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Comparing Global Gender Inequality Indices: Where is Trade?

Abstract

This paper presents a comparative study of selected global gender inequality indices: The Global Gender Gap Index (GGI); the Gender Inequality Index (GII); and the Social Institutions and Gender Index (SIGI). A Principal Component Analysis approach is used to identify the most important factors or dimensions, such as, health, social conditions and education, economic and labour participation and political empowerment that impact on gender and drive gender inequality. These factors are compared with the Sustainable Development Goal targets to assess how well they align. The findings show that while economic participation and empowerment are significant factors of gender equality, they are not fully incorporated into gender equality indices. In this context, the paper also discusses the absence of international trade, a key driver of economic development, from the gender equality measures and makes some tentative recommendations for how this lacuna might be addressed.

Key words: Principal Component Analysis, Composite Indicators, 2030 Agenda for Sustainable Development, SDGs, Trade.



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Introduction

Gender equality can be said to have been achieved when women and men enjoy the same rights and opportunities across all aspects of life, including social interactions, economic participation and decision-making, and when the different behaviours, aspirations and needs of women and men are equally valued and favoured. A range of composite indices have been developed by various organisations in an attempt to measure and quantify these complex issues. Furthermore, the 2030 Agenda for Sustainable Development (hereafter the 2030 Agenda) contains over 80 gender-relevant indicators including a specific goal on gender equality.

This paper presents a comparative study of three global gender inequality indices: The Global Gender Gap Index (GGI); the Gender Inequality Index (GII); and the Social Institutions and Gender Index (SIGI). The purpose is to analyse the proportion of variation explained by economic aspects in these gender equality indices. A Principal Component Analysis (PCA) approach is used to identify the most important factors or dimensions, such as, health, social conditions and education, economic and labour participation and political empowerment that impact on gender and drive gender inequality.

Following this introduction, the paper provides some background on the emergence and evolution of gender equality as an issue in the Millennium Development Goals¹ (MDGs), the Addis Ababa Action Agenda and the Sustainable Development Goals (SDGs). Section “Gender Equality and Economy” anchors the discussion on academic research that has analysed the interactions of gender equality and the economy. Section “Data and Selected Gender Equality Indices” details the three composite indices analysed in this paper, mentions some others that are not and presents the data used as a basis of the analysis. Section “Gender Equality by Region” presents the descriptive results of the gender equality indices by region. Sections “Methodology” and “Principal Components of Gender Equality Indices” explain the methodology and the Principle Component Analysis (PCA) results, respectively.

The paper closes by a discussion and conclusions. The discussion highlights some important findings and implications from the statistical analyses, and especially considers the absence of international trade from the gender debate, and in particular, from all three global indices, despite their inclusion of economic participation. Some conceptual work prepared by the United Nations Conference on Trade and Development (UNCTAD) is summarised and used as the basis to make some tentative recommendations for possible indicators that could be used to fill this omission in existing or future composite indices. Some additional details of the underlying variables of the composite indices are provided in Appendix A1.

1. Gender Equality in the Global Development Agenda

Article 1 of the 1948 Universal Declaration of Human Rights (United Nations, 1948) states “All human beings are born free and equal in dignity and rights”. Thus, gender equality is a basic human right. In 1979, the United Nations General Assembly adopted the Convention on the Elimination of All Forms of Discrimination against Women (United Nations, 1979). Adopting such a women-specific treaty was considered necessary because, notwithstanding the existence of general human-rights treaties, as the preamble points out, extensive discrimination against women continues to exist.

Gender refers to the roles, behaviours, activities, and attributes that a given society at a given time considers appropriate for women and men (UN Women, Gender Equality Glossary). The United Nations has set gender *equality* rather than gender *equity* as a goal. Gender equity denotes an element of interpretation of social justice, usually based on tradition, custom, religion or culture, which is most often to the detriment to women. In other words, gender equity “*is the process of being fair to women and men*” (United Nations Population Fund, 2017). Gender equality is a broader concept that includes the empowerment of women. It cannot exist without gender equity.

