

Does Trade Openness Boosts Gender Equality in Employment: A Case of D8 Countries

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Abstract

The focal intension of the study was to examine the impact of trade openness on gender equality in employment, in D8 group which consists of Bangladesh, Egypt Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey, during the time period of 1980 to 2012. Panel data estimation with Random Effect Model tested through the feasible generalized least squares method, which allows the estimation in presence of Heteroscedasticity and Autocorrelation problems. The results for our main model which consists of trade openness and gender equality in employment giving special focus on labor force participation rate show that trade openness is highly significant in posing the positive effect on the level of gender equality in employment. The findings show that coefficients of trade openness is significant at 1 % in each equation with accurate positive sign for ratio of female to male labor force participation rates. These results hold true and consistent with earlier work and theories. Based upon the empirical analysis it can be concluded that trade liberalization policies are beneficial for the women in developing 8 countries. The overall conclusion drawn from study show that economic sector has most influential impact on social sector especially in case of developing countries.

1. Introduction

Advancement in gender equality became widely known essential element of enhancing socio economic and human development around the world. Gender equality gives equal rights and responsibilities to all human beings regardless of their biological status of being men and women³. Gender equality can be seen in multiple dimensions including Economic, Social, political and demographic, but the most propelling cost of gender inequality is seen in production due to underutilization of female in formal work, inequality in education and economic opportunities (Jacobsen, 2011)⁴

Gender Equality is main pillar of achieving holistic development gains in a country, it have many socio political and economic gains. “*Greater gender equality can enhance productivity, improve development outcomes for the next generation, and make institutions more representative*” (World Development Report, 2012).

According to World Bank⁵ productivity can be enhanced if disparities between male and female are diminished by giving them equal access in all spheres, like equality in quality education can directly improve growth (Klasen, 2002; Dollar and Gatti, 1999) giving women access to resources like equality in economic opportunities and employment foster growth (Klasen and lammana, 2008), this will assure to get their skills utilized in productive activities. (World Bank, 2012)

Globally many improvements have been made in arena of gender equality and many gaps have been reduced. Women make almost half of the globe and we can observe the

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⁴ Jacobsen, P. J. (2011). Gender Inequality A Key Global Challenge: Reducing Losses due to Gender Inequality. Assessment Paper Copenhagen Consensus on Human Challenges, Wesleyan University Middletown CT USA

⁵ World Development Report, 2012

significant share of the women in almost every sector like, education, agriculture, industry, manufacturing etc. According to World Bank, 40 percent global labor force is comprised of women, from whom 43 percent of the world's agriculture labor force is female labor and almost half of the university students, are girls.⁶ This shows a significant improvement in female labor force participation.

Over the past few decades global economy is experiencing fast growth in the pace of globalization. Many economies of the world are integrating and many countries opened their doors for the neighboring countries considering the fact that they cannot produce each and every thing at home. Anderson, 2005 indicated that openness is well defined as easing the restrictions and bearing the costs of movement of goods and services, factors of productions and technology from one country to another. (Anderson, 2005)

Trade openness is significant contributor of increasing growth; it gives many economic benefits like transaction of capital, exchange of knowledge and information. The restrictions on international trade are main hurdles of lower level of growth. Literature suggests that, the country can get higher level of benefits by integrating and lowering the hurdles to international trade and vice versa. (Munir and Kiani, 2011; Hyder and Behrman, 2011)

Contrary to it trade openness involves some costs also; it reduces the government revenue due to tariff reduction which shifts the burden of increased domestic taxes on masses. (Eastin and Parakash, 2013; Munir and Kiani, 2011) The focus of present study is to examine the impact of trade openness on Gender equality in employment in D8 countries. Standard theory of international trade; for Example, Heckser ohlin model implies differently for developed and developing countries (Aguayo-Tellez, Ernesto 2011) suggests that Openness of trade has beneficial impact for female in developing countries. Many empirical studies also confirm this proposition of gender differentiated effect of trade policies. Trade liberalization policy influences men and women differently in developing countries, because division of labor among market economy and household level is different among male and female in these countries. (Iversen and Rosenbluth, 2006; Fontana, 2003), also found that trade liberalization mostly benefit the countries with higher labor intensive manufacturers, This is consistent with developing countries case because developing countries are abundant with unskilled labor that can easily absorbed in market economy.

Trade liberalization policies can improve gender equality through various channels. Openness changes the relative prices of goods and services which enforces the factors of production to reallocate in that sector where labor is intensive. This will create new employment opportunities for female in developing countries. (Hyder and Bukhari,) Evidence moreover demonstrates the impact of trade openness on different dimensions of gender equality. Trade openness creates employment opportunities and reduces wage gap through labor market reforms. This is confirmed by (Rahman, 2011) in case of Bangladesh; through trade openness women get 5 time higher employment than male in readymade garment sector. Female labor force participation is significantly increased due to trade openness in many countries.

