



UNIVERSITI PUTRA MALAYSIA

CAUSES AND CONSEQUENCES OF GENDER INEQUALITY

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CAUSES AND CONSEQUENCES OF GENDER INEQUALITY

By

AMDADULLAH

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,
in Fulfillment of the Requirements for the Degree of Doctor of Philosophy**

March 2017

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DEDICATION

This work is dedicated to my family and to all those who believe in the richness of learning.



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment
of the requirement for the Degree of Doctor of Philosophy

CAUSES AND CONSEQUENCES OF GENDER INEQUALITY

By

AMDADULLAH

March 2017

Chairman : Associate Professor Zaleha Mohd Noor, PhD
Faculty : Economics and Management

Gender inequality is a persuasive global issue with huge cost and consequences. This thesis studies the causes and consequences of gender inequality in both developed and developing countries. First objective is to determine the impact of gender equality on income inequality. The second objective is to seek the impact of gender equality on education inequality. And the third objective is to determine the impact of institutional quality on gender equality. This study considers four aspects of gender equality; economic participation and opportunity, educational attainment, health and survival, and political empowerment. The study employs the Generalized Method of Moments (GMM) panel estimators developed for dynamic models of panel data, proposed by Arellano and Bond (1991) and Blundell and Bond, (1998) to estimate the models.

First objective empirical results show significant effects of gender equality and its sub-indices on income distribution using panel data of 103 countries for the period of 2006–13. The results show negative impacts of gender equality and its sub-indices on income distribution, suggesting that by increasing equality between males and females will result in lower income inequality. GDP per capita has nonlinear effect income inequality. Education attainment has a negative effect on income distribution, while higher inflation rate increases income inequality.

The second objective is to investigate the impact of gender equality and its sub-indices on education inequality using panel data of 103 countries, over the period 2006–2014. Results reveal gender equality exerts a significant negative effect on education inequality, indicating that higher gender equality between males and females results in lower education inequality. GDP per capita, schooling and democracy have a negative and significant effect on education inequality. Conversely, unemployment, population density and dependency have a positive and significant impact on education distribution.

The third objective uses the empirical results of panel data from 110 countries, for the period 2006–2014, show that the variable institutional quality has positive impact on gender equality and its sub-indices, suggesting that countries with improved institutional quality results higher level of gender equality. The empirical results confirm, GDP per capita has nonlinear significant effect on gender equality. Education attainment has positive impact gender equality. Likewise, fertility is found to have negative effect on gender equality.

The analysis implies that improving gender equality effectively contributes to expanding equality in income and education. Improved institutions offer a significant contribution to gaining gender equality.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Doktor Falsafah

SEBAB DAN AKIBAT KETIDAKSAMAAN JANTINA

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Pengerusi : Profesor Madya Zaleha Mohd Noor, PhD
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Ekonomi dunia menghadapi masalah yang tersendiri yang menyebabkan kebimbangan kepada pakar-pakar ekonomi dan pembuat-pembuat dasar. Isu-isu ini berhubungkait dengan masalah ketidaksamaan pendapatan, ketidaksamaan pendidikan dan kualiti institusi. Sementara itu, ketidaksamaan jantina adalah isu tambahan yang masih berleluasa di dunia. Pengurangan kepada ketidaksamaan dalam aspek pendapatan, pendidikan, jantina dan penambahbaikan kualiti institusi telah menjadi salah satu agenda utama kepada ekonomi global. Kajian teori dan empirikal menjangkakan bahawa kos mempergiatkan ketidaksamaan dalam aspek pendapatan, pendidikan, jantina dan kualiti institusi yang lemah adalah tinggi dan seterusnya membawa kesan negatif kepada pertumbuhan dan kesejahteraan ekonomi.

Kesan kesaksamaan jantina kepada aspek ketidaksamaan pendapatan, ketidaksamaan pendidikan dan kualiti institusi yang diketahui adalah sangat terhad. Tesis ini memberi sumbangan kepada kesusasteraan dalam kesan kesaksamaan jantina kepada ketidaksamaan pendapatan, ketidaksamaan pendidikan, dan kesan kualiti institusi bersama dengan beberapa dimensi kesaksamaan jantina. Kajian ini mengambil kira empat aspek kesaksamaan jantina; penyertaan ekonomi dan peluang, pencapaian pendidikan, kesihatan dan kelangsungan hidup, dan kuasa politik. Tujuannya adalah untuk merapatkan jurang dalam kesusasteraan yang sedia ada. Kajian ini menggunakan “Generalized Method of Moments” (GMM) panel yang dibangunkan untuk model dinamik daripada data panel, yang dicadangkan oleh Arellano dan Bond (1991) untuk mengganggu model-model.

Pertama, keputusan empirikal menunjukkan kesan yang penting terhadap kesaksamaan jantina dan sub-indeks ke atas pengagihan pendapatan dalam 103 negara bagi tempoh tahun 2006-2013. Keputusan sistem GMM menunjukkan kesan negatif dan signifikan kepada kesaksamaan gender dan sub-indeks kepada pengagihan pendapatan, ia menunjukkan bahawa dengan merapatkan jurang jantina atau

meningkatkan kesaksamaan antara lelaki dan perempuan akan menyebabkan ketidaksamaan pendapatan yang lebih rendah. KDNK per kapita mempunyai tanda yang positif dan KDNK per kapita (Square), seterusnya pencapaian pendidikan mempunyai kesan negatif yang ketara ke atas pengagihan pendapatan. Demikian juga, inflasi mempunyai kesan negatif dan penting ke atas pendapatan yang tidak seimbang. Walau bagaimanapun, anggaran pekali untuk globalisasi dan demokrasi adalah tidak signifikan.

Objektif kedua adalah untuk menyiasat kesan kesaksamaan jantina dan sub-indeks kepada ketidaksamaan pendidikan dengan menggunakan panel data daripada 103 negara, sepanjang tempoh 2006-2014. Keputusan mendedahkan kesaksamaan jantina membawa kepada kesan negatif yang ketara kepada ketidaksamaan pendidikan, yang menunjukkan bahawa kesaksamaan jantina yang lebih tinggi di antara lelaki dan perempuan menyebabkan ketidaksamaan pendidikan yang lebih rendah. KDNK per kapita, persekolahan dan demokrasi mempunyai kesan negatif dan signifikan kepada ketidaksamaan pendidikan. Sebaliknya, pengangguran, kepadatan penduduk dan kebergantungan memberi kesan yang positif dan signifikan terhadap pengagihan pendidikan.

Objektif ketiga menggunakan data keputusan empirikal data panel daripada 110 negara, bagi tempoh 2006-2014, ia menunjukkan bahawa pembolehubah kualiti institusi dan enam petunjuk memberi kesan penting dan positif kepada kesaksamaan jantina dan sub-indeks itu, di mana ia menunjukkan bahawa negara-negara dengan peningkatan kualiti institusi menyebabkan tahap yang lebih tinggi dari kesaksamaan jantina. Hasil kajian menunjukkan bahawa, KDNK per kapita mempunyai kesan yang besar dan tidak linear kepada kesaksamaan jantina. Pencapaian pendidikan mempunyai hubungan yang positif dan signifikan dengan kesaksamaan jantina. Begitu juga dengan kesuburan, didapati bahawa mempunyai kesan negatif dan signifikan kepada jantina seperti yang dijangkakan.

Analisis ini menunjukkan bahawa peningkatan kesaksamaan jantina berkesan menyumbang kepada perkembangan kesaksamaan dalam pendapatan dan pendidikan. Institusi yang diperbaiki menawarkan sumbangan yang besar untuk mendapat kesaksamaan jantina.

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I certify that a Thesis Examination Committee has met on 17 March 2017 to conduct the final examination of Amdadullah on his thesis entitled "Causes and Consequences of Gender Inequality" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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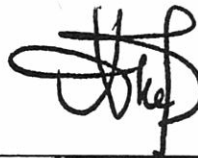
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CHAPTER 1

INTRODUCTION

1.1 Introduction

This thesis studies the causes and consequences of gender inequality in both developed and developing countries, an issue that is relatively unexplored in the literature. This thesis contributes to the literature on the effects of gender equality on income inequality and education inequality, and the effect of institutional quality on gender equality along with several dimensions of gender equality. This study considers four aspects of gender equality; economic participation and opportunity, educational attainment, health and survival, and political empowerment. Finally, using panel data for 110 developed and developing countries this study employs a dynamic econometric method the Generalized Method of Moments (GMM) as proposed by Arellano and Bond (1991). This section sets the introduction and provides a background of research. It also gives an overview of the subsequent chapters of this study.

The rest of this chapter is organised as follows. Section 1.2 gives the background of the study. Section 1.3 elucidates the problem statement of the undertaking research. Section 1.4 and 1.5 provide the objectives and research questions, respectively. In addition, section 1.6 presents the scope of the work. Section 1.7 establishes the contributions of this thesis. Section 1.8 provides an overview of the chapters to follow.

1.2 Background of the Study

The role of woman has been recognised for its significance contribution in the development of a country. In recent years, economists, academic researchers and policymakers have been concerned about the issue of gender inequality in the world and recognise it as a significant global and human rights issue. This concern is based on the negative impact of gender inequality on economic growth and development and most importantly the well-being of the population. Gender inequality, implies that “women and girls will be less well educated and have lower health status, economic participation and political representation”. In other words gender inequality refers to the unequal access and opportunities exclusively in light of issues of their gender. In many countries, the gender inequality has declined over recent years especially in education and health; women enjoy the same access to education and health as men. However, despite the improvement, gender disparity in education at the primary, secondary and tertiary levels and health persists in certain regions (Cooray, 2012) and the gender inequality is pervasive in many dimensions of life worldwide (Cuberes and Teignier-Baqué, 2011; King and Mason, 2001; World Bank, 2011).¹

¹ Enhancing women’s education and health does not decipher into empowerment if women do not have gender rights, freedom from domestic violence and domestic unpaid drudgery or lower paid jobs, the same economic opportunities and political rights as men (UN Millennium Project, 2005).

Gender inequality is a widespread phenomenon. Gender inequality persists in disparate ways in most parts of the world in different forms. Gender inequality not only exist in developing economies such as Brazil, China, India, Indonesia, Nigeria, and Pakistan but also in developed countries such as America, Britain, France, Germany and Japan. Women lag behind men in terms of education, health, labour force participation, pay, economic participation and political empowerment (Hausmann, Tyson, Bekhouche, and Zahidi, 2014; United Nations, 2015a). In no region of the developing world are women equal to men in legal, social, and economic rights (King and Mason, 2001) and no country in the world has achieved gender equality (Hausmann et al., 2014). According to Global Gender Gap Report 2014 on average, over 96 percent of the gender gap in health outcomes, 94 percent of the gender gap in educational attainment, 60 percent of the gender gap in economic participation and only 21 percent of the gap in political empowerment has been closed in 2014. Covering 142 countries, the highest ranked countries are Iceland, Finland, Norway, Sweden and Denmark that have closed over 80 percent of their gender gaps, while the lowest ranked countries are Syria, Chad, Pakistan and Yemen which have closed a little over half of its gender gap. The world has managed to achieve almost 0.94, 0.60 and 0.21 index feats for educational attainment, economic participation and opportunity, and political empowerment gender equality, respectively.² However, since 2006 the health and survival gender gap index has deteriorated, from 0.97 to 0.96 (Hausmann et al., 2014). Thus, gender inequality remains high, despite some significant improvements.

1.2.1 The Gender Inequality in Education

Education is an important component of opportunities and empowerment (Morrison, Raju, and Sinha, 2007). Gender inequality in education has declined in many countries but gap has not entirely been bridged. Yet millions of girls do not attend school in developing countries. According to the data from the UNESCO Institute for Statistics (UIS) and United Nations Children's Fund (UNICEF) millions of girls continue to be denied their right to education. Nearly 58 million children of primary school age were not enrolled in school in 2012. 31 million of the 58 million primary school age children out of school are girls representing 53 percent of the total (UNESCO and UNICEF, 2015).

