The effect of female labour force in economic growth and sustainability in transition economies - case study for SEE countries

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Abstract

In this research paper, the main theoretical arguments for discussions are as following: female labour force participation in transition countries, female employment in economic sectors and their main barriers, and the contributions of female labour force in economic growth. In methodology, the secondary data are used, and they are calculated through STATA program. The main analysis include: descriptive statistic, regression analysis and correlation matrix. Based on empirical results, the regression analysis has found that economic growth and government effectiveness has a negative impact on female labour force. Financial market development, enterprises reforms, and innovation have a positive impact on female labour force in SEE (South Eastern European) countries. In T-statistic analysis all independent variables have shown a negative significance (T<2) on female labour force. In correlation, economic growth and financial development market have negative correlation on female labour force, but other variables have shown positive correlation. SEE countries should develop the female labour force in their economies, so their role may be crucial toward different economic problems and challenges in the modern economy.

***Keywords**: Barriers, innovation, linear regression, standard deviation, STATA analysis.*

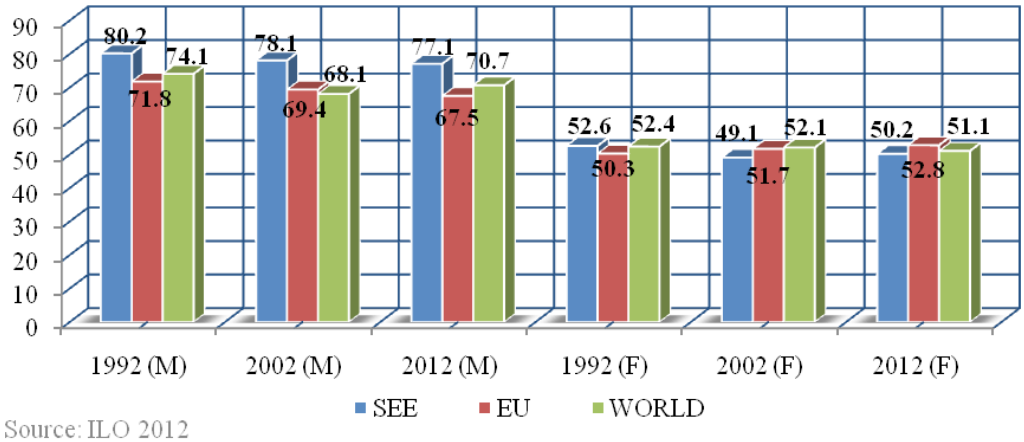
Introduction

Several decades earlier, improving gender gap in the labour market has been very visible, it is as a result of the continuous increase of female participation in the labour force during the 1980s and 1990s in most countries in the world, (Lim, L.L, 2002). In some countries, women's participation as labour force has been up 52%, this progress as a result of opening the domestics markets and their economic growth but the rising their incomes during this period has been very slower, because they have contribute only one of third in their household income, (Atal et al, 2009) & (Chapman, K.A., 2015). However, during economic transition in the labour market the gender discrimination was evident and in general, female participation in the labour force was quite small, (Goraus, K. & Tyrowicz, J., 2013). So, in dynamic processes of modern economy is very important to promote female labour market through well designed policies in transition countries (Lahoti, R. & Swaminathan, H., 2013). In the western Balkans countries, there is no wage difference between the genders, and there is a positive correlation between female labour force and perception of employees in quality of workforce, (Stankovic et al, 2015).

A Review of Selected Literature

According to (OECD Report, 2014), since 1980, the global rate has changed between female (increased over 2 %) and male (fallen nearly 5 %) on labour market participation, it has reflected in reduction the gender gap in labour force participation from 23 % in 1990 to 13 % in 2012 and in most develop countries female employment rates have reached increased nearly 60 % in 2012. Despite the progress in reducing gender discrimination in many areas (e.g. in education) during the last years, labour market still remains with low participation of female in the most of transition economies then in the informal sector female workforce gets few benefits and limited job security, (Tsani et al, 2012). However, in the most of OECD countries as a main obstacle for gender equality in labour market is intertwining between family values and egalitarian views, (Fortin, N.M., 2005). According to (World Bank Report, 2012) in many countries (particularly in countries with slow economic growth), female unemployment rate in labour market is over 50 %, then young female for entry in labour market are extremely discouraged from high level of unemployment rates in these countries or if they find any job, the employer utilize their skills for limited benefits (under average of market wages).