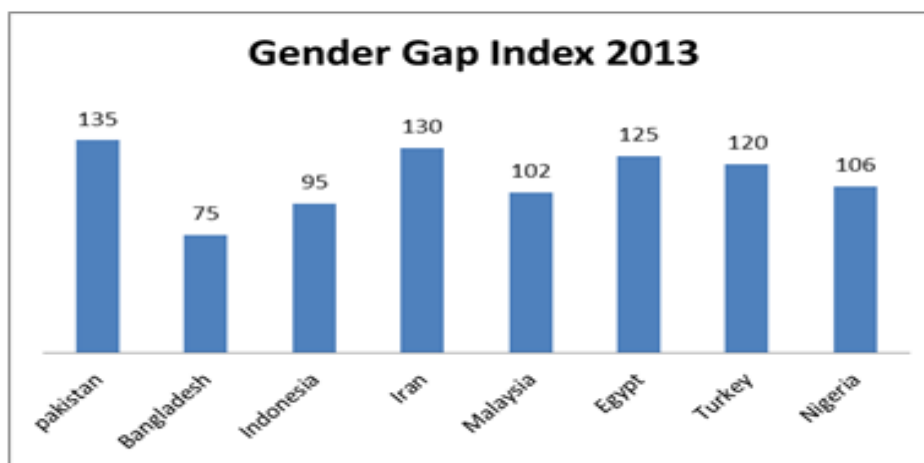
The present study aims to assess the impact of trade openness on the level of gender equality in employment by controlling some political and economic factors influencing gender equality in D8 countries. "Developing-8 is an organization for development cooperation among the following countries: Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey".⁷ The objective of the D8 formulation was to improve the status of member countries in the global economy through diversifying and creating new opportunities in trade relations, and improving the standard of living and decision making at

⁶ World Development Report, 2012

⁷ <http://www.developing8.org/About.aspx>

international level. The current scenario of Gender Gap in D8 countries is shown by below figure 1.1.

FIGURE 1.1 GENDER GAP IN D8 2013



*Out of 136 Source: Global Gender Gap Report, 2013

This issue needs to reinvestigate and address because female comprises almost half of the global population, so this makes a large proportion of the globe that indicates the inclusion of women in whole process of development and decision making about their own future is mandatory. Peaceful democratic and harmonious society urges the equal participation of women in development process. But women facing many hurdles regarding participating in economic activities, without improving equality this objective cannot achieved. Everyone is claiming about demographic dividend, which 15 years are already passed, and still we don't see any improvement, policies are still on the way, needs to think what would happen after 2050? So there is dire urge to focus more on female and enhance their capabilities by empowering them for inclusive growth. The main objectives of the present study are as under.

1.1 Objectives

Female are most important members of society and significantly share the global population but female in all over the world are treated as secondary members especially in developing countries. Even the policies are also having gender differentiated effects, likewise trade liberalization policies are also having its gender differentiated effects and different implication for developed and developing countries suggested by the traditional trade theory of comparative advantage. so considering this point in mind the present study intends to examine the impact of trade openness on gender equality in employment in D8 countries which consists of Bangladesh, Egypt Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey, which is group of eight developing countries. For that purpose the following objective will be incorporated

- To examine the impact of trade openness on gender equality in employment by considering the ratio of female to male labor force participation rates.

1.2 Significance of Study

Female comprises almost half of the total population of the world, this makes the largest proportion of working force with respect to income and employment generation, but the situation of women is very pitiable due to inequality in almost all spheres of life in almost every country and in Pakistan specifically, status of women displays a very gloomy picture of Pakistan in world showing second worst country in overall gender equality. Role of female in Pakistan's Growth is nominal. According to labor force survey of Pakistan, Pakistan's female literacy rate for 10 years and above is 48.1% and female labor force participation rate is 21.5% in 2012-13. From which 30 % are below matric. Only 3.8% females are having degree and above. The present study aims to examine the impact of trade openness on gender equality in employment. The rationale behind choosing this topic is pivot in the Gender differentiated effect of trade liberalization policies and their varying implication for developed and developing countries. (World Development report, 2012)

It would be appropriate to examine the impact of trade openness on Gender equality in employment in D8 countries, which is a group of Eight Developing countries, because the trade liberalization theory favors the comparative advantage for developing countries due to abundance of unskilled female labor force participation rate in these countries would benefits female by labor market reforms and changes into relative prices of goods and services.

Choosing D8 group as a sample is rational because it comprises of all developing countries, having similar implication of trade theory, but performance of every country is variant and considerably which is comparable as high to low, for instance Malaysia and Indonesia are good performer in enrolment at primary secondary and territory level but Pakistan and Nigeria are worst performer in almost each dimension of gender equality. While Examination of the data on social sector of these countries, it is observed that it makes the pyramid shape whose top is Malaysia and two extreme bottoms are Pakistan and Nigeria in almost all cases of gender related date.

2. Literature Review

Gender equality is crucial for economic development because equal participation of male and female can make a best use of country's resources. Gender equality is affected by number of factors including trade openness. Trade openness can contribute in growth and more effectively work for achieving the level of equality between male and female. Trade openness generates new employment opportunities both for male and female through reallocation of resources, it improves the new and advanced technologies from abroad and knowledge spill over which enhances the capabilities of human capital generally and gender equality specifically.

Juhn *et al.* (2013) examined the relationship between trade liberalization and gender inequality. The researcher used panel data estimation for balanced panel of 938 firms. The researcher employed micro data for firm level analysis for the years 1992 and 2001 for Mexico's trade policy towards NAFTA. The empirical results shows that trade liberalization have positive impact on employment and wages for female workers.

Hyder and Behrman (2011) examined the impact of trade openness on gender gaps in Pakistan labor force participation rates in broad occupational categories using historical data since 1951. The findings from empirical estimation show the negative relationship between trade openness and gender gap in labor force participation in Pakistan mainly due to reallocation of resources in production and shift from agriculture to services and industrial sectors.

Salman and Javed (2011) the role of trade liberalization in determining the wage structure of Pakistan. The time span they selected from 1996 to 2005 for micro level data of Labor Force Survey of Pakistan. By using micro level data and employing OLS technique in

manufacturing sector, their findings indicate the positive link between trade openness and wage inequality.