Gender disparities in adult literacy rates remain wide in most regions of the world. Women account for two-thirds of the world's 774 million illiterate adults (United Nations, 2010). 781 million adults and 126 million youth worldwide lack basic literacy skills, and more than 60 percent of them are women (United Nations, 2014).

Figure 1.1 displays global educational attainment gender equality index by region between 2006 and 2014. Educational attainment gender equality index is the composite female-to-male ratio for education levels, including literacy rate, primary, secondary and tertiary education enrolment rates. The gender gap in education has closed in almost all regions. The education gender equality index score show that the Middle

² Gender gap index ranges from 0 (indicates perfect inequality) to 1 (indicates perfect equality).

East and North Africa achieved in 2014 was 0.92. Asia and the Pacific achieved a 0.92 index score, North America 0.99, Latin America and the Caribbean 0.99, and Europe and Central Asia a 0.99 index score. In Sub-Saharan Africa, however, the educational attainment gender index score was 0.79 which is the lowest score among all regions. The figure confirms that girls and women still remain deprived of full and equal opportunities for education.

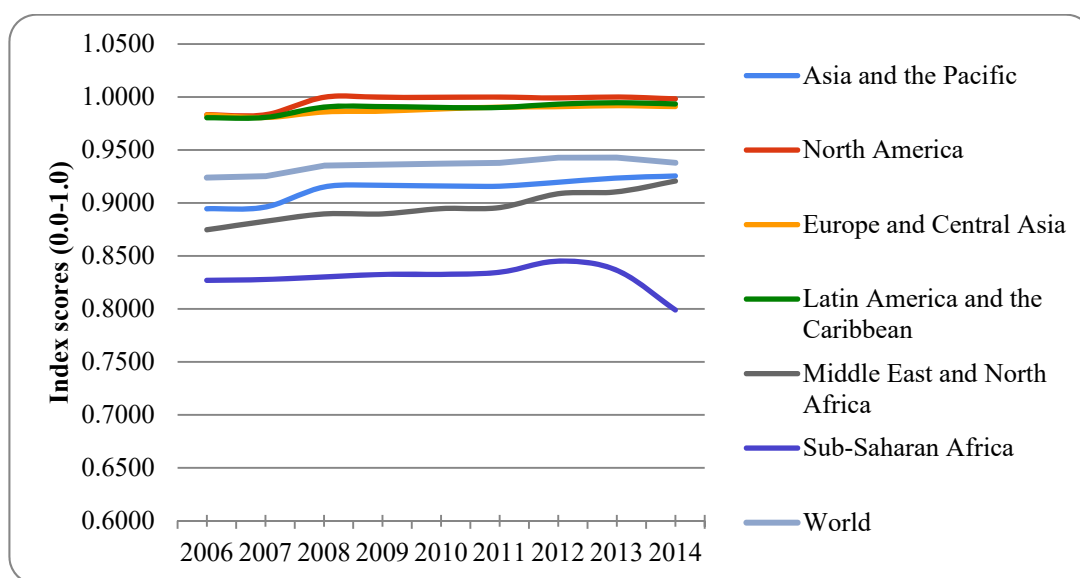


Figure 1.1 : Educational Attainment Gender Equality by Region, 2006 - 2014
(Source: Global Gender Gap Index (2014))

1.2.2 The Gender Inequality in Health

Health is a basic feature shaping both the length and the quality of people's lives (Stiglitz, Sen, and Fitoussi, 2009). However, women face greater difficulties in getting the health care they need and there are many health challenges women face around the world. The average population in poorer countries is younger, therefore, mortality rates in younger children are higher, and most deaths occur are girls, adolescents and young adult women. Every year 99 percent, more than half a million, maternal deaths happen in developing countries (World Health Organisation (WHO), 2009).

Moreover, there are conditions that only women experience and whose potentially negative impact only they suffer, such as pregnancy and childbirth, are not diseases, but biological and social processes that carry health risks and require health care (WHO, 2009). 289,000 women died globally in 2013 during pregnancy, childbirth, or within 42 days of termination of the pregnancy and the maternal mortality ratio was 210 deaths per 100,000 live births (United Nations, 2014).

Gender differences in health are most obvious in many regions as shown in Figure 1.2. Health and survival gender equality index is the composite female-to-male ratio at birth and healthy life expectancy. In 2014 the health status has worsened in all regions, except North America and Asia and the Pacific, compared to a decade ago as shown Figure 1. 2. Health and survival gender equality index is downward sloping from 2013. The figure shows that health and survival gender index in Asia and the Pacific and Sub-Saharan Africa is 0.94 which is considerably low. While the North America records the highest index 0.98. On the other hand, the index for Latin America and the Caribbean and Europe and Central Asia is 0.97, and for the Middle East and North Africa is 0.96. Women in many parts of the world continue to have limited access to health.

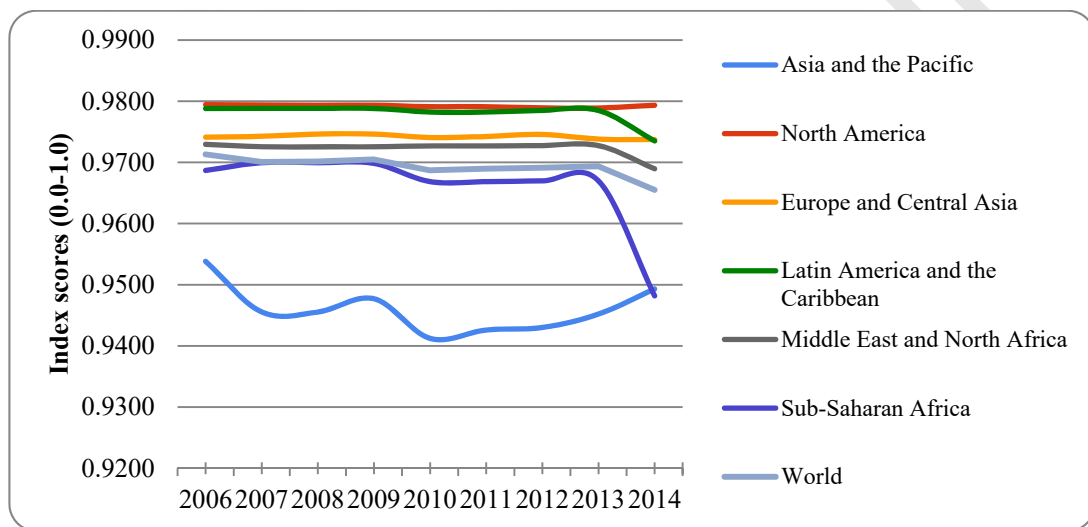


Figure 1.2 : The Health and Survival Gender Equality by Region, 2006-2014
(Source: Global Gender Gap Index (2014))

1.2.3 The Gender Inequality in Employment and Wage

The gender disparity in employment persists, with a 24.8 percentage point difference between men and women in the employment-to-population ratio in 2012. The gap is most acute in Northern Africa, Southern Asia and Western Asia, where women are far less likely to be employed than their male counterparts (United Nations, 2014). Moreover, girls generally work longer hours than boys, whether they are engaged in housework only, employment only or both. Long hours of work affect children's ability to participate fully in education (United Nations, 2010).

Unequal pay is a persistent and universal problem. Despite women's increased participation in the labour market, they have, in general, been paid less (Oelz et al., 2013; Roy et al., 2008). Women are under-represented at highly paid levels and kept in lower level positions. Female-dominated jobs are generally less paid and less valued than male-dominated jobs (Oelz et al., 2013). Globally, the gender pay gap is estimated to be 22.9 percent; in other words, women earn 77.1 percent of what men

earn. However, the size of the gender pay gap varies by sector, by occupation, by group of workers, by country and over time (ILO, 2011).

Woetzel et al., (2015) recently report that decreasing the global gender inequality in economic participation and opportunity would not be only equitable but could double the contribution of women to global GDP growth between 2014 and 2025. Equal participation of women in the economy would add up to 26 percent (\$28 trillion) to annual global GDP in 2025. Gender equality in economic participation and opportunity has largely been achieved by all regions between 2006 and 2014 as displayed in Figure 1.3. Economic participation and opportunity gender equality index is the composite female-to-male ratio for labour force participation, wage for similar work, estimated earned income, legislators, senior officials and managers, professional and technical workers. The figure shows that economic participation and opportunity gender equality index is upward sloping for all regions. The figure posit that North America region has the highest gender equality index 0.82 in economic participation and opportunity, while Middle East and North Africa records the lowest gender equality index, 0.42. Latin America and the Caribbean have been successful to achieve a 0.63, Europe and Central Asia 0.68 index score, Sub-Saharan Africa 0.68, Asia and the Pacific 0.53 gender equality index score in economic participation and opportunity since 2006. Sub-Saharan African country, Burundi has the highest gender equality in economic participation and opportunity, with score of 0.865, in the world. Other countries of Sub-Saharan Africa such as Botswana, Rwanda and Ghana and three Nordic countries—Norway, Iceland, and Sweden—have been successful to achieve more than 80% of their gender equality in economic participation and opportunity. Similarly Lao PDR from the Asia and the Pacific region ranks the second country in the world that has closed gender gap in the world after Burundi. Women are strictly disadvantaged compared to men economic participation and opportunity in countries like Saudi Arabia, Pakistan and Syria that hold the last three spots. However, gender disparities become more prevalent in economic participation and opportunity, with greater variances among regions.

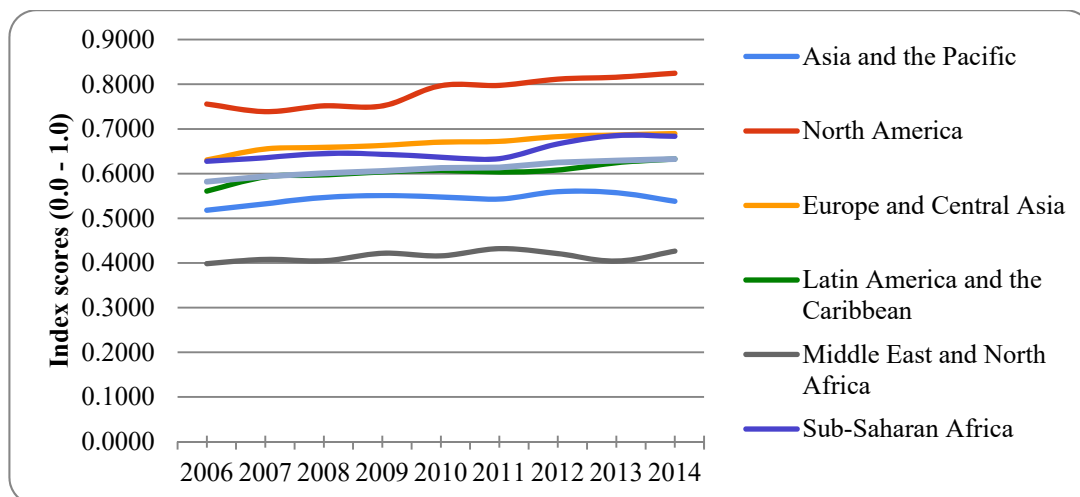


Figure 1.3 : The Economic Participation and Opportunity Gender Equality by Region, 2006-2014

(Source: Global Gender Gap Index (2014))

1.2.4 The Gender Inequality in Political Participation

Representation of women in parliaments is an area of opportunity for women in political and public life, and thus, be associated with the empowerment of women (United Nations, 2003). Almost everywhere women's representation in politics and in senior managerial positions in business remains far lower than men's (Hausmann et al., 2014; World Bank, 2011). Women continue to participate unequally both as voters and as candidates. Equality of opportunity in politics is a human right. Insufficient attention and resources have been devoted to addressing the gap between male and female political participation (UNDP, 2010b).

