Does Trade Openness Advances Gender Equality in Education: A Case of D8 Countries

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Abstract

   The present study intends to examine the impact of trade openness on gender equality in education in D8 group which consists of Bangladesh, Egypt Indonesia, Iran, Malaysia, Nigeria, Pakistan, Turkey, and 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 Heteroscadasticity and Autocorrelation problems. The results for our main model which consists of trade openness and gender equality in education, show that trade openness is highly significant in posing the positive effect on the level of gender equality in education. 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 enrolment at primary secondary and tertiary level. 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

   Promotion of gender equality became extensively known ingress 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 women[2]. 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 inequality in education and economic opportunities (Jacobsen, 2011)[3] 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).

   Empirical evidence correspondingly show that giving priority to gender equality in education and other social sector determinants have various impacts on growth process at household and societal levels. For example gender equality in education has demographic transition effect, Evidence show that female education is inversely related with fertility rates, higher female education tends to lower fertility which reduces the dependency burden and increases the share of labor force which fosters economic growth. (Chen, 2004)

   Gender inequality is recognized as serious problem over the globe, some improvements in gender equality in education is seen in many countries, number of female students is also increased and share of female labor in agriculture sector is significant, but situation is still alarming in developing countries in the capacity of access and opportunities. Despite these improvements situation of gender equality is still alarming in the developing countries. Evidence show that in many developing countries huge inequalities exists between

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men and women in equal rights and opportunities context (Kirti and Tisdel, 2003) and status of women is vulnerable relative to men in developing countries. (Dollar and Gatti, 1999) .   *"Gender Equality refers to the equal rights, responsibilities and opportunity for men and women"* (UN Women) but no country of the world can accomplish the full level of gender equality inclusively in all domains of life up till now. The term "equality" is discussed many a times in economic literature and now became a separate issue of the world today. Inequality always creates problems and enhances huge differences among classes and groups in financial terms as well as in social aspects. Inequality among male and female about their choice, freedom entertainment education became the major problem of the world today especially in developing countries. Female works from dawn to dusk but don't considered as other actors of the society, and being suffered from social exclusion and injustice. United Nations has given special emphasis on the promotion of gender equality and women empowerment. For accomplishment of that purpose they set out Millennium Development Goal. Gender Equality is third MDG but considered as key to drive other seven MDGs. Women empowerment and gender equality became the central concern of social scientist and researchers not only from the ethical and philosophical concern but it also have many economic influences. Gender inequality creates wedge in all sectors of Economy, Inequality in education by lowering the investment and misallocation of resources lowers the quality of human capital which lowers the rate of economic growth and development. Similarly gender inequality in employment will decrease the labor force participation rate and lowers the average ability of workforce which lowers the productivity and efficiency and hinders the economic growth.

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 of education 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,) Trade openness can expand the level of education of female through Diffusion and spread of knowledge and Information and communication technology. Gender education gap is significantly reduced through openness and ICT. (Chen, 2004; World Bank, 2012; Shcultz, 2006) found the inverse relationship trade restrictions and level of female education.

The present study aims to assess the impact of trade openness on the level of gender equality in education for the D8 countries. "Developing-8 is an organization for development cooperation among the following countries: Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey".[4] 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 international level. The recent facts on Gender gap in D8 countries is shown by the below figure.

FIGURE 1.1 GENDER GAP IN D8 2013

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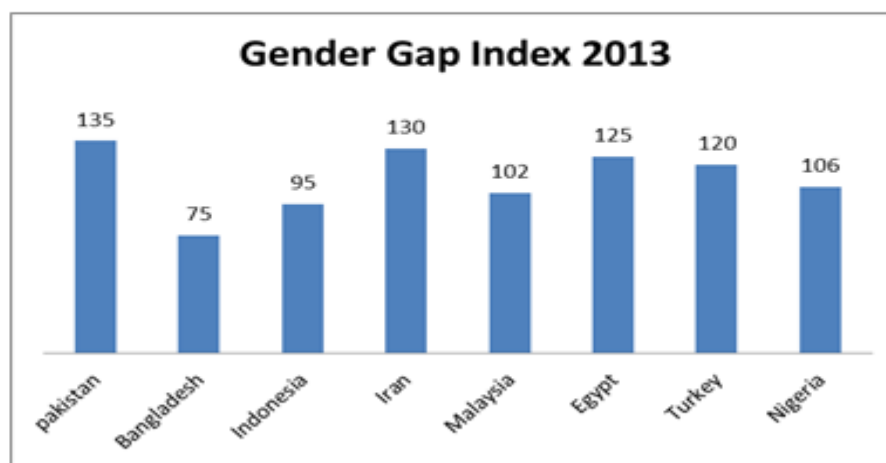
*Out of 136   Source: Global Gender Gap Report, 2013

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.