Yasmin (2009) studied the wage determination in Pakistan's labor market through trade liberalization and human capital and job attributes. They took the data on 1990-1991 and 2005-2006 for the estimation of earning function. The mean and quintile used in the underlying study. Finding from empirical analysis trade liberalization has positive effect in reducing gender wage gap in Pakistan, but it has no effect on the enhancement of productivity and skill of labor and possible benefits of trade liberalization are not gained.

Rodgers and Menon (2008) used a cross sectional data for five rounds for studying the impact of trade policy reforms on labor market since trade liberalization in India. They used survey based data. They found the positive link between trade openness and gender wage gap which postulate with the increase in trade openness gender wage gap also increases in the manufacturing sector of India. This is mainly due to segregation of women jobs, because they are employed in lower pay jobs or even paid less on similar job. They found other discriminating labor market issues like, even after doing overtime work women are not paid for that work and the other reason is the job segregation is that unions are headed by male workers; additionally female workers don't have access to training and promotion programs in this sector.

Ahmed and Bukhari (2007) examined the impact of trade liberalization on gender inequality in Pakistan. They captured the different dimensions of gender inequality and developed a composite index to measure these inequalities. The time frame of their study was from 1973 to 2005. The result from regression analysis indicates the existence of high gender inequalities in Pakistan, but there exhibits the significance changes in gender inequality during the time of liberalization. However gender inequality in education is mainly due to absence of key facilities for female education in Pakistan.

Schultz (2006) examined the link between trade and gender equality. The sample consists of the 70 countries for the time period of 1965 to 1980. The researcher employed OLS and 2SLS techniques for empirical estimation. Different measures of trade restrictions showed a negative impact on the status of women especially in health and education; contrary to it trade liberalization policy is helpful in reducing the inequality between men and women and improves the level of human capital and gender equality.

Busse and Spielmann (2005) conducted a study on the relationship between Gender inequality and trade. The sample consists of 92 developed and developing countries for the time period ranging from 1975 to 2000. The researcher employed cross sectional and panel estimations separately for empirical results. The major objective of the study was to find the link between gender inequality and trade by employing theory of comparative advantage for labor intensive manufactured goods. The empirical results from regression analysis show that higher exports of labor intensive goods exhibit higher wage inequality between male and female, and the countries with low comparative advantage in labor intensive goods have high comparative advantage of labor intensive goods have low level of educational attainment and labor force activity rates.

Black and Brainerd (2004) tried to examine the relationship between globalization and gender discrimination. By employing the Becker's theory of discrimination researcher tried to examine the gender discrimination of labor market of United States from 1976 to 1993 in the manufacturing sector. By comparing concentrated versus competitive industries of US researcher found that international trade openness is beneficial for female workers because it reduces the chances of wage discrimination in industry.

Berik et al. (2003) also studied the wage discrimination in East Asia's labor market by considering the impact of competition from international trade. The author took the two highly open economies Taiwan (china) and Korea as a sample of the study. The researcher

used panel data between 1980s and 1990s. The empirical findings from OLS estimates showing high wage discrimination against female workers due to greater trade openness, which implies that to ensure equality in pay and opportunities among male and female needs competitive environment for both country cases.

Rahman (2011) studied the relationship between trade liberalization and gender gap in Ready Made Garment industry of Bangladesh, Because Ready Made Garment industry in Bangladesh is major source of exports earning and having significant share in GDP along with that largest number of female laborer working in this industry. The finding from their study poses a mix of results, both positive and negative of trade liberalization on gender differentiation. The study found that female workers are benefitted from trade openness five time higher as compared to male in case of employment opportunities, but still income gap between male and female are not reduced to the extent that it should be due low level of education and skill of women, working times and attitudes and beliefs towards female employment are main hindrance of this differentiation.

Alazzawi (2013) examined the status of women in labor market conditions of Egypt by employing survey level micro data. The main objective of the researcher was to assess the relationship between trade liberalization and wage gap in manufacturing sector of Egypt when it was going under reform period. Results from empirical estimation showing increasing trend of wage inequality among male and female in Egypt and also showed a significant negative relationship between trade liberalization and female wages and employment, but the very nominal impact of exports in favor of female in labor market of Egypt suggested that female workers are highly discriminated in wages and employment by employers at industry level due to increased competition through trade liberalization.

Another study on the impact of trade liberalization on labor market is conducted by Green et al. (2000) for the case of Brazil. The researcher examined the labor market conditions before and after trade liberalization. The empirical findings show the positive relationship between trade liberalization and relative wages. The findings also show that trade liberalization is favorable for expansion in college education and increase in labor force participation of educated workers which is important as compared to social impacts.

From the aforesaid discussion it is concluded that gender equality serve as essential component of development. Evidence show that, a country cannot grow faster without having adequate allocation and distribution of public service deliver to all members of society whether it is male or female. Empirical evidence show that gender inequality is a major problem of the global world and it is more prominent and persistent in developing countries. Like many other developed countries, developing countries also adopted flexible trade regimes. But evidence show that trade liberalization policy impact gender equality differently in developed as well as developing countries, but the results are not uniform for every developing country due to country's specific structure. The present study would be an attempt to analyze the impact of trade openness on gender equality in employment in D8 countries. It will be a useful study of developing countries case because no study on the issue of gender equality is done in case of D8 countries by using updated set of available data, so present study would be useful addition in existing literature.

3. Theoretical Framework

This section will present the relevant theoretical background on the relationship between trade openness and gender equality in employment giving special focus on labor force participation rate. Theoretical framework of the present study employs two mainstream theories, which comprehensively describes the relationship between trade openness and gender equality in employment. First is theory of comparative advantage which allows the

driving forces of open economies to specialize in that sector for which they have relatively better factor endowments that would result in the improvement in productivity of that sector.