Since 2012, the number of female Heads of State or Heads of Government in the world has decreased slightly, from 19 to 18. Meanwhile, the percentage of female Speakers of Parliament has barely risen from 14.2 percent in 2012, to 14.8 percent in 2013. The proportion of women holding seats in parliament increased in 42 of the 64 chambers in 2013 worldwide. In January 2014, 46 countries boasted having more than 30 percent female members of parliament in at least one chamber (United Nations, 2014). The percentage of women MPs in the world is 22.1 percent, says the Inter-Parliamentary Union (IPU)³.

Gender inequality in political participation is critical in many countries and it remains to be a challenge around the world. Gender equality in political empowerment has been on the rise across the globe for the past 10 years or so, as shown Figure 1.4. Political empowerment gender equality index is the composite female-to-male ratio of seats in parliament, at ministerial level and number of years of head of state (last 50 years). In 2014, globally 0.19 index score of gender equality in political empowerment

³ Parliamentary Union website: <http://www.ipu.org>.

has been achieved. Europe and Central Asia have the highest gender equality in political empowerment index of 0.27, while Asia and the Pacific record 0.23 indexes, Latin America 0.19, North America 0.18, Sub-Saharan Africa 0.16 index score out of 1. Finally Middle East and North Africa have the lowest gender equality in political empowerment index 0.08. Worldwide developed countries for example Iceland, Finland, Norway, Ireland and Sweden rank in the top five on political empowerment gender equality. Similarly, developing countries, Nicaragua, Bangladesh, Rwanda and India shows a strong performance in gender equality in political empowerment. Conversely, Muslim countries Bahrain, Brunei-Darussalam, Iran, Kuwait, Lebanon, Maldives, Malaysia, Oman, Qatar and Yemen have the lowest ranks in gender equality in political empowerment. Likewise Belize and Hungary also have the widest gender gap in political empowerment in the world. This suggests that gender inequality in political empowerment not only is an issue in developing countries but it is also pervasive in developed countries.

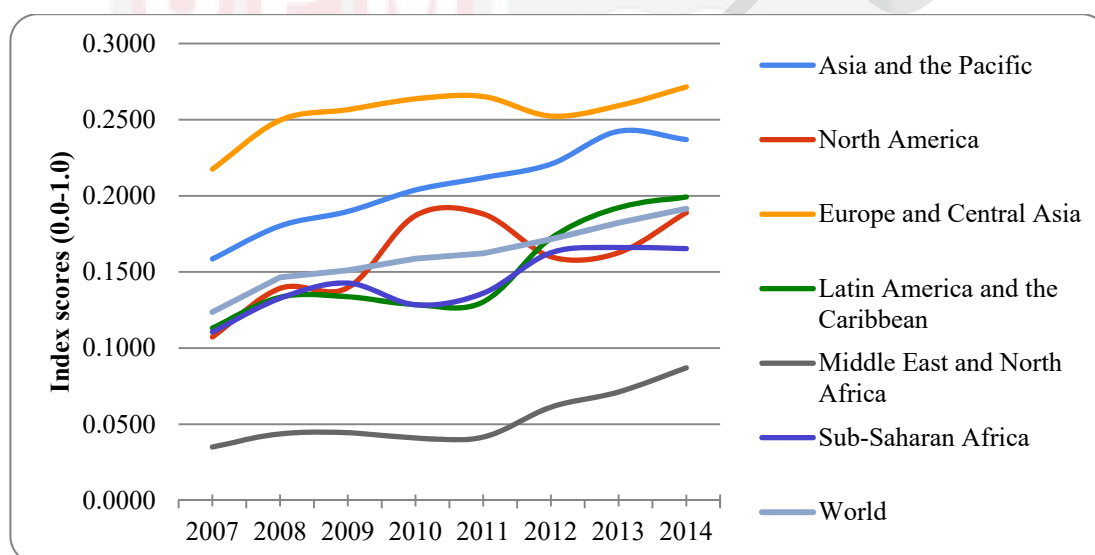


Figure 1.4 : The Political Empowerment Gender Equality by Region, 2006-2014
(Source: Global Gender Gap Index (2014))

1.2.5 The Gender Inequality and Income Inequality

Income inequality has been presented to be a persistent phenomenon in both developed and developing countries, even in the presence of sustained macroeconomic growth. It has received wide attention from academic researchers and has been subject to extensive debate. There is a consensus in the prior literature that increasing income inequality is harmful and destructive to growth and poverty reduction, furthermore, it has significant political, social and economic costs and it is morally questionable (Berg and Ostry, 2013; Mankiw, 2013; Stiglitz, 2012).

A large number of countries display rising income inequality and it has increased in most advanced and many developing economies over recent decades (Bastagli, Coady, and Gupta, 2012; ILO, 2011; IMF, 2014; Milanovic, 2016). International Labour

Office (2011) reports that we live in a highly unequal world where 80 percent of the world's population shares 30 percent of the world's wealth, with 70 percent of wealth accruing to the top 20 percent of the population. Even more graphically, the 1 percent wealthiest of the world's population (61 million) has the same amount of income as the poorest 56 percent of the world's population (3.5 billion).

More recently Fuentes-Nieva and Galasso (2014) report that almost half of the world's wealth is going into the hands of the richest one percent and the other half to the remaining 99 percent. Only one percent of the population owns almost half of the world's wealth; amounting to \$110 trillion which is 65 times the total wealth of the bottom half of the world's population. The bottom half of the world's population owns the same as the richest 85 people in the world.

Income inequality is universal today. The evidence from the latest version of UNU-WIDER's World Income Inequality Database (WIID3.3) 2015, also shows the income inequality is high in many countries. Since the 2000's many countries have experienced a rise in inequality, other countries have observed a decline. South Africa has the highest income inequality with a Gini index 65.97, historically this is one of the top income inequalities in the world. Hungary with a Gini index of 27.33 has the lowest income inequality reflecting a very exceptional economic and social model of redistribution.

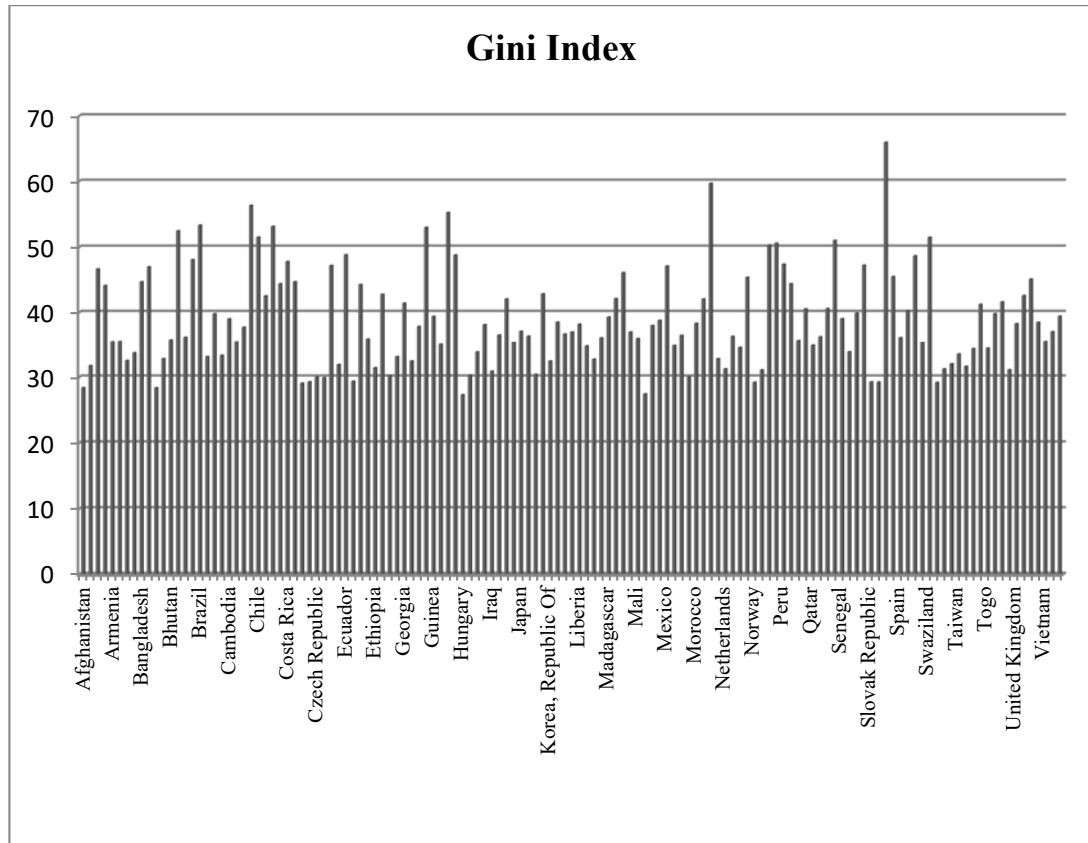


Figure 1.5 : Income Inequality by Country

(Source: UNU-WIDER's World Income Inequality Database (WIID3.3) 2015.⁴)

Figure 1.6 display the trends in the income difference between top 10 percent and bottom 90 percent income per capita during the period 1990 to 2014 for the selected countries. It is obvious that the difference between top 10 percent and bottom 90 percent income per capita has an upward trend. In the majority of the countries, the trend has increased at a slower pace. In contrast, Denmark, Norway and Sweden show a rapid change.

⁴ <https://www.wider.unu.edu/download/WIID3.3>

<https://www.wider.unu.edu/project/wiid-world-income-inequality-database>

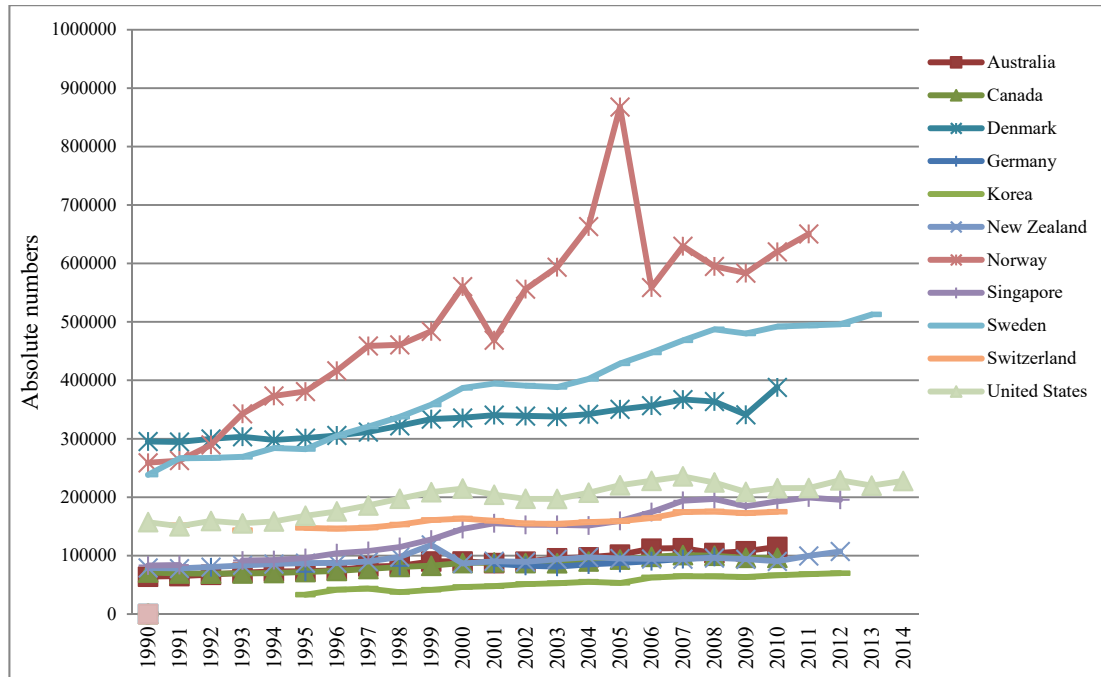


Figure 1.6 : Income Difference between Top 10% and Bottom 90% (average)
(Sources: The World Top Income Database.)⁵

There is also a large and growing body of literature, both theoretical and empirical, examining the factors that cause income inequality (see e.g. Conlisk (1969); Durlauf (1996); Card and DiNardo (2002); Gregorio and Lee (2002); Chakraborty and Das (2005); Costa, Silva, and Vaz (2009); Cornia (2012); Bastagli et al. (2012); Stiglitz (2012); Jaumotte et al. (2013); Muller (2013); Atkinson and Bourguignon (2015)). However, few prior empirical studies have given explicit attention toward analysing and delving deeper into the effects of gender equality on income inequality. Several studies indicate that gender inequality contributes to overall inequality and poverty (Bastagli et al., 2012; Costa, Silva, and Vaz, 2009; Davies and Joshi, 1998; Popova, 2002). Gender inequality imply that females will be less well educated and have lower health status, higher fertility rate and lower labour participation, hence, less skilled. Lower human capital levels and labour participation and higher fertility, in turn, are likely to affect income distribution.