Figure 1 Labour force participation rates by male & female (%)

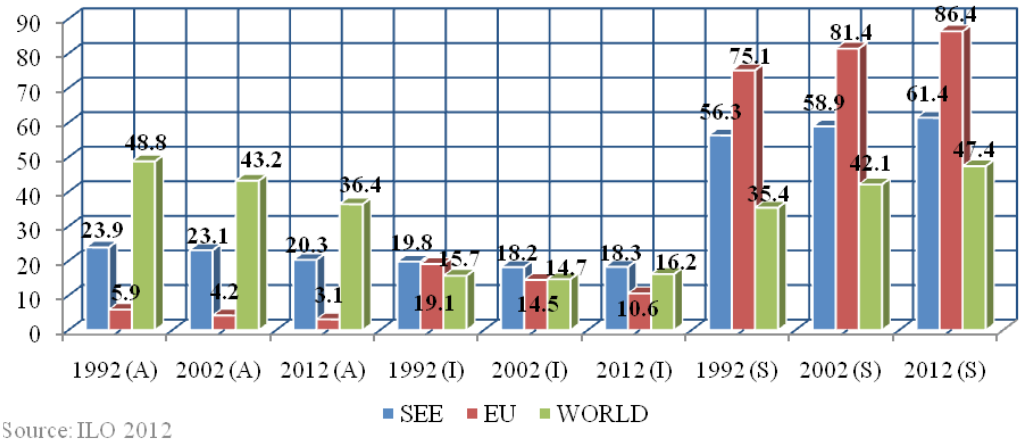


Source: ILO 2012

The main barriers that affect the female labour market in the most of transition countries are as follows: political instability limits the access and opportunities of female in the labour market, weak demand on labour market for female, female as labour force have several restrictions to access in resource (e.g. financial) to develop entrepreneurial activity, females in general have lower level of education, experience, and limited skills, etc; (Al-Botmeh, S., 2013) & (Suda, C., 2002). In countries with low economic growth, females have lack of support in labour market particularly on manufacturing and services sectors, it is due of several factors that have influence on female labour force, such as cultural, religious and economic, (Verme, P., 2014). Last decades, female labour force has play important role on economic growth in the many countries and the projections in the future suggest that female labour force will have positive impact on global economic development, (Lechman, E., 2014). According to (European Commission Report, 2012)

in 2010 female labour force in general economic activities was lower participation (agriculture 4 %, service 11 % and industry 85 %) than male labour force (agriculture 6 %, service 33 % and industry 63 %), where only 64 % of female in EU-27 countries has worked or actively has looking for job compared with 78 % of the male labour force.

Figure 2 Employment shares (%) by economic sectors (agriculture, industry and services)



Source: ILO 2012

Participation of women in the labour force is reflected in the growth of high inputs of labour as well to economic growth in developing countries; this growing are associated with levels of education for female, then with specific implications the role of female force, especially in the labour market, (Verick, Sh, 2014). According to (ILO Report, 2010), over 865 million female for labour force all over the world have potential to contribute in different aspects of labour markets in their domestic economy, but most of them (812 million) of female for labour force lived in emerging and develop economies. However, in transition economies the low participation of female in labour market has been argued that they have difficult to access the labour market (particularly in managerial position) or often female are not treated equally as the men in some SEE countries (Poland, Czech and Slovak Republic), despite approval of anti-discrimination laws in these countries, (Doleželová *et al,* 2007).

Methodology

In this part of research paper will identify the main points of methodology, such as: data collection, quality of data, data use, methods of data analysis, etc. The data for analysis are collected by international institutions (such as: World Bank, IMF and World Economic Forum) and data used are secondary data. Used data in this research paper included the most of SEE countries (for detail see Appendix 1/A) and most of variables that are used are from annual reports of 2014 (see Appendix 1/B). The main variables are: female labor force as depend variable and economic growth, government effectiveness, financial market development, enterprises reforms, and innovation reforms as independent variables. Data are calculated through program STATA then the main analyses are as following: descriptive statistics methods, multiple regression analysis and correlation method. The econometric

models is to analyze the relationship between depend variables on independent variables and they are based on the following equation: $Ln(FLFt) = \beta 0 + \beta 1ln(EGt) + \beta 2ln(GEt) + \beta 3ln(FMDt) + \beta 4ln(ERt) + \beta 5ln(IRt) + \mathcal{E}t$. Where the main variables for analyses are as following:

- FLF = Female Labor Force;
- EG = Economic Growth;
- GE = Government Effectiveness;
- FMD = Financial Market Development;
- ER = Enterprises Reforms
- IR = Innovation Reforms
- Ɛt = Stochastic Error Term;
- β0, β1, β2, β3, are the respective parameters;