3.1 Heckscher Ohlin Model

Heckscher Ohlin Model also suggests that if two countries have difference in resources then trade openness can lead to higher output in both economies. That is because each economy specializes in the sector which uses its abundant factor more intensively in the Heckscher Ohlin model. Heckscher-Ohlin-Samuelson theorem postulates that when a country opens up its economy, it has distributive effect of labor mobility. Empirical evidence show that H O model has difference in its implication for developed and developing countries. It states that women get benefits in developing countries because developing countries have comparative advantage in unskilled labor as they are labor abundant countries with greater proportion of female laborers who are generally less skilled as compared to male portion of country. Openness policies of trade strengthen competition among workers of developed and developing countries which results in the improvement in wages of unskilled workers. (Ahmed & Bukhari, 2007)

3.2 Becker's Discrimination Theory

Another theory which is employed in the present study is Gray Becker's theory of discrimination followed by Ahmed and Bukhari (2007). This theory postulates the relationship between trade liberalization and gender equality in employment. According to Becker's theory Discrimination in gender wage gap is not possible for an employer in the presence of trade liberalization policy, because trade liberalization policies generally promote a competitive environment, and a high competitive environment does not allow discrimination because it would be costly for an employer to maintain the discrimination in wages, so finally, gender wage gap would reduce which subsequently benefits the women and that results into the increase in female labor force participation rate.

3.3 Trade Openness and Gender Equality

Trade openness is acknowledged as an important instrument for stimulating growth and development of a country. Through changing the pattern of relative prices of factors of production it allows factors from abroad to be obtained more easily as compared to the state of Autarky. The distinctive feature of trade openness lies in the fact that it promotes economic growth and development which also makes it effective for improving the level of gender equality. Trade openness can improve gender equality through various channels

Creates Employment Opportunities for Female

When a country adopts an openness policy of trade, and liberalizes trade policies, relative prices of factors of production also change accordingly which cause the reallocation of factors of production. This reallocation employs new production techniques and generates employment opportunities for both male and female workers. Although developing countries are abundant with unskilled labor which is mostly comprised of female portion of the population, absorbed in the market, increases the female labor force participation. This generally increases the level of employment and gender equality in employment.

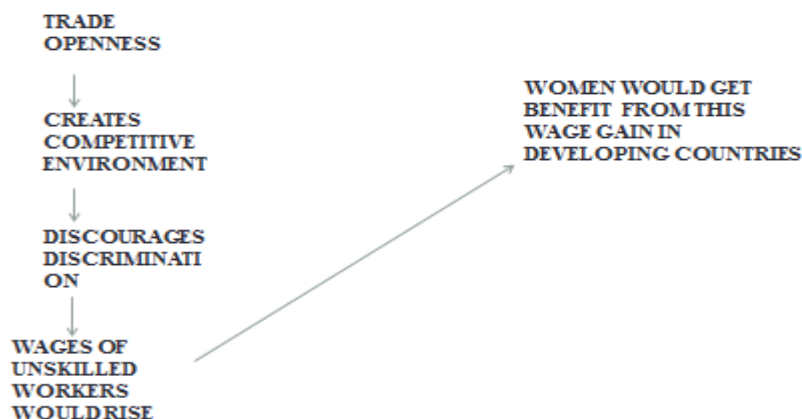
FIGURE 3.1 TRADE OPENNESS AND GENDER EQUALITY IN EMPLOYMENT



Reduction in Gender Wage Gap

Trade liberalization policies creates competitive environment among unskilled workers of developing economies and skilled workers of developed economies. Competition allows the wages of unskilled workers to be improve that cause reduction in wage gap.⁸ In the developing countries women makes the larger proportion of unskilled labor gets benefit of this wage gain, this cause female economic empowerment and hence gender equality would rise due to the closer of wage gap. Empirical evidence also show that trade openness reduces wage gap in many developing countries.

FIGURE 3.2 TRADE OPENNESS AND GENDER EQUALITY IN EMPLOYMENT



⁸ (Ahmad and Bukhari, 2007)

Other Determinants of Gender Equality

Economic Growth

Economic growth is expected to have positive relation with gender equality. Economic growth contributes in improving the quality of human capital in various channels. (Pedersen, 2010) found the bidirectional causal relationship between economic growth and education. When production increases there would be higher division of labor and economy size gets larger that will give an incentive for physical and human capital accumulation that will lead to increase in demand for skilled labor, resultantly investment in education would rise and level of education would also increase that would prevail awareness and importance of female education would be identified publically that cause higher enrolment of female and leads to higher level of gender equality.

Similarly, People with higher income have more access to goods and services that promote awareness about health and lives healthier life. Income has also positive impact on employment, with the increased level of production leads to increase in aggregate demand and increase in economy size which generates new opportunities and demand for labor would also rise that lead to increase in level of employment and that increases the demand for female and increases the equality of male and female in labor market.

Information and Communication Technology

Information and communication technology is expected to have positively linked with women empowerment in all fields. The existence of information and communication technologies and their usage narrows the geographical boundaries and spread more information to globalized world which reduces the uncertainties and also reduces transaction cost, resultantly competitiveness would raise in global market .It encourages women to acquire education through distant learning programs that reduces transportation cost and makes education easily available for women in rural areas. High level of female education improves gender equality.