Figures 1.7, 1.8, 1.9, 1.10 and 1.11 display the correlation between Gini index and overall gender gaps index and its sub-indices for the sampled countries averaged over the entire period (2006-2013). The fitted lines illustrate weak negative correlations between the average income distribution Gini index and overall gender gap index and its sub-indices. The overall gender gap index has the highest correlation ($R^2 = 0.0636$), followed by political empowerment gender gap index ($R^2 = 0.0520$), and economic participation and opportunity gender gap index ($R^2 = 0.0490$). However, the education

⁵ <http://topincomes.g-mond.parisschoolofeconomics.eu>.

Scatter plot showing the relationship between the Overall Gender Gap Index (X-axis) and the Gini Index (Y-axis). The X-axis ranges from 0.5 to 1.0, and the Y-axis ranges from 20 to 70. A negative linear regression line is shown. Data points are labeled with country codes. A legend at the bottom indicates 'Gini Index vs Overall Gender Gap Index'.

Scatter plot showing the relationship between the Education Attainment Gender Gap Index (X-axis) and the Gini Index (Y-axis). The X-axis ranges from 0.2 to 1.2, and the Y-axis ranges from 20 to 70. A negative linear regression line is shown. Data points are labeled with country codes. Notable outliers include ZAF (South Africa) and NAM (Namibia) at high Gini Index values, and TCD (Chad) and BEN (Benin) at lower Education Attainment Gender Gap Index values.

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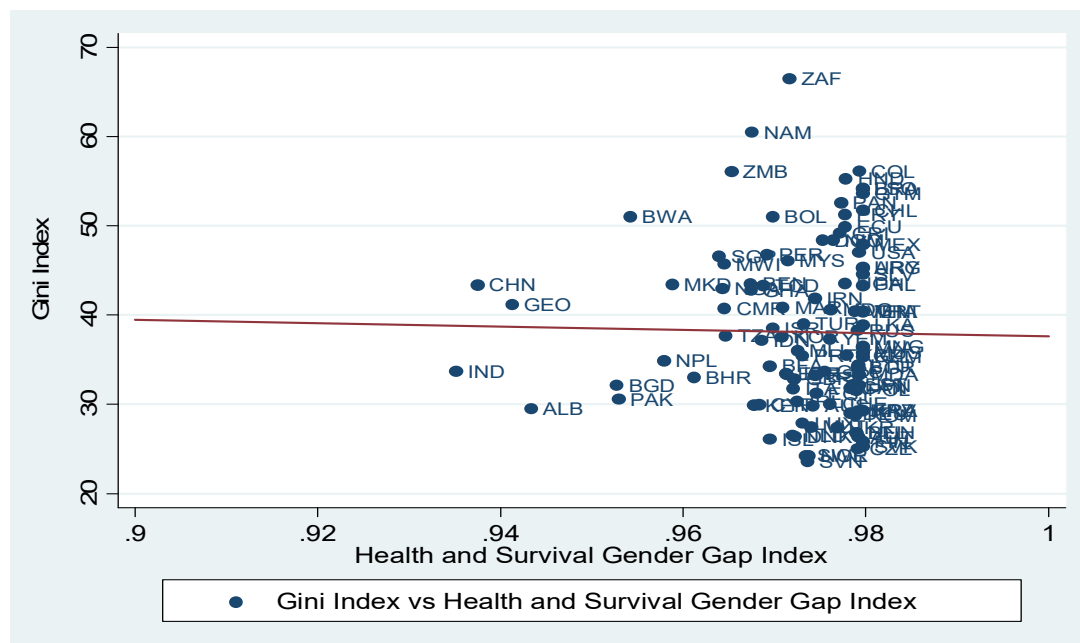


Figure 1.9 : Gini Index and Health and Survival Gender Equality (average 2006-13)
(Source: PovcalNet and World Economic Forum (2014)).

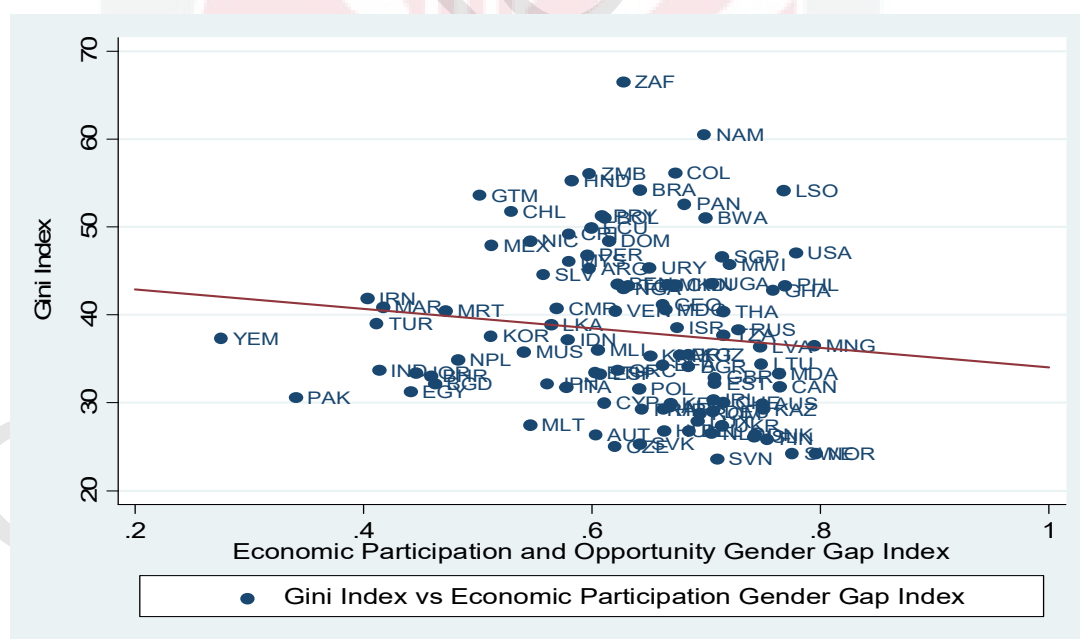


Figure 1.10 : Gini Index and Economic Participation and Opportunity Gender Equality (average 2006-13)
(Source: PovcalNet and World Economic Forum (2014)).

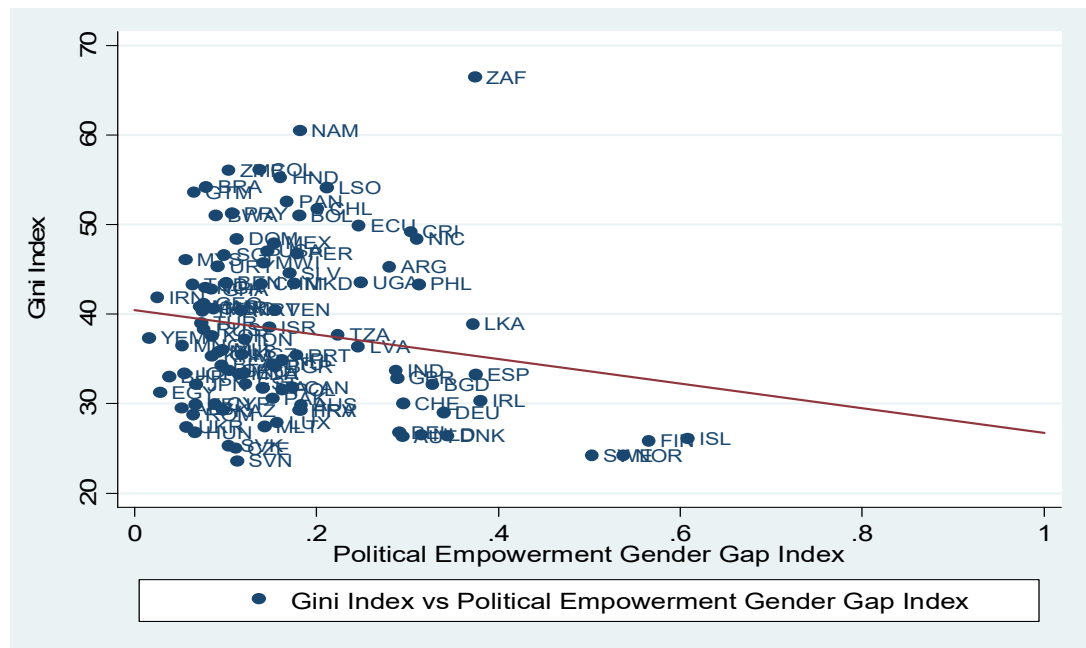


Figure 1.11 : Gini Index and Political Empowerment Gender Gap Index (average 2006-13)
(Source: PovcalNet and World Economic Forum (2014)).

In many countries, income inequality has increased rapidly and is recognised as a major threat to human advancement. The correlation between gender equality and income inequality is weak and empirical studies on this issue are scarce. Further analysis is required to understand the effects of gender equality on income equality.

1.2.6 The Gender Inequality and Education Inequality:

Equal access to education is one of the basic and fundamental human rights to which all are entitled. Unequal education distribution generates huge inequalities in income distribution and causes more poverty. Ozturk (2001) points out that the distribution of education matters. The level of education is a fundamental dimension of the human wellbeing, not only in its own right but also as an important contribution to the empowerment of people, capacity and full participation in society. It is also an important factor for income and health outcomes. People who lack basic education face an increased risk of health problems and of precarious employment, and are more likely to live in poverty (United Nations, 2013).

In addition, education plays a vital role in sustainable economic growth and development. Education is regarded as an effective tool for development, maximising social welfare and in reducing poverty, inequality, empowering individuals, and improving incomes. Disparities in education have declined across regions. However, despite some progress, education inequality is still pervasive in many regions as shown in Figure 1.12. Regions, for example, Sub-Sahara Africa, South Asia, the Middle East and North Africa are the most unequally education distributed regions. Whereas

Europe and Central Asia followed by East Asia and the Pacific are generally more equally education distributed regions. Similarly, by income, the advanced countries display more equal education distribution. Developing countries, on the other hand, show low education equality. Nevertheless, no region has been fully successful in equal education distribution.