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[4] http://www.developing8.org/About.aspx

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 each dimension of gender equality in education, health and employment by employing in depth analysis in D8 countries consists of Bangladesh, Egypt Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey, which is group of eight developing countries. For that purpose the following objectives will be incorporated

1. To examine the impact of trade openness on gender equality in education at primary level
2. To examine the impact of trade openness on gender equality in education at secondary level
3. To examine the impact of trade openness on gender equality in education at tertiary level

1.2 Statement of Problem

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. According to a report released by *Basic Education Coalition*, the young people of the world comprises of more than 1.5 million, half of which are girls, this makes the largest portion of the young people ever in the history. Worlds out of school youth is 130 million people from which 70 percent are girls. Due to gender inequality 3.4 million girls are absent world's primary schools.

1.3 Significance of the Study

The present study aims to examine the impact of trade openness on gender equality in education. 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 D8 countries, which is a group of Eight Developing countries, because the trade liberalization theory favors the comparative advantage for developing countries which would benefits female by social service delivery through 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. Review of Literature

An extensive stock of literature is available on the issue of Gender equality. Importance of women empowerment is recognized by past few decades, but female are still suffering from social exclusion and injustice. I would recall the notion of "*Amartya Sen's 100 million missing women"*. He claimed that "millions of women are missing from the society on the basis of social exclusion and inequality". This notion is still exists in the today's world of inequality. The situation of socio political factors is still alarming in many countries of the world especially on female side due to inequality. Developing countries are the special case of low literacy and low female labor force participation, low life expectancy and injustice in female side. This section will provide recent relevant literature, although review of literature is divided into three groups which are as under.

Gender equality is being the desired issue of researchers and economists, gender inequality can be of many types and we can find inequality in any field like health, education employment and politics, but most compelling and prominent problem of gender inequality found in education in almost every developing country. The most recent study on gender inequality in education is conducted by Barro (2013).Researcher investigated the Gender gap in education as a major determinant of economic growth. The researcher distinguished between quality and quantity of education. The researcher employed neo classical growth framework for empirical estimation. The sample size of the underlying study consists of 100 countries covering the time period of 1960 to 1995 and researcher made a decade wise analysis. The findings from the empirical estimation indicate that education has positive impact on growth at starting level of adult males at higher and secondary levels, which show that educated male, are complementary for application of new technologies. Similar estimation done for female also, but results are opposite showing that link between growth and female education is insignificant, which postulates those females are not utilized in the labor market of several economies.

Recently, another study on the educational gender gap is done by Hassan and Cooray (2013). The researcher made an attempt to study the Gender effectiveness of education on economic growth. Theoretical grounds of their study meet with the endogenous growth theories. The researcher employed extreme bonds analysis for Asia, using unbalanced panel data .The study found that there exist a gender gap, female education is less effective for economic growth at all levels, but when they employed neoclassical type models, their findings are slight different, these results are consistent with the robust growth effects of male and female enrolment at primary and secondary levels.

Another study on gender differences in education is conducted by Tansel and Gangor (2012).Research done on the relationship between economic development and education taking into consideration the gender affects for Turkey. The researcher used pooled, province level data; the sample consists of 1975 to 2000. OLS and 2SLS techniques were employed for empirical estimation. The researcher employed the different tests to capture the separate effects of male and female education on economic growth. The results are opposite for less developed and developed provinces. In the developed provinces only the male education is significant and in less developed provinces only female education is statistically significant indicating that less number of women are participating in school attainment at average level failed to impacting the development. It also shows that very small numbers of opportunities are available for more educated workers in the less developed areas of turkey. In a nutshell, gender gap in education is adversely and significantly affecting the productivity in all provinces of turkey including developed and less developed ones.

Kaur and Letic (2012) investigated the impact of female education on economic growth through human capital and fertility rates. India and Niger were taken as sample in the under discussion study. they gave descriptive and theoretical illustration of the topic buy

using the time period between 1990 and 2010.In both countries cases, they found that female education is significantly effecting economic growth by lowering fertility rate and enhancing the quality of human capital, but both countries exhibit social and cultural discrepancies in case of female education. The authors also pose their result in favor of positive impact of female education on economic growth directly and indirectly.

Dahal (2011) investigated the link between gender equality in education and economic growth in case of Nepal using district level data of 75 districts of Nepal for the year 2001. The researcher used Cobb Douglas production function and employed OLS method for estimation. The researcher found an obvious negative impact of gender inequality on district level GDP per capita of Nepal.