Foreign Direct Investment

Foreign direct investment (FDI) is a measure of foreign ownership of productive assets, such as factories, mines and land. Increasing foreign investment can be used as one measure of growing economic globalization .FDI stimulates domestic investment which increases demand for inputs and consumption resultantly demand for skilled labor would also rise. This would work as motivation to invest in human capital that leads to increase in education health investment and condition of human capital would improve. Consequently productivity and efficiency of labor would rise that lead to increased employment level and lessen the gender bias.

Foreign Aid

Foreign aid have positive impact on gender equality by creating social safety net, improving access to safe and clean drinking water, increasing the enrolment of girls an lowering the burden of female at household work. These all affect the potential capabilities of women and allow them to participate and work for their own to make them stable and empowered.

Urbanization

Urbanization gives choice and makes easy movement because there are more facilities of transportation, educational institutions, hospitals etc. in cities as compared to villages that motivate women to work more independently as compared to rural areas and hence discourages the gender bias.

Population Ratio

Population ratio is playing important role in determining the level of gender equality, as number of women rises in total population number of female enrolment and number of

female labor force participation rate would also rise on the one hand, on the other hand female will get priority on the bases of increased number in population. (Chen, 2004)

Population Growth

Population growth is expected to have negative relation with gender equality and it would appear with negative sign in our model. It affects the status of women in various channels. As population increases, it expands the family size and number of dependents also increases which leads towards low priority for women in education because female education is comparatively considered costly because for female education transportation cost is also involved, so level of female education would decline with the rise in population growth that leads to inequality among male and female.(Chen, 2004)

Law and Order

Better law and order situation held responsible for improving gender equality because bad law and order situation violates human rights including women rights. Empirical studies show that female labor force participation rate decreased significantly due to higher risks of law and order situation.⁹(Eastin and Parakash, 2013)

Remittances

Remittances are also responsible for determining the level of gender equality, as workers migration increase will put pressure on the female members of the house due to absence of spouse for wives, and it will negatively affect the female children in education due to absence of fathers care on the one hand, on the other hand remittances increases the level of gender equality due to increase in household income.

4. Materials And Methods

This section will provide the details on data and method used in the present study for empirical estimation of the impact of trade openness on gender equality in employment in D8 countries.

Data Sources and Collection

Panel data is used for eight countries of D8 group which consists of Pakistan, Iran, Bangladesh, Egypt, Indonesia, Malaysia, Turkey and Nigeria. Data on all variables is collected from World Bank (world Development Indicator) except for Law and Order gathered from ICRG for the period of 1980 to 2012.Details of all variables is given as under.

Dependent Variable

Dependent variable of the present study is Gender equality in employment which incorporates labor force participation rates taking into consideration the United Nations definition of Gender Equality that is “Gender equality means that all human beings, regardless of sex, have equal rights, responsibilities and opportunities in life and enjoy equality in law and in fact in both the public and private sphere. It requires that the different needs, priorities, circumstances and aspirations of women and men be considered, valued and favored equally”¹⁰ so the dependent variable would be as under.

Gender Equality in Employment

Gender equality in employment is measured by labor force participation rate using the definition of (WDI) modeled ILO estimates. World Bank defines labor force participation rate as

⁹ Recent Employment trends 2011, Government of Pakistan .Statistics Division Pakistan Bureau of Statistics(2012)

¹⁰ Human Development Programme: Gender

definitions:http://www.spc.int/hdp/index.php?option=com_content&task=view&id=31&Itemid=45. Retrieved on Feb 17, 2014

- Ratio of female to male labor force participation (%)

“Labor force participation rate is the proportion of the population ages 15 and older that is economically active: all people who supply labor for the production of goods and services during a specified period.”¹¹ Data on all dependent variables is collected from World Bank WDI and manipulated for the period of 1980 to 2012.

Independent Variable

Independent variable of the present study is trade openness Trade as (%age of GDP) adopted by (Ahmed & Bukhari, 2007) which is measured as the definition of World Bank as “Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.”¹²

Foreign trade can be a good source of increase in standard of living, Consumption pattern would change, people will move from consumer goods to luxuries goods and local goods to branded goods. It also creates the awareness which improves the standard of living, level of education would rise and people will be more conscious about health facilities to increase the efficiency. Subsequently a country will move towards a modern and civilized nation with peaceful activities. The data on trade variables as percentage of GDP is collected from World Bank WDI from the year 1980 to 2012.

Key Control Variables: Soci-Economic and Political

To capture the independent effect of some key variables, the present study controls for some political, social and economic variables that have independent influence on gender equality. We control for law and order situation which is a very important factor of determining the level of gender equality. Because bad law and order situation is a major obstacle of development process. It not only hinders the domestic development plans but it also discourages the external resources like, FDI and foreign aid etc. The country with better law and order situation is a good player of working in the development of social sector which improves the level of gender equality. (Eastin & Parakash, 2013) The Data on law and order is taken from ICRG for the years 1980-2012. ICRG defines Law and order as “It ranges from 0 to 6, where a higher number indicates a better system of law and order.”¹³

In the Present study some economic variables are also controlled. We control for country's level of GDP Per capita. Followed by (Eastin & Parakash, 2013), People with higher income have more access to goods and services that promote awareness about health and a healthier life. Income has also positive impact on employment, with the increased level of production leads to increase in aggregate demand and increase in economy size which generates new opportunities and demand for labor would also rise that lead to increase in level of employment and that increases the demand for female labor which increases the equality of male and female in labor market (Chen, 2004). Per capita income is measured as “GDP per capita based on purchasing power parity (PPP) at constant 2005.”¹⁴

¹¹ http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx#s_r

¹² http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx#s_t

¹³ <http://www.adbi.org/discussionpaper/2004/11/16/810.fdi.prc.effect/appendix.a.definitions.and.sources.of.variables/>

¹⁴ http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx#s_t

GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2005 international dollars.