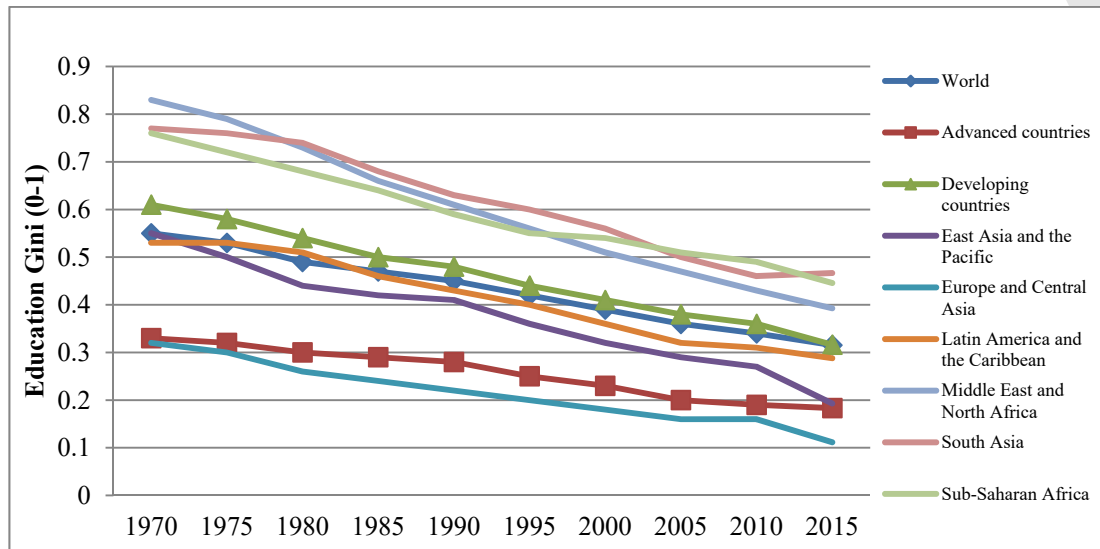


Figure 1.12 : Education Inequality (Gini) by Region (Population Aged 15 and Above)
(Source: Author's calculations based on Barro-Lee Data (2015)).

Similarly, according to the data from the UNESCO Institute for Statistics (UIS) and United Nations Children's Fund (UNICEF) nearly 58 million children of primary school age were not enrolled in school in 2012 (UNESCO and UNICEF, 2015). 781 million adults and 126 million youth worldwide lack basic literacy skills, and more than 60 percent of them are women (United Nations, 2014).

Figure 1.13 shows the highest level of education among men and women aged 25 and over as a percentage of the population in each region according to four levels of education: "no schooling", "primary," "secondary" and "tertiary ". There are significant variations in the level of education in all regions. Developed and most developing regions have achieved the universal primary education attainment level and therefore, the proportion of women and men with no schooling at primary levels are small, whereas the secondary and tertiary different levels of education attainment are substantial. Southern Asia, Sub-Saharan Africa and Western Asia regions, in contrast, have not achieved the goal of universal primary education, therefore, the proportion of women and men with no schooling and primary levels are major. Despite the fact, these regions depict a more modest level of education in secondary and tertiary level.

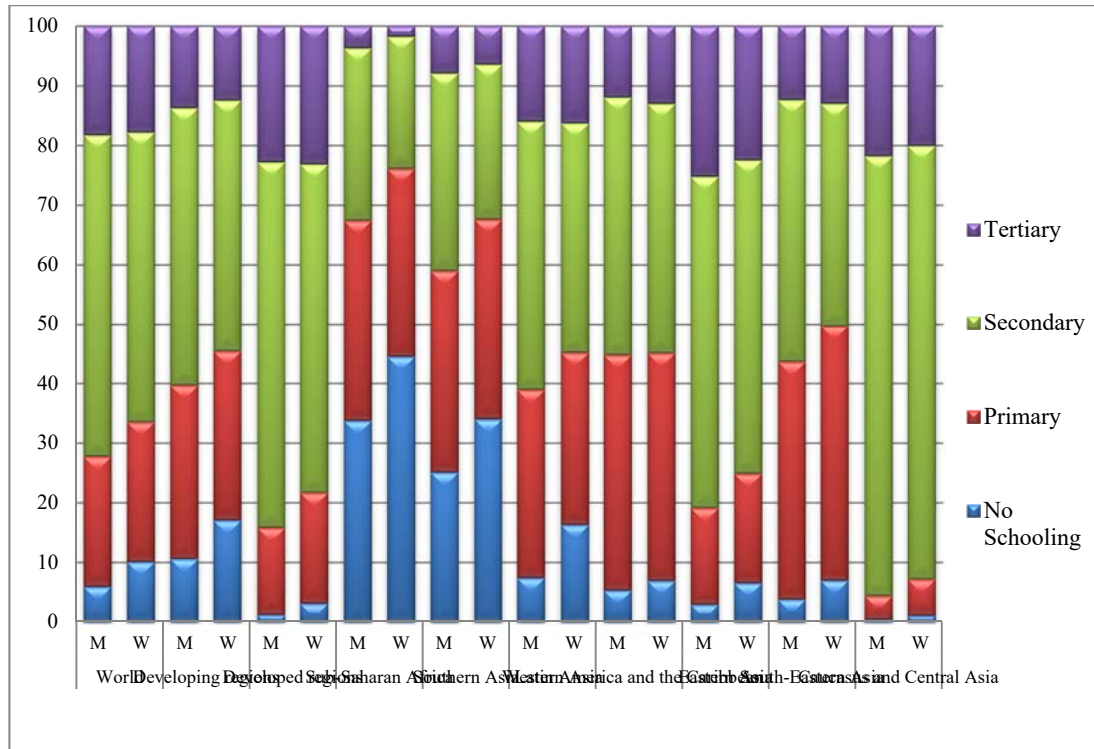


Figure 1.13 : Distribution of Education Attainment of the Population Aged 25 and Over by Sex, Region, 2005–2012
(Source: United Nations (2015)).

Promoting gender equality is a core development issue and a development objective. Gender equality is essential for protecting universal human rights and fundamental freedoms. Intuitively, the association between gender equality and education inequality appears axiomatic. There is extensive prior literature dealing with education inequality or human capital inequality. However, despite the abundance of research on education inequality, with few exceptions its relationship with gender equality remains underexplored and there is scant literature on the relationship of gender equality with education inequality. Existing research recognises the critical role played by the gender gap and suggests that the gender gap is a key determinant of education distribution. Surveys such as those conducted by (Digdowiseiso, 2010; Senadza, 2012; Thomas et al., 2001; Zhang and Li, 2002) find that gender inequality is positively associated with education inequality. Similarly, Tomul (2011) indicates that the level of education of men was higher than that of women. Recently Trabelsi (2013) found that educational inequality is higher for women than for men despite the increase of the educational attainment level.

However, the main limitation of previous literature regarding gender in/equality is that they address only education gender in/equality (usually measured by the difference between female illiteracy rate and male illiteracy rate) impact on education inequality, ignoring the other dimensions and aspects of gender equality such as gender equality in health, economic opportunity and political participation effects on education

inequality. Therefore, it is essential to study the impact of gender equality on education inequality.

The gender gap index and education distribution Gini index show weak negative correlations especially for health and survival gender gap index ($R^2= 0.0234$), economic participation and opportunity gender gap index ($R^2= 0.0291$), and political empowerment gender gap index ($R^2= 0.0085$), while the education attainment gender gap index ($R^2= 0.0557$) has a relatively stronger correlation, followed by overall gender gap index ($R^2= 0.0439$) as shown in Figures 1.14, 1.15, 1.16, 1.17 and 1.18 for the sampled countries averaged over the entire period (2006-2014).

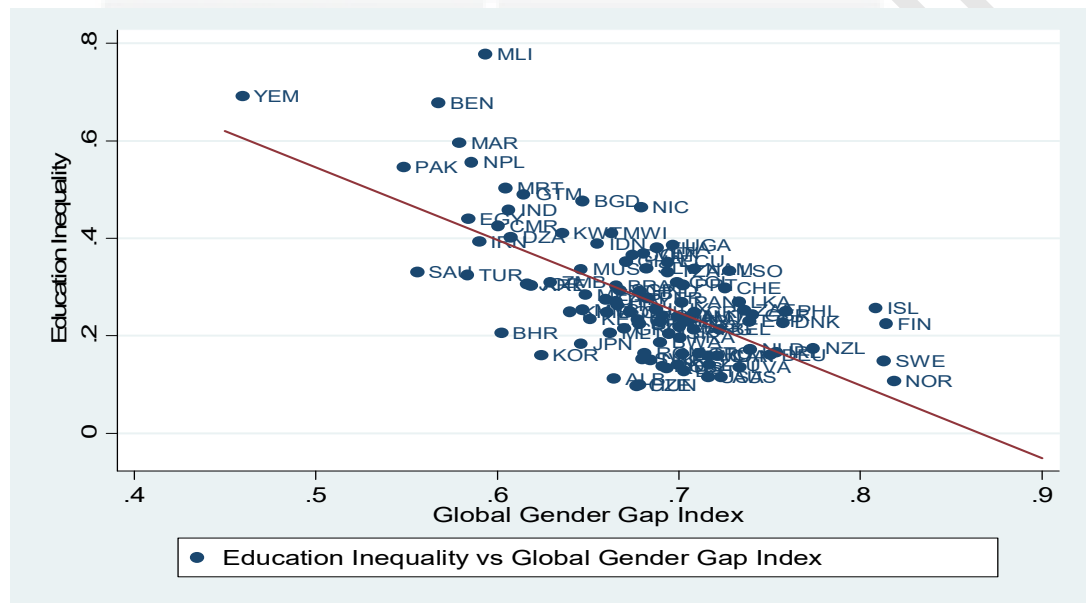


Figure 1.14 : Overall Gender Equality and Education Inequality
(Source: Barro and Lee (2015)⁶ and World Economic Forum (2014)).

⁶ <http://www.barrolee.com/main.htm> and http://barrolee.com/data/oup_download_c.htm accessed October 2015

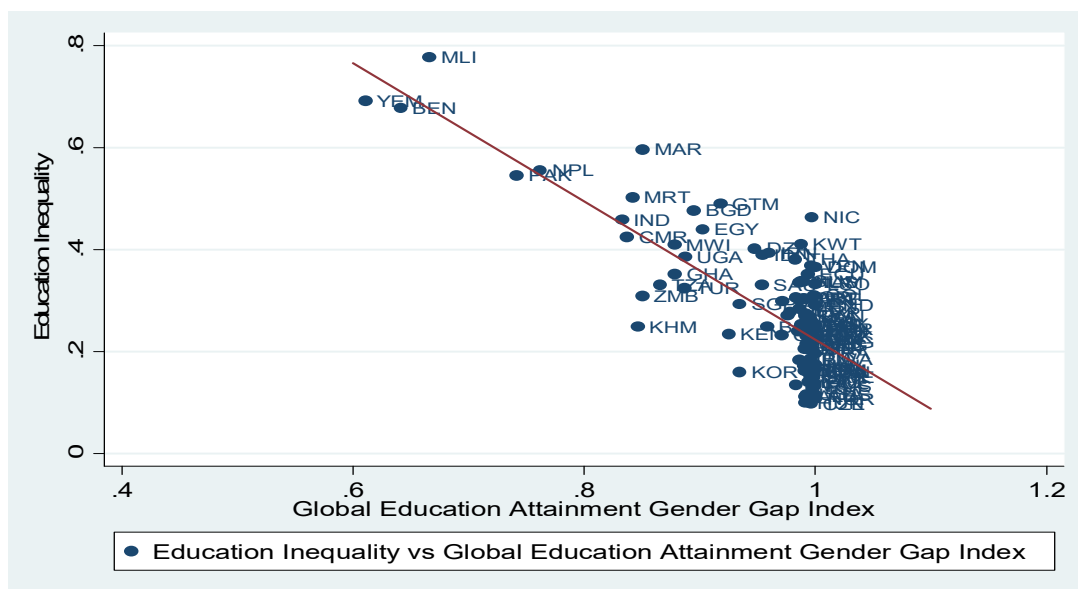


Figure 1.15 : Education Attainment Gender Equality and Education Inequality
(Source: Barro and Lee (2015) and World Economic Forum (2014)).