Klasen and Lamanna (2003) studied the inequality in education and employment in gender perspective in the Middle East and North Africa. The researchers used panel data estimation for update of previous studies on education from 1960 to 2000.They also estimated the magnitude of the effects of different indicators on actual growth. The study found low gender gap in East Asia and Pacific. The results also found that gender gap in employment are adversely affecting the growth as compared with gender gap in education. Klasen and Lamanna (2008) conducted a similar study on gender inequality in education and employment for developing countries by using panel data. They have updated their previous work by extending the data. The data period covers from 1960 to 2000 for cross country regression. They used multiple regressions for estimations. Their results show that economic growth is on slower pace due to gender gap in education and employment, considerably increasing effects on growth difference among different regions, like Middle East, North Africa and South Asia.

A similar study on gender inequality in education and health is conducted by Kiriti and Tisdell (2003).Researchers were in quest of exploring the prominent factors influencing gender inequality poverty and human development in Kenya employing descriptive method for different periods till 2000.The empirical evidence exhibits a continues increase in Kenya's poverty and gender inequality. They examined multiple aspects of gender inequality including education, employment and political participation. The empirical results suggest that women are highly discriminated in education and health indicating low literacy and life expectancy.

Knowles, Lorgelly and Owen (2002) attempted a very useful study on educational gender gaps and economic development. They saw the separate effects of male and female education by employing neoclassical growth model. Their major objective was to estimate the long run effects of female and male schooling on labor productivity at average level. They used cross country micro and macro data and employed OLS and 2SLS techniques. . The data comprises of five yearly intervals ranging from 1960 to 1990.As for as results are concerned, role of female education is robust with different sensitivity analysis, confirming the World Bank's claim about the importance of female education.

Klasen (2002) examined the link between gender inequality in education and economic growth between 1960 and 1990. Cross country and panel regression analysis were employed in the study. The researcher found the direct and indirect effects of gender inequality on economic growth through increasing the inequality lowering the quality of human capital directly and through lowering the investment and population growth indirectly. There are also differences in annual per capita growth rates due to differences in gender gaps among different regions.

On the issue of inequality in education another study is conducted by Benavot (1989) who examined the impact of gender differences in educational expansion on growth of a nation. The researcher used multiple regression models for panel of 96 countries from 1960 to 1985.The main focus of the study was to estimate the effects of Primary secondary and

territory level gender differences in education on economic growth. Researcher found territory and secondary level are less effective and the most prominent level is primary in developing countries. The findings of the study also show that girls at primary level causing economic enlargement as compared to boys in poor and less developed countries.

Another study on the returns of female education is done by Psacharopoulos (1985). The researcher tried to give new update on cross country analysis which reveals that returns are higher in the field of education with low per capita. There are number of reasons for low earning of women, but in case of developing countries, rate of return for women education is higher, which he claims might be an underestimation because common calculation is applied ignoring the probability of more educated women participation in labor force.

Existing literature and empirical evidence show that there are significant role of institutions in improving gender equality. Iversen and Rosenbulth (2006) empirically examined the household division of labor and gender gap. The sample involved in their study comprised of ten advance democracies for the year 1996. Their major objective was to analyze the variation in gender division of labor and gender voting gap. The empirical evidence is showing variation in gender gap among different countries. The results also show that female are highly discriminated by institutions at household level, that hinder their abilities to get prescribed skills for taking part into equal distribution of work at household level. A strong impact of working women in voting behavior is also seen at party platforms.

Chen (2004) studied the role of information and communication technology in improving Gender equality. The researcher used panel data and adopted OLS and IV method in country fixed effect. The result from empirical analysis indicates that there is significant positive relation between ICT and gender equality in education and employment and there is bidirectional relationship between gender equality and development.

Measuring gender equality is a complex phenomenon. Gender equality is multidimensional concept. Many indices and measurement techniques are adopted by different researchers.

Szabova (2011) assessed existing gender based indices and tried to from a new gender inequality index. The researcher suggested to include some new indicators of gender inequality and developed a new index whose name is gender inequality index. GII measures new aspects of gender inequality and disadvantages to women which were not included in the previous measures. The researcher argues that GII gives a complete picture of gender inequality.

Gender gap is the most common hindrance of Pakistan's economic growth because composition of population of Pakistan is almost equal numbers of females and male. The number of female in total population is reaching the level as that of man. But due to inequality, discrimination and exclusion and some cultural and religious disparities women are still lagging behind than men. Female literacy rate in Pakistan is too low as compared to other developed and developing countries. Pervaiz, chani, jan and chaudry (2011) examined the link between gender inequality and economic growth in Pakistan for the time period of 1972 to 2009. The researcher used composite index of gender inequality which captures all dimensions of gender equality. The evidence shows that there exist a significant negative relationship between gender inequality and economic growth in Pakistan.