For the present study we also control for Foreign Direct Investment. FDI has it positive and Negative impacts on Gender equality. It creates employment opportunities for female and contrary to it; it reduces the govt. revenue which limits the states' ability to invest in social sector and women specifically.¹⁵ (Easten and Parakash, 2013)

“Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors”.¹⁶ The data on Foreign Direct Investment is drawn from World Bank WDI from 1980-2012.

We also control for Remittances, because remittances also improves the level of gender equality by improving the income of migrants' wives and investment in their female children's education. “Workers' remittances comprise current transfers by migrant workers and wages and salaries earned by nonresident workers. Remittances are classified as current private transfers from migrant workers resident in the host country for more than a year, irrespective of their immigration status, to recipients in their country of origin. Migrants' transfers are defined as the net worth of migrants who are expected to remain in the host country for more than one year that is transferred from one country to another at the time of migration”.¹⁷ The data on remittances is drawn from the World Bank migration and remittances data.¹⁸

Foreign Aid is also key contributor of gender equality because it provides the social services, like education, health etc. which benefits mainly female in a country. Foreign aid have positive impact on gender equality by creating social safety net, improving access to safe and clean drinking water, increasing the enrolment of girls an lowering the burden of female at household work. These all affect the potential capabilities of women and allow them to participate and work for their own to make them stable and empowered.

Foreign assistance is calculated as net Official Development assistance recieved and data is drawn from World Bank (WDI) from 1980-2012.¹⁹ World Bank defines (ODA as)

“Net official development assistance (ODA) consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in countries and territories in the DAC list of ODA recipients. It includes loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent). Data are in current U.S. dollars.”²⁰

We control for population growth because Population growth is expected to have negative relation with gender equality a. It affects the status of women in various channels. As population increases, it expands the family size and number of dependents also increases which leads towards low priority for women in education because female education is comparatively considered costly because for female education transportation cost is also

¹⁵ (Eastin and Prakash, 2013)

¹⁶ (World Bank) <http://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD/countries>

¹⁷ (World Bank) <http://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT/countries>

¹⁸ (WorldBank) <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:22759429~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html>

¹⁹ http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=world-development-indicators#c_p

²⁰ World Bank <http://data.worldbank.org/indicator/DT.ODA.ODAT.CD>

involved, so level of female education would decline with the rise in population growth that leads to inequality among male and female. World Bank defines population growth as: “Population growth (annual %) is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage”.²¹ The data on population growth is obtained from World Bank (WDI) from 1980-2012.

We added urbanization as control variable in our model considering the fact that urbanization gives choice and makes easy movement because there are more facilities of transportation, educational institutions, hospitals etc. in cities as compared to villages that motivate women to work more independently as compared to rural areas and hence discourages the gender bias. Urbanization is measured as: Urban population (% of total) which is defined as: “Urban population refers to people living in urban areas as defined by national statistical offices. It is calculated using World Bank population estimates and urban ratios from the United Nations World Urbanization Prospects”.²² Data on urban population (% of total) is obtained from World Bank (WDI) for the period 1980-2012.

Information and communication technology is expected to have positively linked with women empowerment in all fields. The existence of information and communication technologies and their usage narrows the geographical boundaries and spread more information to globalized world which reduces the uncertainties and also reduces transaction cost; resultantly competitiveness would rise in global market that creates employment opportunities for female. ICT increases the level of education of women by allowing various types and levels of education through distance learning. ICT also changes people’s attitude towards equality of male and female. (Chen, 2004)²³ ICT is measured as Internet users (per 100 people) and World Bank defines internet users as “Internet users are people with access to the worldwide network”.²⁴

The Model

Based upon the theoretical review the proposed model for the present study is as under:

$$GE = f(TOP, X)$$

Dependent Variable

Dependent variable is gender equality which consists of set of other variables.

Where GE = Gender Equality in employment

Employment= is measured by ratio of male to female labor force participation.

Independent Variables

- Trade openness

Trade openness is measured by trade as (% of GDP)

X is set of independent control variable s

X = (Pol+ Eco+ Social)

Pol = law and order

Eco = GDP per capita at PPP (constant 2005) , FDI inflow as % GDP, Net ODA (as % GNI)+ Remittances

Social = urbanization, ICT, Population growth rate

4.9 ECONOMETRIC FORM OF MODEL

²¹(world bank) <http://data.worldbank.org/indicator/SP.POP.GROW>

²² (World Bank)<http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS>

²³ (Chen, 2004)