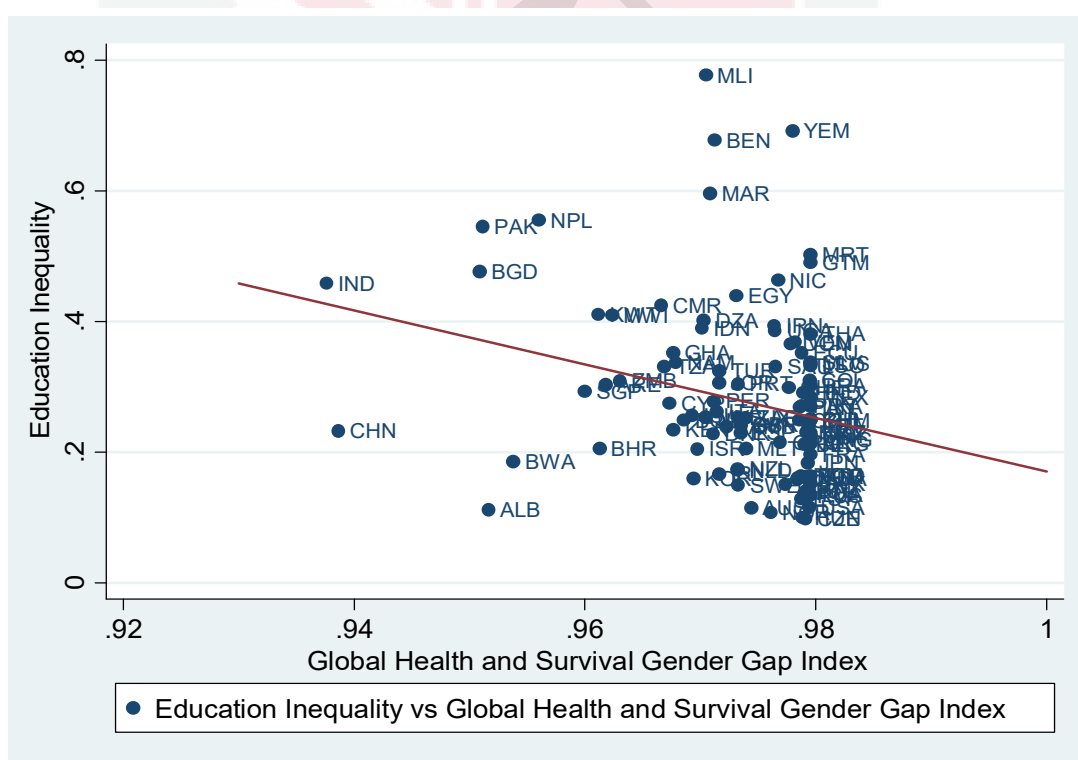


Figure 1.16 : Health and Survival Gender Equality and Education Inequality
(Source: Barro and Lee (2015) and World Economic Forum (2014)).

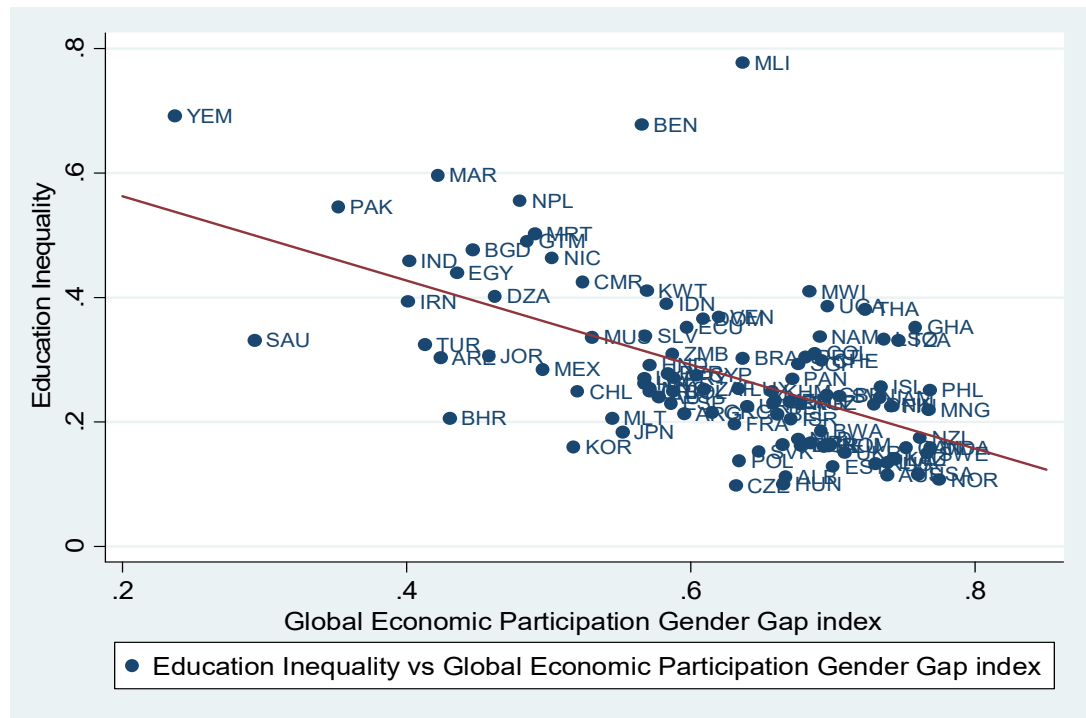


Figure 1.17 : Economic Participation Gender Equality and Education Inequality
(Source: Barro and Lee (2015) and World Economic Forum (2014)).

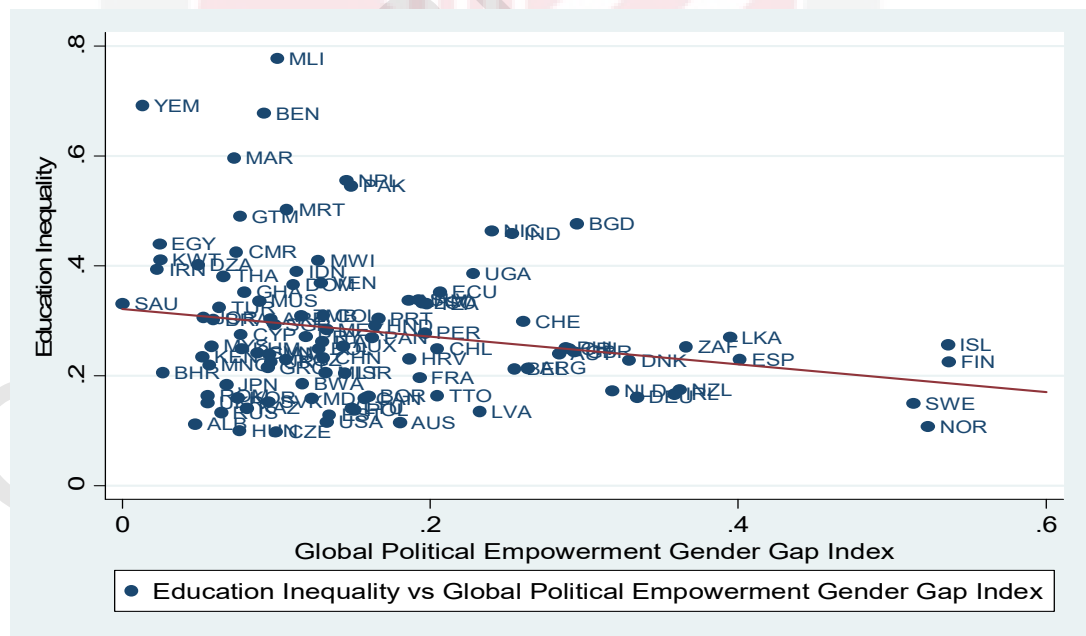


Figure 1.18 : Political Empowerment Gender Equality and Education Inequality
(Source: Barro and Lee (2015) and World Economic Forum (2014)).

Since gender and education inequalities persist, with few exceptions, their relationship remains underexplored and unidimensional. Hence, the study on the effect of gender equality on education inequality is evidently important.

1.2.7 Institutional Quality and The Gender Inequality

In recent years, gender inequality has been recognised a significant global and human rights issue. In many countries, the gender gap has narrowed during the last few years especially in education and health; women enjoy the same access to education and health as men. However, despite dramatic increases in gender equality in education and health, gender gaps are pervasive in many dimensions of life worldwide (Cuberes and Teignier-Baqué, 2011; King and Mason, 2001; World Bank, 2011).

Women lag behind men in terms of education, health, labour force participation, pay, economic participation, professional, technical and management positions, senior officials and managers, government representation, federal legislatures and political empowerment and no country in the world has achieved gender equality (Hausmann et al., 2014). Thus, gender inequality remains high, despite some significant improvements. Societies have to pay a price for gender inequality (Dollar and Gatti, 1999). The evidence indicates significantly societies where large and persistent gender gaps exist usually pay higher price, in terms of lower growth, increase in poverty rate, illiteracy, malnutrition and illness.

In recent literature, institutions have received much attention and it is widely accepted that institutional quality influences different groups and individuals in society. There is scarce prior empirical evidence on the influence of institutional quality on gender equality. With few exceptions, the empirical literature on the gender gap continues to be institution quality blind. The main limitation of previous literature regarding gender in/equality is that it addresses only political (democracy versus non-democracy), social and religious institutions impact gender in/equality, ignoring the governance institutional quality impact on gender in/equality. Kaufmann, Kraay and Mastruzzi (2008) defined governance institutional quality broadly as “the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them.” Bang and Mitra, (2011) define institutional quality, “the efficiency and transparency of the organs of governance, such as the quality of bureaucracy, lack of corruption, and property rights”.⁷ Thus, the question of whether governance institutional quality explains the gender gap across countries needs to be addressed.

⁷ (see, Morrisson and Jütting 2005; Cooray 2010; Cooray and Potrafke 2011; Cooray 2012; Branisa, Klasen, and Ziegler 2013; Branisa et al. 2014; Jayachandran 2015; Seguino 2011).

The gender gap index and institutional quality show a positive relationship, as shown in Figures 1.19, 1.20, 1.21, 1.22 and 1.23. These fitted lines illustrate that institutional quality has the strongest relationship with the overall gender gap index ($R^2 = 0.3341$) and the education attainment gender gap index ($R^2 = 0.3255$), economic participation and the opportunity gender gap index ($R^2 = 0.1444$), and political empowerment gender gap index ($R^2 = 0.1320$) respectively, while has the weakest correlation with health and survival gender gap index ($R^2 = 0.0197$).

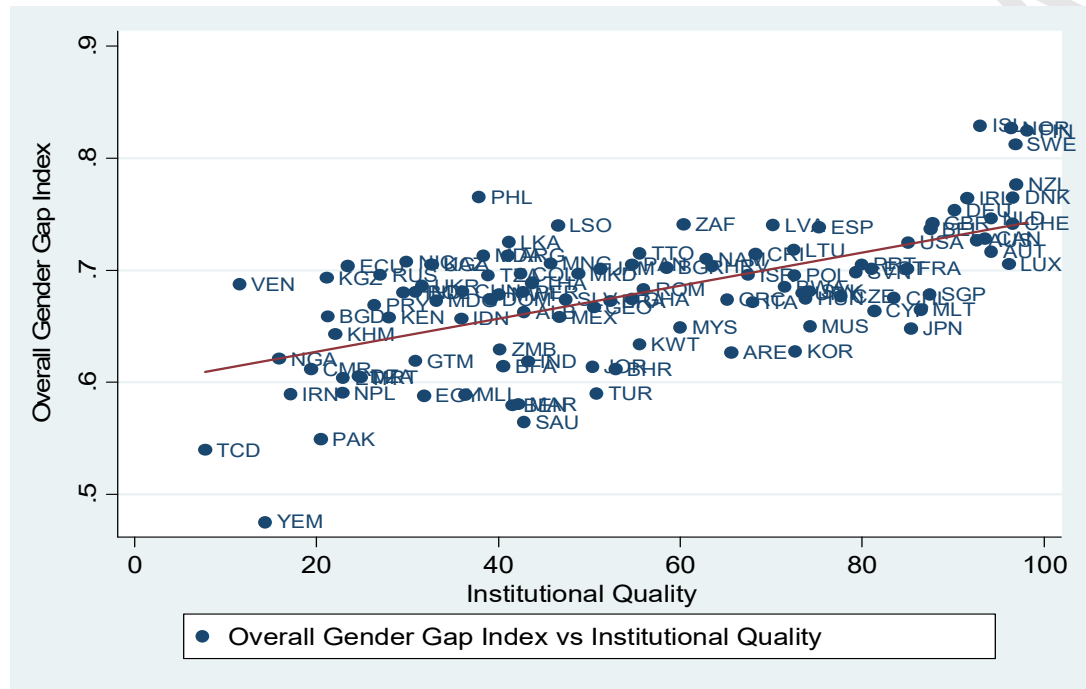


Figure 1.19 : Overall Gender Equality and Institutional Quality

(Source: World Governance Indicators (2015)⁸ and World Economic Forum (2014)).