Akram, Bashir, and Hamid (2011) examined the relationship between gender equality and economic growth in Pakistan. The sample covers the range from 1972 to2010.The researcher used OLS and co integration analysis. The results demonstrate that biasedness of gender in education laid negative impact on economic growth. The researcher also found that biasedness in education is much harmful for economic growth as compared to primary and secondary levels.

Fatima (2010) has conducted a multipurpose study on the importance gender equality taking into account female education and its role in the development of a nation. Their study

identified some important barriers to the female education in Pakistan from which low investment in this sector are on the top. The researcher also examined the effects of female contributions in the labor force. They identified the existing opportunities for female in Pakistan. They applied OLS technique for estimation, by using time series data from 1980 to 2006. The results show the absence of relationship between Female education and GDP growth. The quality of female education is low, and it also have an impact on the enrolment of female education at primary and secondary levels, which results in low female labor force participation and increases unemployment rate in Pakistan.

Gender equality, along with Social and institutional development is necessary for sustainable economic growth of any country. Easterly (2001) conducted a study on growth and development in case of Pakistan. Researcher presented a description of several social and political indicators on the basis of existing literature. The findings show that Pakistan is underperforming in these indicators namely, education, health, gender equality, political instability, corruption etc. The researcher purposes an illustrative argument in the case of Pakistan, high social polarized society cannot solely developed by increase in its growth rate; it also needs other social and institutional progress.

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. Evidence also show that work on gender equality is scattered not capturing almost all dimensions of gender equality separately in a single study. The present study would be an attempt to analyze the impact of trade openness on gender equality in D8 countries. This study would be very comprehensive in nature because researcher will make the in depth analysis of gender equality by studying all dimensions of gender equality separately in education health and employment, which is not found in the above quoted literature. Secondly 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
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 it implication for developed and developing countries.it states that women gets 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.Trade Openness and Gender Equality

Trade openness is acknowledged as 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 is 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

Increases Educational Opportunities for Female

Education is very important instrument for aligning the gender gap. Another distinctive characteristic of trade openness policy is concealed in the reduction of knowledge gap. Many empirical studies found that due to spillover effect and diffusion of knowledge through developed to developing countries reduces the knowledge gap.

Trade openness gives opportunities to women to enhance their capabilities, to make their skills utilized in competitive environment. Through technological transformation from developed to developing countries it allows women to acquire various types of knowledge through distant learning programs. Evidence show that female of many developing countries getting benefits through online edition of books and education related material, this reduces cost involved in accessing the physical material and distance from rural areas to advanced even foreign institutes and increases gender equality in education.(Chen, 2004)

FIGURE 3.1
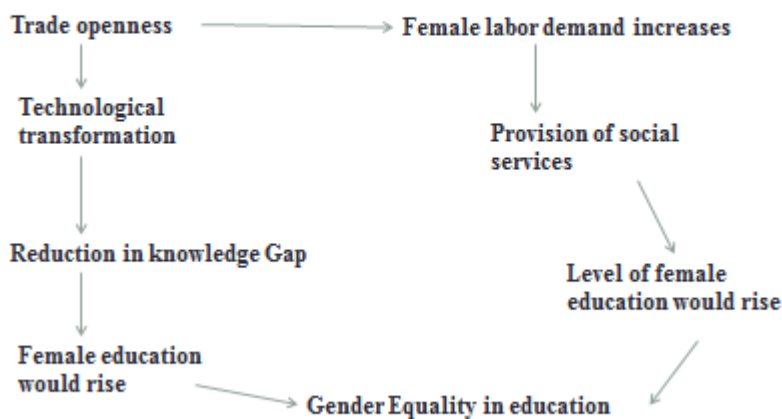
Other Determinants of Gender Equality
Economic Growth

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 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.[5](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 education for 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 which incorporates the gender equality in education by 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"[6]
The Dependent variable is composed of three sub variable by taking different levels of Education at primary, secondary and tertiary levels. To construct the dependent variable, methodology we follow the methodology adopted by (Eastin and Prakash, 2013)

Gender Equality in Education
Gender equality in education is measured by taking different proxies for education, for example:
- **Ratio of female to male primary, Secondary, Territory enrollment (%)**
  "Ratio of female to male primary enrollment is the percentage of girls to boys enrolled at primary, secondary and territory level in public and private schools"[7]

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[5]Recent Employment trends 2011, Government of Pakistan .Statistics Division Pakistan Bureau of Statistics(2012)

[6] 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

[7](World Bank) http://data.worldbank.org/indicator/SE.ENR

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."[8]

. 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: Socio-Economic and Political

To capture the independent effect of some key variables, the present study control for some political, social and economic variables that have independent influence on gender equality. We control for **law and order** situation which is very important factor of determining the level of gender equality. Because bad law and order situation is 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 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."[9]