²⁴ <http://data.worldbank.org/indicator/IT.NET.USER.P2>

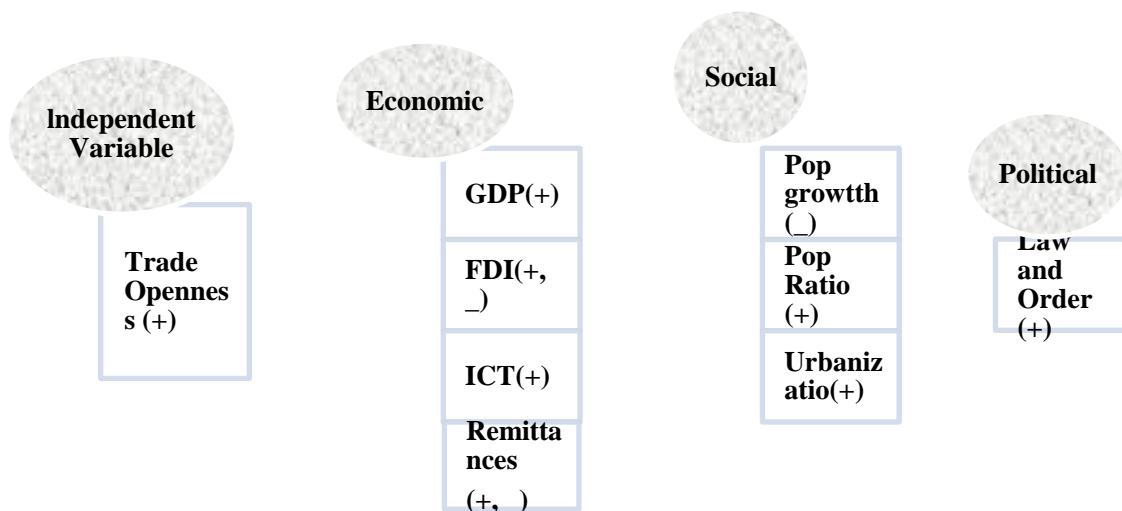
$$(G_{Emp}) = \beta_0 + \beta_1 TOP + \beta_2 x + \varepsilon$$

In the present study panel regression for D8 countries was estimated for empirical analysis. Hausmann specification test was employed to make a proper choice about fixed effect and random effect models, which suggest that random effect model, would be most appropriate for underlying study. Different diagnostic checks also applied to test for the possibility of Heteroscedasticity and serial correlation in the data. The results of diagnostics postulates that the presence of Heteroscedasticity and Auto correlation in the data, but test of Multicollinearity (VIF) suggests that there is no problem of Multicollinearity in the model. Feasible Generalized Least Square method employed for final estimation, the good thing about FGLS is that it allows the presence of Heteroscedasticity and Serial correlation for estimation.

To investigate the effect of trade openness on gender equality in employment which is measured by the ratio of female to male labor force participation rate the following regression is formed

$$Labor\ force = \beta_0 + \beta_1 TOP + \beta_2 FDI + \beta_3 REM + \beta_4 GDPPC + \beta_5 pop\ ratio + \beta_6 pop\ growth + \beta_7 urban + \beta_8 law + \beta_9 ICT + \beta_{10} ODA + \varepsilon_i \dots \dots \dots 1$$

DEPENDENT VARIABLE: RATIO OF FEMALE TO MALE LABOR FORCE PARTICIPATION RATE (%)



5. SUMMARY STATISTICS

Table 5.1 presents the summary statistics on all variables, Summary statistics of data show that our main independent variable which is TOP exhibits significant variations during the underlying period. It ranges from 13.7 to 220.40 and deviation from mean is 43.75. On the average share of trade in countries' GDP are 59.11 in D8 group.

Our main dependent variables are measures of gender equality which is LF and all dependent variables are in the form of female to male ratio. Labor force participation rate show large variation among the D8 group and within countries also. It ranges from 5 to 76 %. On the average labor force participation rate during the underlying period was 41.74 % and it shows 19.8 % deviation from mean.

Data on FDI show that on the average 1.63 % of FDI inflow in D8 group. Remittances data show that remittances inflow increased significantly in this group in recent years because its range is from 0 to 14 % and its shows 3.40 deviation from mean. GDP per capita shows huge variation in our sample. It ranges from 661.43 to 14821, and it shows the huge deviation from mean which is 3686 % during the underlying period.

Variable	Mean	Min	Max	Std.D
TOP	59.11	13.77	220.40	43.75
LF	41.74	5.25	76.73	19.89
FDI	1.63	-2.75	10.83	1.97
REM	2.96	0	14.58	3.40
GDPPC	4633.7	661.43	14821.97	3686.41
Urban POP	44.11913	14.851	73.362	14.97161
Pop Growth	2.099941	1.0277	4.077904	.6645347
L& O	2.904983	1	5	1.163526
Internet Users	6.121561	0	65.8	12.90536
ODA	1.577413	-.474996	14.77508	2.188636

Demographic variables also reveal variations during 1980 to 2012.share of urban population in total population ranges from 14.8 to 73.3%.Pop growth rate ranges from 1.02 to 4.07 annually. Ratio of female to male ranges .91 to 1.06.

Internet users increased from 0 to 65.8 per hundred persons in D8 group. Net official developments assistance ranges from -.47 to 14.77 and showing the 2.18 percent deviation from the mean, on the average Net ODA received as percentage of GNI.

6. Results And Discussion

This section will present the summary of empirical results on trade openness and gender equality in employment. The dependent variables is gender equality in employment which is measured by ratio of female to male labor force participation rate(%) and independent variable trade openness controlling for socio political, economic factors. The empirical results are presented in table forms.

