i,T_i}\right) = \frac{2k_2(T_i-k-1)}{T_i-k_1+1}$.

The results of delta test are outlined at the bottom of Table 3. The delta test statistics suggests that the null hypothesis of homogeneous slope coefficients should be rejected at 1% significance level.

Table 3. Test Results for Cross-Sectional Dependence and Slope Homogeneity

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

Note: *** represents statistical significance at 1% level.

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-sectional augmented panel unit root (CIPS) test proposed by Pesaran (2007). The CIPS test considers the cross-sectional dependence and the slope heterogeneity of the coefficients in the

model. The test utilizes the standard Augmented Dickey Fuller (ADF) regression with the cross-sectional unit averages of the lagged levels and first-differences of the individual variables. The CADF regression is reported as in Equation (7) (Pesaran 2007: 283):

$$\Delta Y_{it} = a_i + \partial_i Y_{i,t-1} + \emptyset \bar{Y}_{t-1} + \gamma_i \Delta \bar{Y}_t + e_{it} \qquad (7)$$

where $\bar{Y}_{t-1}$ is defined as $N^{-1}\sum_{i=1}^{N} Y_{i,t-1}$ and $\Delta \bar{Y}_t$ is equal to $N^{-1}\sum_{i=1}^{N} \Delta Y_{it}$. The t-ratio of the Ordinary Least Squares estimate of ∂_i is represented by $t_i(N,T)$. This calculated statistic is known as the CADF statistic for country i, and the CIPS statistics is calculated as the average of its t-ratio reported as follows (Pesaran 2007: 277):

$$\text{CIPS}(N,T) = N^{-1} \sum_{i=1}^{N} t_i(N,T) \qquad (8)$$

One of the importance of the test is its consistency even with the small samples under the cross sectional dependence.

Table 4. The Unit Root Test Results (CIPS test)

	w/ constant		
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)
	w/ constant & trend		
	CIPS (level)	**CIPS (first difference)**	**Integration**
LFEMEMP	-2.188	-3.866***	I(1)
LGLOBAL	-2.704**	-4.326***	I(0)
LFERT	-2.176	-3.143***	I(1)
LGDPC	-2.525	-3.470***	I(1)

Note: i) H_0: The existence of unit root. ii) *** refers to the significance at 1% level. iii) w/ constant refers to "with constant" and w/ constant & trend refers to "with constant and trend".

Table 4 shows the CIPS test results (with or without trend) for each variable in the model. Considering the CIPS test results with trend, one could report that LGLOBAL is stationary at level (I(0)) whereas LFEMEMP, LFERT and LGDPC 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 carried out by the Panel Cross-Sectional-Autoregressive-Distributed Lag Model (Panel CS-ARDL) proposed by Chudik et al. (2016). Providing estimates for the short- and long-term impacts between dependent and the independent variables under the existence of cross sectional dependency is one of the main advantages of this method. In the case of heterogeneous slope coefficients, the mean group estimations are further permitted in the method (Okumus et al. 2021: 56600). Furthermore, the method is associated with a good performance under the existence of endogeneity issues in the model.

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

$$L\text{FEMEMP}_{it} = \alpha_i + \sum_{l=1}^{p_y} \lambda_{l,i} L\text{FEMEMP}_{i,t-l} + \sum_{l=0}^{p_x} \beta_{l,i} X_{i,t-l} \sum_{l=0}^{p_\varphi} \varphi'_{i,l} \bar{z}_{i,t-l} + \varepsilon_{it} \qquad (9)$$

where $L\text{FEMEMP}_{it}$ is the dependent variable; X_{it} is defined as LGLOBAL_{it}, LFERT_{it},and LGDPC_{it}; $\bar{Z}_{i,t-l}$ equals to $(\overline{\text{LFEMEMP}}_{i,t-l}, \bar{X}_{i,t-l})$ and defined as the lagged cross-sectional averages of all variables. ε_{it} is the error term in the model. l refers to the optimum lag length.

The mean group estimates of the CS-ARDL in the long run is displayed as in Equation (10) (Ditzen 2021: 691)

$$\hat{\theta}_{CS-ARDL,i} = \frac{\sum_{l=0}^{p_x} \hat{\beta}_{l,i}}{1-\sum_{l=0}^{p_y} \hat{\lambda}_{l,i}}, \hat{\theta}_{MG} = {}^{1}/_{N} \sum_{i=1}^{N} \hat{\theta}_i \qquad (10)$$

In Equation (10), 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:

$$\Delta Y_{it} = \partial_i\left[Y_{i,t-l} - \hat{\theta}_i X_{i,t}\right] - \alpha_i + \sum_{l=1}^{p_Y-1} \lambda_{l,i}\Delta_l Y_{i,t-l} + \sum_{l=0}^{p_x} \beta_{l,i}\Delta_l X_{i,t-l} \sum_{l=0}^{p_\varphi} \varphi'_{i,l}\Delta_l \bar{Z}_{i,t-l} + u_{it} \quad (11)$$

The speed of adjustment (error correction term-ECM) 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 5.

Table 5. Estimation Results of the CS-ARDL (1 1 0 0)

	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***	

Note: 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 5 reveals that the speed of adjustment is -0.772 that is negative and statistically significant at 1% level. If a negative and statistically significant speed of adjustment is obtained, 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 along with 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 previous studies report that globalization might affect female employment either positively or negatively, our study seeks to explore whether this effect is negative or positive and to what extent globalization impacts female employment among transition countries for years from 1995 to 2017 via the Panel CS-ARDL approach. The approach is developed by Chudik et al. (2016). Superior to other estimation methods, the Panel CS-ARDL could be employed in the case of mixed stationarity of variables under the existence of cross sectionally dependent errors. One of the other advantages of the method is that it further provides consistent estimates even with heterogeneous panels.

Considering the CS-ARDL estimations, our results state that both fertility rate and economic development are positively associated with female employment in either periods. As the number of members in the household increases, this creates substantial needs to cover financially. Therefore, woman might have to earn income in order to support her family whereas increased levels of economic activity creates more job

opportunities in the labor market due to the increased levels of labor demand. Moreover, our results indicate that globalization is negatively related to female employment in the short run for transition countries. However, this impact is not statistically significant. As opposed to the short run, in the long run a statistically significant negative long-term relationship between globalization and female employment is found.

According to earlier research, as globalization grows, the labor market offers more work prospects for both men and women and labor market could experience reduced gender disparities for a period of time. Neverthless, 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 in the long run. Therefore, growing globalization may eventually result in a decline in the proportion of women employed. With the aim to keep the labor market dynamics stable during the globalization process, policy-makers should take cautions in preventing gender discrimination against women and promoting economic integration of women in the labor market.

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