In the Present study some economic variable are also controlled. We control for country's level of **GDP Per capita**. Followed by (Eastin & parakashh, 2013), 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 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."[10]

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.[11](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

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[8] http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx#s_t
[9] http://www.adbi.org/discussionpaper/2004/11/16/810.fdi.prc.effect/appendix.a.definitions.and.sources.of.variables./
[10] 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.
[11] (Eastin and Prakash, 2013)

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". [12]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". [13] The data on remittances is drawn from the World Bank migration and remittances data.[14]

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.[15]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."[16]

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 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".[17] 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

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[12](World Bank) http://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD/countries
[13] (World Bank) http://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT/countries
[14](WorldBank)http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:22759429~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html
[15] http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=world-development-indicators#c_p
[16]World Bank http://data.worldbank.org/indicator/DT.ODA.ODAT.CD
[17](world bank) http://data.worldbank.org/indicator/SP.POP.GROW

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".[18] 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)[19] 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".[20]

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
GE= Equality in (education+ Health+ Employment)
Education= proxy for education is ratio of male to female literacy rate, ratio of male female enrollment rate at all levels.

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, IC, Population growth rate

Econometric Form of Model

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

In the present study panel regression for D8 countries was estimated for empirical analysis. Haussmann specification test was employed to make a proper choice about fixed

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[18] (World Bank)http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS
[19] (Chen, 2004)
[20] http://data.worldbank.org/indicator/IT.NET.USER.P2

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 Heteroscadasticity and serial correlation in the data. The results of diagnostics postulates that the presence of Hetroscadacity and Auto correlation in the data, but test of Multicolinearity (VIF) suggests that there is no problem of Multicolinearity in the model. Feasible Generalized Least Square method employed for final estimation, the good thing about FGLS is that it allows the presence of Hetroscadasticity and Serial correlation for estimation.

To examine the impact of trade openness on gender equality in education which is measured by the ratio of female to male at primary, secondary and territory enrollment the following regression is formulated.

$$Enrolment_p = \beta_0 + \beta_1 TOP \pm \beta_2 FDI \pm \beta_3 REM + \beta_4 GDPPC + \beta_5 pop\ growth + \beta_6 urban + \beta_7 law + \beta_8 ICT \pm \beta_9 ODA + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots 1$$

Similarly, the effect of trade openness is also measured on gender equality in education at secondary level and the following regression is formulated

$$Enrolment_s = \beta_0 + \beta_1 TOP \pm \beta_2 FDI \pm \beta_3 REM + \beta_4 GDPPC + \beta_5 pop\ growth + \beta_6 urban + \beta_7 law + \beta_8 ICT \pm \beta_9 ODA + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots 2$$

Regression for the enrollment at territory level is formed to test the impact of trade openness as under

$$Enrolment_t = \beta_0 + \beta_1 TOP \pm \beta_2 FDI \pm \beta_3 REM + \beta_4 GDPPC + \beta_5 pop\ growth + \beta_6 urban + \beta_7 law + \beta_8 ICT \pm \beta_9 ODA + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots 3$$

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 in education which are ENRP, ENRS, ENRT. All dependent variables are in the form of female to male ratio. Statistics show that enrolment at primary level ranging from 50 to 107 %, while secondary enrolment ranges from 24 to 115 and territory enrolment ranging from 17 to 132 %.

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.

TABLE 5.1 SUMMARY STATISTICS				
Variable	**Mean**	**Min**	**Max**	**Std.D**
TOP	59.11	13.77	220.40	43.75
ENRP	87.64	50.09	107.76	12.86
ENRS	80.04	24.21	115.35	20.19
ENRT	65.69	17.21	132.66	24.75
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.o2 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 education. There are total 3 dependent variables capturing the different levels of gender equality in education and independent variable trade openness controlling for socio political, economic factors. The empirical results are presented in table forms.

6.1 Empirical Investigation of Primary Enrolment and Trade Openness

Table 6.1 presents the results of FGLS model for estimation of gender equality in education where dependent variable is ratio of female to male primary school enrollment and independent variable is trade openness which is measured as trade (% of GDP). In this table total 10 regressions are presented, for which independent variable is same for all regressions but control variable is different for each regression to capture the independent effect of each control variable.

The results of our main model show that there exists a significant positive relationship between trade openness and female to male primary school enrolment. The coefficient of trade openness is highly significant at 99% level of confidence shown by p-value and accurate positive sign which is consistent with theory and earlier work of Ahmed and Bukhari (2007).The coefficient of Trade openness show that 1 % increase in trade as share of GDP brings 0.11 % increase in ratio of female to male enrolment at primary level.