Empirical Results

In fact, this is the most important part of research paper because here are interpreted the implications of the parameters (variables) that are involved in research paper with different methods (statistic descriptive, correlation method, linear regression method). In table 1 is analysis statistic descriptive method, which is a method for quantitative analysis data and it is used to describe the basic features of the data in a research paper. The main analyses in table 1 included from 10 to 12 observations and the other analyses are as following: the minimum value of the perceived level of female labor force is 43 (it means, the lowest value of "FLF" in period of research) and maximum value is 52 (it means, the highest value of "FLF" in period of research), the value of mean is 46.75 (it means, average value of "FLF" in period of research) and standard deviation values is 3.28 (it means, how many the "FLF" variable are quite close between 43 to 52). The economic growth "EG" has values as following: the minimum is -3.3, maximum is 3.1 then value of mean and standard deviation are 1.99 respectively 0.76. Government effectiveness "GE" has values of minimum -0.33, maximum 1.1, mean 0.37 and standard deviation 0.44.

Table 1 Statistic descriptive method

Variables:	Observation	Std. Dev.	Min	Mean	Max
Female Labor Force	12	3.28	43	46.75	52
Economic Growth	12	1.99	-3.3	0.76	3.1
Government Effectiveness	12	0.44	-0.33	0.37	1.1
Financial Market Development	10	0.52	2.9	3.92	4.5
Enterprises Reforms	10	0.36	3.0	3.5	4.0
Innovation Reforms	10	0.29	2.7	3.19	3.6

Source: Authors

The value of financial market development "FMD" is as following: minimum and maximum 2.9 & 4.5 then mean and standard deviations are 0.52 & 3.92. Enterprises reforms "ER" has these values: minimum is 3.0, maximum is 4.0 then the mean is 3.5 and standard deviation is 0.36. Innovation Reforms "IR" has values of minimum 2.7, maximum 3.6,

mean 3.19 and standard deviation 0.29. The table 2 is the most important analysis for discussion, and the regression method of analysis is used in order to perform linear regression between dependent variable and independent variable. The results have found that economic growth has negative impact (β1 = -2.84) on female labor force. Explanation of result (with negative impact) is as following: when other variables in analysis are fixed or constant and when the economic growth increases for a unit, it will have effect on female labor force with -2.84 per unit (so, it has negative impact). Also, government effectiveness has negative impact (β2 = -4.22) on female labor force. But, other variables in analysis (financial market development β3 = 0.71, enterprises reforms β4 = 8.44, and innovation reforms β5 = 4.93) have shown positive impact on female labor force.

Table 2 Multiple regression methods

Variables:	Coef.	Std. Err	t	P>|t|	95% Conf.	Interval	R^2
Female Labor Force							0.79
Economic Growth	-2.84	1.59	-1.78	0.17	-7.91	2.23	
Government Effectiveness	-4.22	5.80	-0.73	0.52	-22.68	14.24	
Financial Market Development	0.71	2.32	0.31	0.78	-6.67	8.09	
Enterprises Reforms	8.44	4.19	2.01	0.14	-4.90	21.79	
Innovation Reforms	4.93	5.98	0.83	0.47	-14.10	23.97	

Source: Authors

Through T-statistics, we can understand the explanatory capability (or significance) that the variables have between them and the significance can be positive (T > 2) or negative (T < 2). As argue the results in analysis (P > t), all variables that are included in research paper (economic growth 0.17, government effectiveness 0.52, financial market development 0.78, enterprises reforms 0.14, and innovation reforms 0.83) have shown non - significance (T < 2) on female labor force. Other analysis in table 2 is the coefficient of determination (R^2), it measures the correlation between dependent variable and independent variables. The relationship is enough strong (since the value of determination is nearly close to 1 (0.79) while 0.21% (100% - 79%) are other factors that are not included in this model. In table 3 is Correlation Matrix, it provide the basis for all classical multivariate techniques, (Friendly, M., 2002). It shows the level of relationship between dependent variable and independent variables, and the results shown that economic growth (-0.54) and financial market development (-0.27) have negative correlation with female labor force. Other independent variables (government effectiveness 0.64, enterprise reforms 0.46 and innovation reforms 0.21) have shown positive correlation on female labor force

Table 3 Correlation method

Variables:	FRF	EG	GE	FMD	ER	IN
Female Labor Force	1.00					
Economic Growth	-0.54	1.00				
Government Effectiveness	0.64	-0.49	1.00			