6.1 Empirical Investigation of Labor Force Participation Rate and Trade Openness

TABLE 6.1. DEPENDENT VARIABLE: RATIO OF FEMALE TO MALE LABOR FORCE PARTICIPATION RATE

Independent variable	R1	R2	R3	R4	R6	R7	R8	R9	R10
C	32.95*** (0.000) ((1.94))	32.58*** (0.000) ((1.93))	31.35*** (0.000) ((2.36))	37.25*** (0.000) ((1.94))	44.20*** (0.000) ((4.07))	47.10*** (0.000) ((3.44))	41.19*** (0.000) ((3.08))	32.79*** (0.000) ((1.96))	33.68*** (0.000) ((2.31))
TOP	.148*** (0.000) ((.026))	.1198*** (0.000) ((.0310))	.155*** (0.000) ((.0269))	.242*** (0.000) ((.029))	.147*** (0.000) ((.025))	.209*** (0.000) ((.028))	.1884*** (0.000) ((.027))	.157*** (0.000) ((.030))	.144*** (0.000) ((0.27))
FDI		1.21* (0.07) ((.686))							
REM			.408 (0.238) ((.345))						
GDPPC				-.002*** (0.000) ((.0003))					
Population growth					-5.33*** (0.002) ((1.70))				
Urbanization						-.402*** (0.000) ((.082))			
L& O							-3.78*** (0.000) ((1.04))		
Internet								-.058 (.572) ((.1038))	
ODA									-.315 (0.56) ((.545))
Wald Chi square	31.64	35.35	33.20	74.17	42.55	58.26	47.75	32	32.02
Number of observations: 264 Number of groups: 8 Years : 1980 – 2012 Hausman 0.84 AR(1) p = 0.000 Heteroscedasticity p= 0.000 () p-value (()) Standard Errors ***significant at 1%, ** 5%, *10 %									

Table 6.1 presents the results on Gender equality in Employment which is measured by ratio of female to male labor force participation rates. Results of our main model which

consists of TOP as independent variable and labor force participation rates as dependent variable show that coefficients are consistently significant at 1 % level with accuracy of positive sign that postulate, 1 % increase in trade openness brings 0.14 % increase in female labor force participation rate in case of D8 countries. These results are consistent with the traditional theory of trade and earlier work of Ahmed and Bukhari (2007).

FDI is also significant in increasing the labor force participation rate. In our model it is significant at 10 % with accurate sign; this implies that 1 % increase in FDI brings 0.07 % increase in female to male labor force participation rate. Remittances estimates show that these are not significant for increasing the level of labor force participation rate due to the fact that workers migration generally puts more burdens on the shoulders of female in absence of spouse like household management and child care, so the rate of female labor force participation rate is slower in presence of remittances.

GDP per capita is highly significant but negatively effecting the female labor force participation rate, showing that 1 % increase in GDP per capita brings female to male labor force down by 0.002 % due to the fact that as income rises, female generally feels sufficient and stays at home to perform the domestic tasks.

Population growth is also another important element of determining the level of gender equality in employment. Our estimate of population growth rate show that 1 % increase in population growth decreases the ratio of labor force participation rate by 5.33 percent due to the fact that increased number of people puts burden on the economy which reduces the real wages that also results in gender wage gap, resultantly female labor force participation rate decreases.

Urbanization also negatively entered in our estimation results but highly significant at 1 %. It is postulated that 1 % increase in the urbanization brings female to male labor force down by 0.4 %. This is due to the fact that we took the data on over all urban population in total population, but our dependent variable is in the ratio of female to male labor force participation rate, which implies that increased level of urbanization allow for increase in overall labor force participation rate on the one hand and female labor force participation rate on the other hand, but in urban areas it is generally observed that male workers are more skilled as compared to female workers, so their rate of labor force participation rate is much higher than female labor force, that lowers the ratio of female to male labor force participation rate. Similar implication is for the coefficients of Law and Order Situation which is significant but inversely related with female to male labor force participation rate. ICT and ODA do not have any impact on female to male labor force participation rates.

7. Conclusion And Policy Implications

The focal intension of the present study was to examine the impact of trade openness on gender equality in employment in D8 countries. D8 is group of eight developing and Islamic countries namely Pakistan, Bangladesh, Malaysia, Egypt Indonesia, Iran Turkey and Nigeria.

The empirical results found that trade openness has significant and positive impact on gender equality in employment independently and also with the inclusion of control variables in the model. In all regressions with dependent variable the coefficient of trade openness is significant at 99 % level of confidence with accurate signs.

For instance findings for labor force participation rates gives mix of results, which postulate that with the improvement in social sector labor force participation rate increases both for male and female but, the rate of male labor force participation rate is higher than female which shows the decreased ratio of female to male labor force participation rate, indicating the negative sign of beta coefficients in some cases. Population growth and L & O variable are highly significant creating the significant impact on the level of gender equality

in its all dimensions. Official development assistant gives unsatisfactory results for each dimension of gender equality showing its insignificant coefficients for all regressions which might be the fact of insufficient or underutilization of this assistance in social sector or their insignificant share in GDP.

Major finding of the present study show that trade openness policy is most significant in improving the level of gender equality in employment in Developing 8 countries group during the underlying period of 1980 to 2012. So it would be pertinent for developing countries to adopt liberalization policy because it benefits the women in these countries manifold. Overall conclusion drawn from the study show that economic sector has most influential impact on the social sector special in case of developing countries.

So at the end it would be appropriate to propose some measures to improve the level of gender equality in developing countries before closing the study. To improve the level of gender equality attempts need to develop the proper policy system that facilitates the women in developing countries especially in health education and employment. Trade policy reforms are needed to ensure the provision of social services and availability of employment opportunities to the female in developing countries.

Considering the current status of women in developing countries, a number of policy recommendations are proposed for future researchers and policy makers to improve the level of gender equality. It is observed that trade openness policies have influential effect to advancing gender equality in developing countries, so women should special concerns while aligning the trade policies in developing countries, considering the fact that any trade policy affects society at large should respect the concerns of women and provide the enabling environment, because it will contribute in overall economic growth of country by having productive and efficient female human capital. As observed trade openness policies impacts the level of gender equality in employment, ministry of trade should give special focus for improving the level of female labor force participation rate by providing skill based environment as observed urbanization is most influential factor in aligning gender equality.

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