Regression 2 allow the presence of FDI in our model as control variable, the results show that FDI has no significant influence on enrolment at primary level. The coefficient of FDI is not significant even at 90 percent level of confidence, which implies that FDI have not influential for enrolment at primary level due to the fact that FDI inflows reduces the Government revenue which reduces the provision of social services, since women are key beneficiaries of these services so this would impact badly on the level of female. (Eastin & Parakash, 2013)

TABLE 6.1.DEPENDENT VARIABLE: RATIO OF FEMALE TO MALE PRIMARY ENROLMENT									
Independent variable	**R1**	**R2**	**R3**	**R4**	**R5**	**R6**	**R7**	**R8**	**R9**
C	81.08*** (0.000) ((0.016))	80.98*** (0.000) ((1.23))	84.09*** (0.000) ((1.46))	78.79*** (0.000) ((1.25))	106.77*** (0.000) ((1.93))	71.63*** (0.000) ((2.17))	70.98*** (0.000) ((1.83))	81.47*** (0.000) ((1.23))	85.37*** (0.000) ((1.38))
TOP	.11107*** (0.000) ((0.16))	.1085*** (0.000) ((0.019))	.0988*** (0.000) ((0.016))	.061*** (0.001) ((.018))	.1092*** (0.000) ((.0122))	.070*** (0.000) ((.017))	.071*** (0.000) ((.016))	.089*** (0.000) ((0.019))	.087*** (0.000) ((.016))
FDI		0.116 (0.791) ((0.437))							
REM			- .7719*** (0.000) ((0.214))						

GDPPC				0.001*** (0.000) ((0.0002))					
Population growth					-12.18*** (0.000) ((.809))				
Urbanization						.268*** (0.000) ((.052))			
L& O							4.15*** (0.000) ((0.625))		
Internet								.1460*** (0.025) ((0.065))	
ODA									-1.85*** (0.000) ((.326))
Wald Chi square	43.91	44.32	58.99	73.85	121.56	74.97	98.72	49.75	81.69

Number of observations: 264
Number of groups: 8   Haussmann 0.748
Years : 1980 – 2012   () p-value (()) Standard Errors ***significant at 1%, ** 5%, *10 %

Heteroscadasticity p =0.000
AR(1) p = 0.02

Regression 3 includes remittances in the model, results suggests that coefficient of remittances is highly significant at 99 % level of confidence, remittances comes with negative sign in our model which implies that remittances are inversely related with ratio of female to male enrolment at primary level. Results suggest that 1% increase in remittances brings female to male primary enrolment down by 0.77 percent.

This result is consistent with earlier theory which suggest that as remittances inflow increases in a country, people would move from consumer goods to luxuries goods and in young people this habit prevails and they will adopt the habit of living a luxuries and recreational life this left negative impact on education sector and generally student lost interest in studies, consequently Enrolment would decline at primary level. This result is also consistent with the earlier work of Salvador (2003) who found that remittances inflow has greater impact on the risk of leaving school.

GDPPC is showing significant and positive effect on primary enrolment, which implies that 1 % increase in GDP per capita, brings 0.001 percent increase in enrolment at ratio of female to male enrolment at primary level. The coefficient of GDP per capita is significant at 99% level of confidence. The results for GDP per capita are consistent with the earlier work of Chen (2004) and (Eastin & Parakash, 2013; Ahmad and Bukhari, 2007)

Population growth rate is also significant factor which influences the level of female to male primary enrolment, with significant coefficient at 99 % level of confidence and accurate negative sign showing inverse relationship among population growth rate and primary enrolment. It implies that 1 % increase in the population growth rate brings enrolment at primary level down by 12.18 percent. This is because due to high population growth dependency burden increases which reduces the preferences for female education. This is consistent with the earlier empirical work of (Chen, 2004).

Share of urban population in total population also contributes in determining the level of enrolment at primary level. The estimated coefficient for urbanization is significant at 99 % level of confidence with suitable positive sign. Increased urbanization allows for increase

in the level of enrolment at primary level which is proved by our estimated coefficients which implies that 1 % increase in urbanization brings .26 % increase in ratio of female to male primary enrolment. This is also confirmed by (Chen, 200).Law and Order situation is responsible for peaceful environment in a country Better law and order situation leads to better provision of social services especially education. This is confirmed by the estimates of L & O coefficients which is significant at 99 % level of significance with positive sign indicating that 1 % improvement in L & O situation brings 4.15 percent increase in female to male primary enrolment. This is also supported by (Eastin and Parakash, 2013).

Variable of ICT is also highly significant, which is internet users per (100 persons) having positive sign at 95 % level of confidence.it implies that 1 percent increase in Internet users brings .14 percent increase in primary enrolment, this is because ICT allows for female to get education through distant learning (Chen, 2004)

Official development assistance is also significant at 99 % level of confidence but appearing with negative sign which shows that ODA does negatively effects the female enrolment at primary level. Results postulate that 1 % increase in ODA brings down enrolment ratio by 1.85 percent.