⁸ <http://info.worldbank.org/governance/wgi/index.aspx#home> accessed October 2015

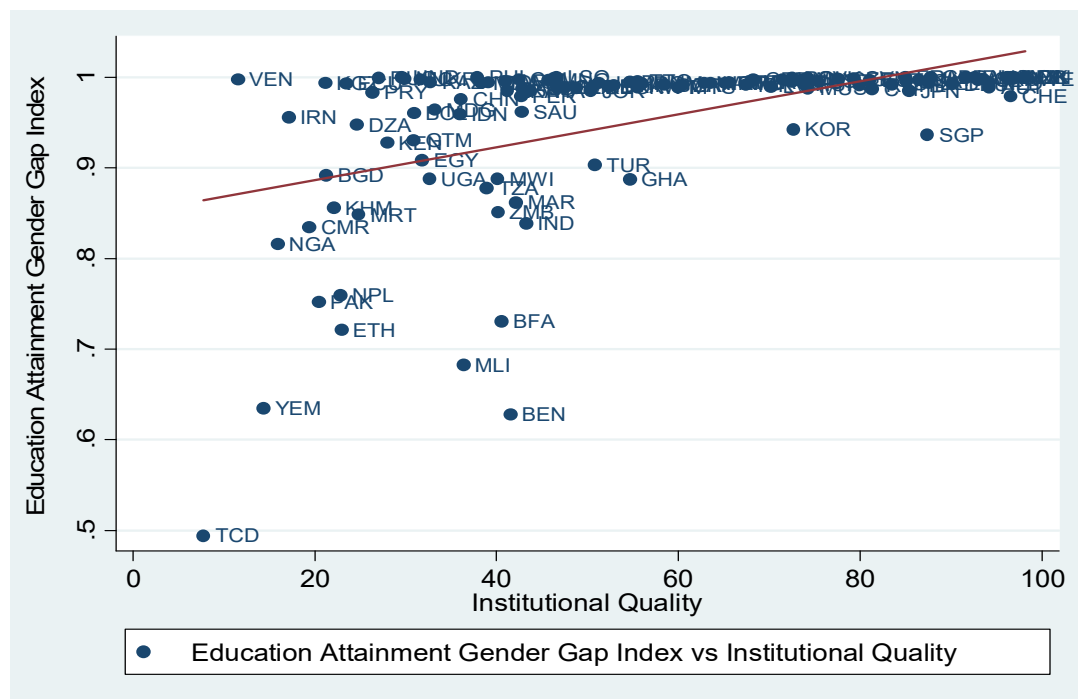


Figure 1.20 : Education Attainment Gender Equality and Institutional Quality
(Source: World Governance Indicators (2015) and World Economic Forum (2014)).

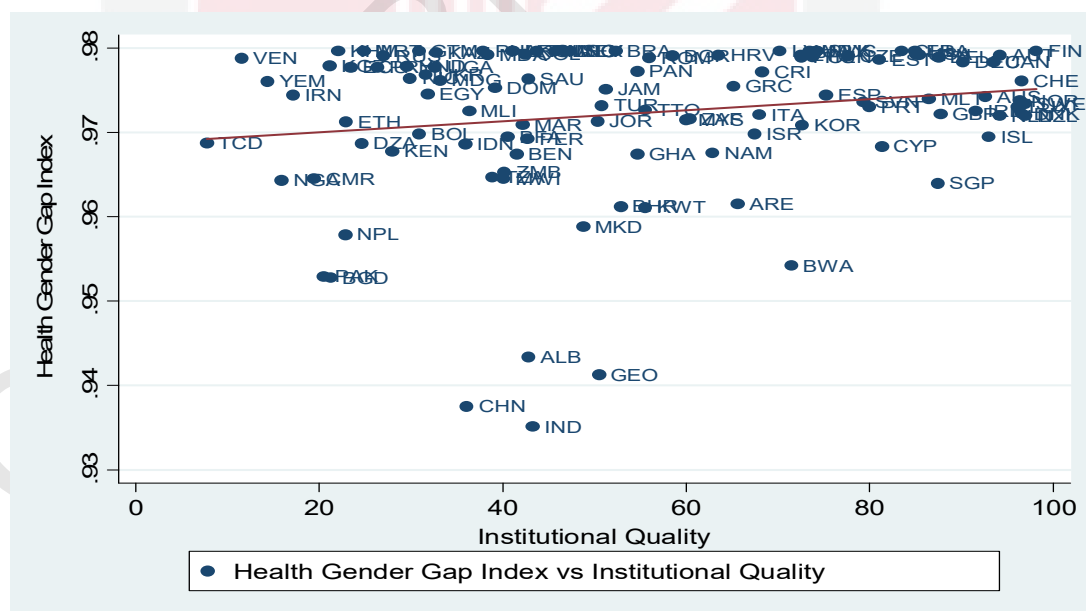


Figure 1.21 : Health and Survival Gender Equality and Institutional Quality
(Source: World Governance Indicators (2015) and World Economic Forum (2014)).

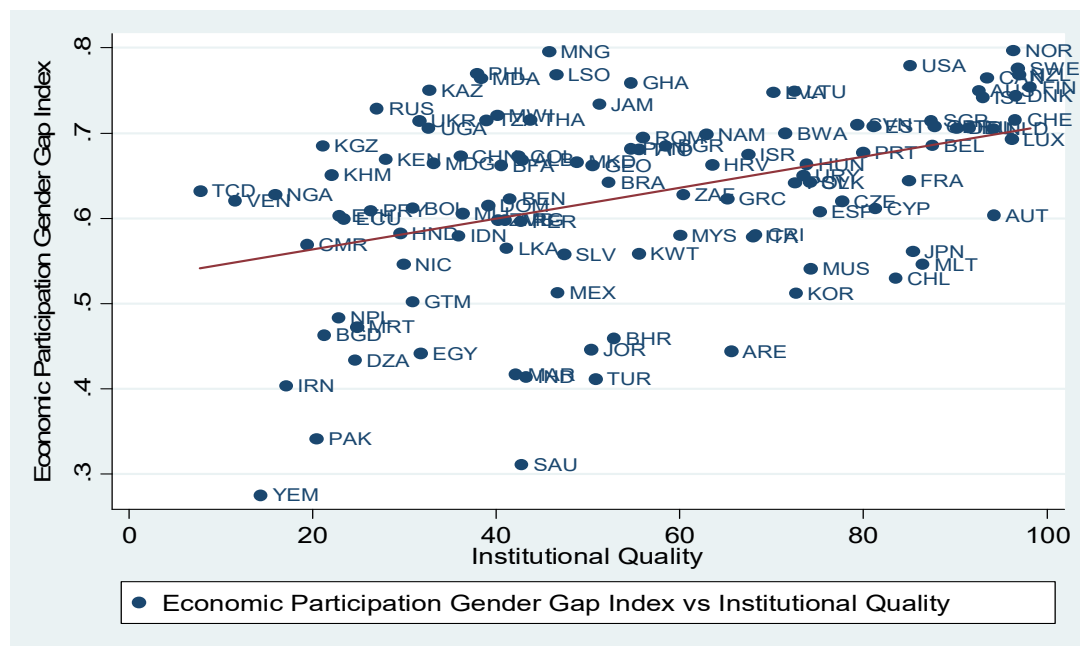


Figure 1.22 : Economic Participation Gender Equality and Institutional Quality
(Source: World Governance Indicators (2015) and World Economic Forum (2014)).

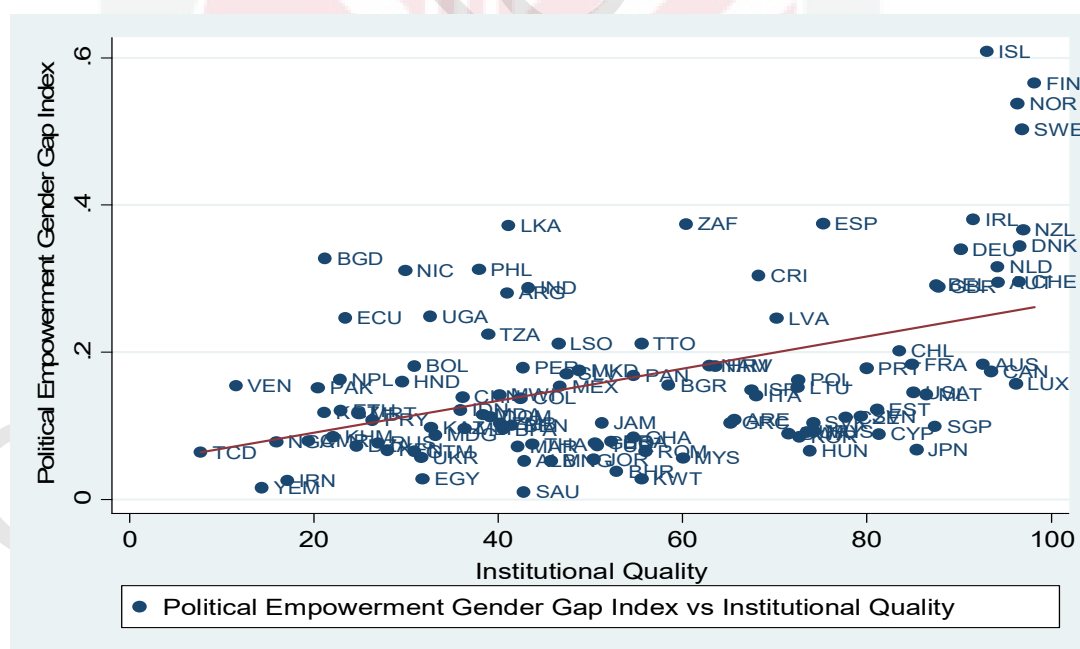


Figure 1.23 : Political Empowerment Gender Gap Index and Institutional Quality
(Source: World Governance Indicators (2015) and World Economic Forum (2014)).

Subsequently, the relationship between institutional quality and gender equality remains unexplored. Hence, the study of the relationship is obviously vital; therefore, further analysis is required.

1.3 Problem Statement

1.3.1 Gender Inequality on Income Inequality

Gender inequality largely exist both developed and developing countries and it is a persuasive global issue. Reducing gender inequality is one of the key economic agendas globally and it is one of the United Nations' 17 Sustainable Development Goals (SDGs). It is observed worldwide that relative status of women is poor and are also more disadvantaged in education, health and in freedoms in all its forms (Dollar and Gatti, 1999; Todaro, Michael and Smith, 2012; United Nations, 2010). There is firm evidence that gender inequality in education, health, services and empowerment increase income inequality. The literature shows that gender biasedness will reduce average human capital, thus negatively affect income (Abu-Ghaida and Klasen, 2004; Brummet, 2008; Busse and Spielmann, 2006; Dollar and Gatti, 1999; Klasen and Lamanna, 2008, 2009; Klasen, 2002; United Nation, 2010).