Financial Market Development	-0.27	0.70	-0.25	1.00		
Enterprises Reforms	0.46	0.32	0.37	0.33	1.00	
Innovation Reforms	0.21	0.02	0.65	0.03	0.18	1.00

Source: Authors

Conclusions

In this research paper is analyzed the effect of female labour force in economic growth with case study of SEE countries. The data used is secondary data and they are collected from international institutions. The most included data in research paper is from annual reports of 2014. The results of regression show that economic growth (β1 = -2.84) and government effectiveness (β2 = -4.22) have negative impact on female labor force, then financial market development (β3 = 0.71), enterprises reforms (β4 = 8.44), and innovation reforms (β5 = 4.93) have shown positive impact on female labor force. In T-Statistic analysis all variables that are included in research paper have show non - significant (T < 2) on female labor force and the coefficient of determination have show correlation (R^2 = 0.79) between dependent variable on independent variables. Our conclusion is that, the female labour force in SEE countries have to play key role in economic processes and challenges of modern economy, then this potential in labour market have to exceed all barriers and to increasing their participation in economic growth, sustainability and governance in these countries.

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Appendixes

Appendix 1/A

List of SEE countries that are including in research paper:		
Albania	Bulgaria	Croatia
Czech Republic	Greece	Hungary
Macedonia FRY	Montenegro	Romania
Serbia	Slovakia	Slovenia

Source: Authors

Appendix 1/B

Description of data collection and analysis in research paper:

Names of Countries	Female Labor Force **(FLF)**	Economic Growth **(EG)**	Government Effectiveness **(GE)**	Financial Market **(FM)**	Enterprises Reforms **(ER)**	Innovation Reforms **(IR)**
Albania	45	2.1	-0.33	3.4	3.33	2.7
Bulgaria	48	1.4	0.15	4.2	3.67	2.9
Croatia	45	-0.8	0.69	n/a	3.67	3.1
Czech Republic	51	-0.7	0.88	n/a	n/a	n/a
Greece	44	-3.3	0.45	3.9	n/a	n/a
Hungary	45	2.8	0.64	3.9	4	3.5
Macedonia	43	3.1	-0.06	4.5	3.33	3.3
Montenegro	43	2.3	0.16	4.3	3	3.4
Romania	49	2.4	-0.07	4.1	3.67	3.3
Serbia	45	-0.5	5.10	3.5	3	2.9
Slovakia	51	1.4	0.78	4.5	4	3.2
Slovenia	52	-1.1	1.1	2.9	3.33	3.6

Source: Female Labor Force - World Bank 2013; Economic Growth - IMF 2014;

Government Effectiveness 2014; Financial Market Development - World Economic Forum 2014; Enterprises Reforms - EBRD 2014; Innovation Reforms - World Economic Forum 2014

Appendix 1/C

Variable Definitions and Sources

1. Dependent Variable:

Variables:	Definition:	Source:
Female Labor Force **(FLF)**	Labour force participation rate is the proportion of the population of the population ages 15 and older that is economically active: all people who supply labour for production of goods and services during a specified period	World Bank: Data World Bank 2013

1. Independent Variables:

Variables:	Definition:	Source:
Economic Growth **(EG)**	Real GDP is defined as the value of the total final output (of all goods and services) that is produced in a one year within a country's boundaries and the growth / decrease of Real GDP is expressed as a percent (%).	IMF: World Economic Outlook 2014
Government Effectiveness **(GE)**	The Government Effectiveness - represent the perceptions of the quality of public services and the civil service, the degree of its independence from political pressures and the credibility of the government's commitment to such policies.	The World Bank 2014 (Worldwide Governance Indicators Report)
Financial Market Development **(FMD)**	Financial Market Development has values score between 0 (non - develop) to 7 (develop) and this indicator includes different factors: financing through local equity market, availability and affordability of financial services, ease of access to loans, etc;	The World Bank 2014 (The Global Competitiveness Report 2014 - 2015)
Enterprises Reforms **(ER)**	The Enterprises Reform range from 1 to 4+, with 1 representing little or no change relative to a rigid centrally planned economy and 4+ representing the standards of an industrialised market economy.	EBRD 2014 (Annual Report 2014)
Innovation Reforms **(IR)**	Innovation has values score between 0 (low - innovation) to 7 (high - innovation) and this indicator includes different factors, such as: patent applications, capacity for innovation, quality of scientific research institutions, university-industry collaboration in R&D;	The World Bank 2014 (The Global Competitiveness Report 2014 - 2015)

Source: Authors