6.2 Empirical Investigation of Secondary Enrolment and Trade Openness

Table 6.2 presents the results on secondary school enrolment as dependent variable and similar independent and control variables as discussed above in table 1.Regression 1 is based on the main model which is trade openness and secondary school enrolment ratios. The FGLS estimates show that the coefficients are highly significant at 1 %, and holding the positive sign which shows the positive relation between trade openness and secondary school enrolment ratios. It is postulated that 1 % increase in trade openness brings about 0 .25 percent improvements in female to male secondary school enrolment ratios.

Similarly, inclusion of FDI in our model for secondary school enrolment ratios also shows the positive and significant relation. It is found that 1 % increase in FDI inflow in GDP increases the secondary school enrolment by 0.01 % in D8 group. But looking at the remittances it is postulated that remittances have no influence on secondary school enrolment ratio depicting the negative and insignificant sign of coefficients. This is might be reason of absence of father from household, which is generally head of house in developing countries, and extra burden on the female due to the absence of spouse loses the attention on children which results in higher risk of leaving the school because in this scenario children usually loses interest in studies due to the lack of attention of both parents.

GDP per capita is also insignificant in this case which is susceptible and might be the fact govt. expenditures are more skewed towards investment in primary education, secondary enrolment at secondary level is also dependent on the primary education, so GDPPC does not have significant impact on enrolment at secondary level.

Population growth is significantly and inversely related secondary school enrolment ratios which indicate that 1% increase in population growth rate brings down secondary school enrolment by 15 %, this is significant at 99 % level, consistent with the earlier study of Chen (2004). Urbanization is also highly significant in at 15 with accurate positive sign which implies that 1 % increase in urban population brings 0.22 percent upward shift in secondary school enrolment ratios (Chen, 2004).

Law and Order situation is also key determinant of Gender equality in education. Its coefficient is significant at 1% and holding positive sign which postulate that 1 % improvement in L & O bring 5.99 percent increment in secondary school enrolment ratios. Our estimated coefficient for internet users is also consistently significant at 1 % level with positive sign which show that 1 % increase in the internet users brings 0.17 percent increase

in secondary school enrolment ratios. It is found that ODA is highly significant but inversely related with secondary school enrolment ratios.

6.2.DEPENDENT VARIABLE: RATIO OF FEMALE TO MALE SECONDARY ENROLMENT

Independent variable	R1	R2	R3	R4	R5	R6	R7	R8	R9
C	64.89*** (0.000) ((1.73))	64.45*** (0.000) ((1.72))	64.83 (0.000) ((2.11))	64.04*** (0.000) ((1.85))	96.66*** (0.000) ((2.97))	56.89*** (0.000) ((3.16))	50.22*** (0.000) ((2.54))	65.35*** (0.000) ((1.743))	69.93*** (0.000) ((1.99))
TOP	.256*** (0.000) (0.023)	.219*** (0.000) ((.027))	.256*** (0.000) (0.241)	.2377*** (0.000) (0.027)	.254*** (0.000) ((.0189))	.221*** (0.000) (.025)	.2003*** (0.000) ((.0228))	.230*** (0.000) ((.027))	.229*** (0.000) ((0.023))
FDI		1.55*** (0.01) ((.069))							
REM			.014 (0.962) ((.309))						
GDPPC				.0004 (0.20) ((0.0003))					
Population growth					-15.06*** (0.000) ((1.24))				
Urbanization						.227*** (0.003) ((0.075))			
L& O							5.993*** (0.000) ((.865))		
Internet								.170*** (0.065) ((0.0922))	
ODA									-2.17*** (0.000) ((.468))
Wald Chi square	117.75	127.85	117.76	120.13	124.10	130.80	198.41	122.68	149.00

Number of observations: 264
Number of groups: 8   **() p-value (()) Standard Errors ***significant at 1%, ** 5%, *10 %**
Years : 1980 – 2012
Heteroscadasticity p = 0.000
AR(1) p = 0.000   **Haussmann   0.36**