Gonzales et al., (2015) argue that gender inequality affects income inequality through a number of channels. Firstly, wage inequality between men and women directly contributes to higher income inequality. Moreover, higher gender inequality in labour force participation rates results gender inequality in earnings, thus creating and worsening income inequality. Costa et al., (2009) discuss that gender equality reduces the poverty and inequality and concluded that the eradication of gender inequalities, particularly an increase in women's access of labour market would result in a rise in household income and a decline in poverty and income inequality. Wide gender inequality of wages and education indicates an unequal distribution of income and resources (Seguino, 2002).

Gender inequality effects income distribution by preventing the reduction of fertility rate and as well as reduces the education gains of the next generation. The impact of diminishing returns of higher levels of male education would lower the average level of human capital and thus income (Abu-Ghaida and Klasen, 2004). Rising fertility can reduce investment in children's education and health. Moreover, educational inequality can contribute to women's unequal household bargaining power, affecting the distribution of household resources (Blumberg, 2004). Gender inequality in education produces economic inefficiency is that the exclusion of women from educational achievements limits the supply of skilled people (Costa, Silva, and Vaz, 2009), that result in higher unemployment and lower wages which are the sources of inequality. Similarly higher gender inequality in employment associated lower income for women. Less income for women and more for men, in general, translates into income inequality.

Gender inequality also effects income distribution by discouraging women workers from entering to the job market to which they are best suited, thereby lowering the value of output. Furthermore, gender inequality affect the competitiveness of countries by lowering female wages (Busse and Spielmann, 2006), thereby influencing income distribution. Gender inequalities restrict women's participation in productive employment and thereby lower the potential economic growth dividend (Buvinic, Das Gupta, and Casabonne, 2009). Unequal pay weakens economic bargaining power of women with the other members of her family and prevents investment in their education and skill formation, therefore, they work in low-skilled services sector and agriculture which are low paid (Roy et al., 2008: p. 39). Gender inequalities such as gender wage gaps influence aggregate demand, employment, and output in the short run. The gender division of labour influence the transmission mechanisms by which gender affects growth (Berik, Rodgers, and Seguino, 2009).

Over the years academic researchers and economists have tried to uncover the causes and more importantly inquire the cost and consequences of this economic issue. Theoretical and empirical studies have predicted that the cost of gender inequality is high and in turn brings a negative impact not just on the lives and wellbeing of women and girls but, on the human and economic development, productivity, and inequality. Yet very little is known for sure about what causes gender inequality and what the consequences of gender inequality are. Reducing gender inequality requires a precise understanding of its causes and consequences. Due to the potential negative macroeconomic effects of gender inequality, growing interest in this topic among academic researchers should not come as a surprise.

Income inequality has been a persistent phenomenon in both developed and developing countries, even in the presence of sustained macroeconomic growth. In many of countries, income inequality is high and has increased rapidly as shown in Figure 1.5 and Figure 1.6 and is recognised as a major threat to human advancement. Gender disparity (especially in empowerment, particularly in political participation as shown in Figure 1.3 and Figure 1.4) also persists in many regions.

Academic researchers and economists have provided broad empirical and theoretical evidence of the factors that are attributed to higher income inequality. However, there is scarce literature regarding the impact of gender equality on income inequality. The limited existing literature regarding the impact of gender equality on income inequality has ignored the multidimensional nature of gender equality such as gender equality in education, health and survival, economic opportunity and political participation impact on income inequality. The correlation between gender equality and its sub-indices and income inequality (displayed in Figures 1.7, 1.8, 1.9, 1.10 and 1.11) is weak.

Hence further analysis is required to understand the effects of gender equality on income equality and what the various aspects of gender equality contribute to income inequality. This study is motivated to investigate the effects of gender equality on income inequality focusing on the multidimensional nature of overall gender equality:

gender equality in educational attainment, health and survival, economic participation and opportunity, and political empowerment using the latest data.

1.3.2 Gender Inequality on Education Inequality

Gender equality is recognised as the key determinant of education distribution. As mentioned earlier the gender gap has narrowed in many developed and developing countries, especially in education and health. However, overall gender disparity persists in many regions. Gender equality can lead to a wide range of benefits for example promotes economic growth, improves human capital and maternal health, increases female health knowledge, reduced fertility, reduced infant and child mortality, increased prevention against HIV and AIDS and under nutrition, boost women wages, increases women's access to labour, land, and credit markets and increase the bargaining power of women (Abu-Ghaida and Klasen, 2004; Costa et al., 2009; Morrison et al., 2007; UNESCO and UNICEF, 2015). Gender equality effectively means greater female education and higher quality at each level of male education and higher quality of overall education. Gender equality reduces fertility rate and as well as increases the education gains of the next generation, therefore higher the average level of human capital (Abu-Ghaida and Klasen, 2004). Thus it is clear that, the role of gender is significant and higher gender equality could lead to higher education distribution.

Empirical studies – typically exemplified by Filmer (2008), Prasartpornsirichoke and Takahashi (2012), Ibourk and Amaghous (2012) and Agrawal (2014) – show that large inequalities in the distribution of education have prevailed across and, importantly, within countries as shown in Figure 1.12 and Figure 1.13. This widened inequality in education in both developed and developing countries has captured the attention of many economists. In recent years, motivated by the availability of new data sets and fast growing literature concerning education inequality, there has been renewed interest among the economists in understanding the determinants of education distribution. The literature underlines that the gender inequality is one of the major factors affecting the degree of education distribution.⁹

Nevertheless, little attention has been paid, and few studies have explored empirically the effects of gender inequality on education inequality. The main limitation of previous literature regarding gender inequality is that they have only addressed education gender inequality (measured by the difference between the female illiteracy rate and the male illiteracy rate) impact on education inequality, ignoring the other dimensions and aspects of gender equality such as gender equality in health, economic opportunity and political participation effects on education inequality.¹⁰ However, literacy may not be a sufficient measure of the quality and adequacy of the literacy level needed for people working in the community.

⁹ See (Digdowiseiso, 2010; Senadza, 2012; Thomas et al., 2001; Zhang and Li, 2002)

¹⁰ Literacy rate defined as “the percentage of the population who can both read and write with understanding a short simple statement on everyday life” (see United Nations, 2003).

Hence, the effect of gender equality on education inequality is evidently important. Thus, this study is motivated by the lack of literature on the issues of the impact of gender equality on education inequality and the availability of new data sets, to understand the effect of gender equality on education inequality. This study investigates the effect of gender equality on education inequality focusing on the multidimensional nature of overall gender equality: gender equality in educational attainment, health and survival, economic participation and opportunity, and political empowerment using the latest data.

1.3.3 Institutional Quality on Gender Inequality

There are numerous studies that study the causes of gender inequality. Although the causes of gender inequalities may lie beneath a variety of several factors such as income level, market failure, civil freedom, regional factors, culture and religion or religious preference, existing statutory and customary laws, family structure of households, rural-urban divide, the level of development and the political system contribute to the gender inequality. Long-lasting codes of conduct, norms, traditions, and informal and formal laws that determine gender outcomes in education, health, political representation and labour markets (Cooray and Potrafke, 2011; Dollar and Gatti, 1999; OECD, 2010; United Nation, 2010). However, there are further instruments that merit more attention. It is worthwhile to examine not only the significance of objective variables such as social political and economic institutions, but also governance institutional quality.

In recent literature, institutional quality has received a great deal of attention and it is widely accepted that institutional quality influences different groups and individuals in society. Economists have provided comprehensive theoretical and empirical evidence that institutions play a significant role in promoting the economic activity, growth and development, empowerment of people and in the economic and social development of a country. Institutions are considered the main reason for growth and income differences across countries and poor institutions leads to higher inequality. Legal, institutional and sociocultural barriers often limit women's access to education, health and employment (United Nations, 2009). Ahmed and McGillivray (2015) argue that inequality between men and women depend on the institutional measures, such as regulations and laws that promote gender equality.

There is scarce prior empirical evidence regarding the influence of institutional quality on gender equality. With few exceptions, the empirical literature on gender equality continues to be institutional quality blind. Thus, this study inquires that, what is the role of institutional quality in narrowing the gender gap. Employing various indicators of institutional quality, including the voice and accountability, political stability and lack of violence, government effectiveness, regulatory quality, rule of law, and control of corruption, this paper contributes to filling this gap by assessing the importance of institution quality as a determinant of gender equality. This study aims to provide comprehensive empirical evidence that links institutions and gender equality which have received scant attention in the previous empirical literature. We emphasise the multidimensionality of gender equality and governance institutional quality and

provide evidence of the various aspects of institutional quality have on gender equality.

1.4 Objectives

1.4.1 Main Objective

The prime objective of this study is to explore and investigate the effects of gender equality on income inequality and education inequality and the impact of institutional quality on gender equality.

1.4.2 Specific Objectives

The specific objectives are:

- (i) to study the effect of gender equality on income inequality.
- (ii) to investigate the effect of gender equality on education inequality.
- (iii) to analyse the impact of the institutional quality on gender equality.

1.5 Research Questions

To investigate the economic relationship of gender equality with income inequality, education inequality and institutional quality this thesis need to answer the following questions:

- (i) Whether the gender equality has any influence on income inequality?
- (ii) What is the effect of gender equality on education inequality?
- (iii) Does improve institutional quality reduce gender equality?

1.6 Scope of the Study

This research will be conducted to assess the relationship of income inequality, education inequality and institutional quality with multi dimensions of gender equality. Since gender inequality is pervasive in both developed and developing countries, this study focuses on both developed (47) and developing (63) countries (presented in appendix B) for the period of 2006-2014 data. The choice of countries was based on availability of data.

1.7 Contribution

This study considers the importance of gender equality in reducing income inequality, and educational inequality and institutional quality effect on gender equality in both developed and developing countries. The study contributes to existing empirical literature in a number of important aspects. *First*, this study bridges the gaps in the

existing literature whilst addressing the problems and answering the questions raised in this study.

Second, gender equality is a multidimensional phenomenon. However, most empirical work on gender equality uses a unidimensional perspective. This study covers four different aspects of gender equality including (a) Economic Participation and Opportunity (b) Educational Attainment (c) Health and Survival (d) Political Empowerment gender equality and their effects on income inequality, education inequality and institutional quality effects on different aspects of gender equality. This thesis uses the latest data set of the World Economic Forum gender gap index for gender equality, measured by Lopez-claros and Zahidi (2005) for the period (2006-2014) focusing on the multidimensional nature of gender equality.

Third, we are able to more effectively study the effects of gender equality on income inequality and education inequality, and impact of institutional quality on gender equality by using balanced panel data for 110 regionally diverse developed and developing countries for the period of 9 years (2006-14) from different regions of the world. Thus, this paper provides the results across a large sample and period. This study may contribute to the body of knowledge and provide a better understanding of the issues needed to address these problems and answer the questions raised in this study. We employ the dynamic econometric technique the System Generalized Method of Moments (Sys-GMM) as proposed by Blundell and Bond (1998).

Finally, this study provides a wide background of knowledge for conducting the existing problem of income inequality, education inequality, institutional quality and gender equality. In a wider viewpoint, it improves the study of income inequality, education inequality, institutional quality and gender development which have received little attention in the previous literature. This study also may help to design national policies that will enable long run improvement in income inequality, education inequality, institutional quality and gender development.

1.8 Organisation of Thesis

The study organised as follows; chapter 1 is the introduction of this thesis which included background of the study that derives the effects of gender equality on income inequality and education inequalities and institutional quality effects on gender equality and some concept and graph and tables. This chapter also includes problem statement, objectives of the study, research questions, scope and the contribution of the study. Chapter 2 provides a survey of literatures. Chapter 3 states the empirical specification, methodology for the study which discuss about the theoretical framework, and the method of estimation employed to assess the impact of gender equality on income inequality and education inequalities and institutional quality effect on gender equality employing dynamic panel Generalized Method of Moments (GMM). Chapter 4 provides the estimated results and analysis. Finally chapter 5 draws conclusion and gives some policy implications and limitations.

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