6.3 EMPIRICAL INVESTIGATION OF TERTIARY ENROLMENT AND TRADE OPENNESS

TABLE 6.3. DEPENDENT VARIABLE: RATIO OF FEMALE TO MALE TERRITORY ENROLMENT									
Independent variable	**R1**	**R2**	**R3**	**R4**	**R5**	**R6**	**R7**	**R8**	**R9**
C	43.53*** (0.000) ((1.91))	43.31 (0.000) ((1.91))	45.62*** (0.000) ((1.82))	38.09*** (0.000) ((1.82))	77.84*** (0.000) ((3.32))	15.70*** (0.000) ((2.91))	22.12*** (0.000) ((2.68))	45.61*** (0.000) ((1.717))	51.38*** (0.000) ((.024))
TOP	.374*** (0.000) ((.026))	.365*** (0.000) ((0.0307))	.366*** (0.000) ((.026))	0.256*** (0.000) ((.027))	.372*** (0.000) ((.0211))	.254*** (0.000) ((.023))	.284*** (0.000) ((.024))	.2599*** (0.000) ((.0268))	.332*** (0.000) ((.0248))
FDI		.42 (0.536) ((0.679))							
REM			-.535* (0.11) ((.340))						
GDPPC				.0026*** (0.000) ((.0003))					
Population growth					-16.27*** (0.000) ((1.39))				
Urbanization						.7922*** (0.000) ((.069))			
L& O							9.19*** (0.000) ((.912))		
Internet								.770*** (0.000) ((.090))	
ODA									-3.39*** (0.000) ((.4961))
Wald Chi square	206.50	208.54	210.91	329.32	448.93	436.49	384.53	334.33	289.94

Number of observations: 264
Number of groups: 8   () p-value (()) Standard Errors ***significant at 1%, ** 5%, *10 %
Years : 1980 – 2012
Heteroscadasticity p=0.000
AR(1)   p=0.0017
                                                                    Haussmann   0.018

Table 6.3 presents the result for Territory school enrolment ratios. These results are similar as primary school enrolment ratios. Coefficient of trade openness is highly significant and having positive sign in all 10 regressions indicating the positive effect of trade openness on territory enrolment. It is found that 1 % increase in trade openness brings .37 percent increase in territory enrolment at 1 % level of significance. These results are also consistent with the earlier work of (Ahmed and Bukhari, 2007)

Our findings for FDI are also similar with the results of primary school enrolment t ratios. FDI is also insignificant in case of Territory enrolment ratios. On the other hand remittances are significant but with converse sign showing negative impact on territory enrolment. The findings show that 1 % increase in remittances brings territory enrolment down by .53 %. GDP per capita is positively related with the territory enrolment at 1 % level of significance. This implies that 1 % increase in GDP per capita brings 0.0026 percent

increase in territory enrolment ratios. The positive and significant effect of GDP per capita on gender equality in education is also confirmed by Chen (2004), Eastin and Parakash (2013) and Ahemd and Bukhari (2007).

On the other hand rate of population growth is also significant showing inverse relationship with enrolment at territory level. This implies that 1 % increase in population growth brings territory enrolment down by 16.27 percent.

On the other hand urbanization is highly significant at 99 % level implying that 1 % increase in the rate of urbanization brings 0.79 percent increase in enrolment at territory level, this is also consistent with Chen (2004).

Law and order is also positive and significant in bringing about the change in territory enrolment ratios, this implies that 1 % improvement in L & O situation brings 9.19 % improvement in territory enrolment. Variable of ICT is also highly significant at 99% indicating that 1 % increase in internet users brings).77 percent increase in territory enrolment ratios. Findings for ODA shows that it is significant at 1 % level of confidence but holding negative sign which is adversely affecting the enrolment at territory levels.

Results of FGLS for examination the impact of trade openness on gender equality in education were presented in this section. The overall results show that trade openness is highly significant and positively related with all levels of gender equality included in the model; on the other hand FDI and Remittances show insignificant and converse signs in all models only with the single exception of FDI impact on labor force participation rate. Similarly, GDP per capita is highly significant showing consistent relationship with all variables of gender equality except for the secondary school enrolment ratios. Results for demographic variables namely urbanization, population growth rate are also significant with consistent signs for all regressions. But results are not satisfactory in case of ODA and inconsistent in almost all regressions with negative signs which postulate that Official Development Assistance is not being efficiently utilized and allocated in social sector in developing 8 countries. The empirical results found that trade openness has significant and positive impact on gender equality in education independently and also with the inclusion of control variables in the model. In all regressions for all dependent variable the coefficient of trade openness is significant at 99 % level of confidence with accurate signs.

7. Conclusion and Policy Implications

The focal intension of the present study was to examine the impact of trade openness on gender equality in education, for the D8 countries. Major finding of the present study show that trade openness policy is most significant in improving the level of gender equality in education, 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.

The findings of the present study show that the trade openness policy is positively and significantly contributes in improving the gender equality in education in D8 countries during 1980 to 2012.Gender equality in education is pertinent for economic development because social sector is major contributor of economic growth in any country.

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. Status of female education   can easily be enhanced in developing countries by adopting the liberalize trade policy by giving ease of access to women for the provision of social services through creating social safety net, this would enable the sustainable development of society.

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