There are many definitions of gender equality. UN Women defines equality between women and men (gender equality) as: the equal rights, responsibilities and opportunities of women and men and girls and boys. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognising the diversity of different groups of women and men (United Nations Women, 2001). The International Labour Organization (2007) defines gender equality to mean that women and men have equal conditions for realising their full human rights and for contributing to, and benefiting from, economic, social, cultural and political development. It is based on women and men being equal in their home, their community and their society.

Recently, recognition of the importance of women’s economic empowerment has grown notably, so that it is now acknowledged on the global development agenda, including the Addis Ababa Action Agenda and the 2030 Agenda. Gender equality is a precondition for development and poverty reduction. Empowered women contribute to the health and productivity of families, communities and nations. In 1995, the Beijing Declaration

¹ <http://www.un.org/millenniumgoals>

and Platform for Action noted that “insufficient attention to gender analysis has meant that women’s contributions and concerns remain too often ignored in economic structures, such as financial markets and institutions, labour markets...” and “as a result, many policies and programmes may continue to contribute to inequalities between women and men” (United Nations, 1995: para. 155). The Platform for Action called for statistics “on the full contribution of women and men to the economy, including their participation in the informal sectors” (United Nations, 1995: para. 206).

Goal 3 of the MDGs had the broad aim of promoting gender equality and empowering women. The MDG progress report (United Nations, 2015a) noted improvements in achieving gender parity for education as well as other aspects of gender equality beyond the formal target, such as, improvements in women’s access to paid employment and political representation. Despite these improvements, the report noted that women continue to experience significant gaps in terms of poverty, labour market participation, wage parity, as well as participation in private and public decision-making (United Nations, 2015b).

In 2015, the Addis Ababa Action Agenda strengthened the focus on women’s economic empowerment by stating that “evidence shows that gender equality, women’s empowerment and women’s full and equal participation and leadership in the economy are vital to achieve sustainable development and significantly enhance economic growth and productivity” (United Nations, 2015c: para. 21). It also recognised “the critical role of women as producers and traders” (United Nations, 2015c: para. 90) and the importance of facilitating “women’s equal and active participation in domestic, regional and international trade”.

The 2030 Agenda (United Nations, 2015d) took a broader view of gender equality than the MDGs, and it aimed to end all forms of discrimination and violence against women and girls everywhere. The SDGs² also aim to eliminate harmful practices such as forced marriages and genital mutilation and ensure universal access to sexual and reproductive health services. The new wider agenda also sought recognition of the contribution and value of unpaid and domestic work, and to ensure that women can fully participate in economic, political, social and public life at all levels, including access to economic, financial and technological resources³.

2. Gender Equality and Economy

Extensive research has been carried out to analyse the interactions of gender equality and the economy. UNCTAD (2017) identified a two-way causality between gender equality and economic growth: Economic growth affects gender equality in many ways, but gender biases also influence macroeconomic outcomes, such as growth, trade, imbalances and inflation.

Several researchers found that economic growth benefits from improved gender equality, for instance in education, employment and access to finance (Dollar and Gatti, 1999; Klasen and Lamanna, 2009). However, this may sometimes go in the opposite direction. Businesses producing certain labour-intensive goods may base their comparative advantage on women’s lower wages. An analysis of 92 countries (Busse and Spielmann, 2005) found that countries with a larger gender wage gap had higher exports of labour-intensive goods. At the same time, gender inequality in labour force activity rates and educational attainment rates was negatively linked with the comparative advantage of labour-intensive industries. To understand these dynamics, one at least needs to take into consideration the gender aspects of pay gaps, labour force participation and educational attainment.

These opposite effects illustrate the complex interrelation of gender equality and the economy. The picture is also further complicated by international trade that reflects the different roles and comparative advantages of countries in the global economy. It has long been recognised by development economists that international trade has an impact on development. Whether one subscribes to the Ricardian orthodoxy that free trade is key (Friedman and Friedman, 1990; Friedman, 2005) or veer towards a more heterodox view that, depending on

² <http://www.un.org/sustainable-development/sustainable-development-goals/>

³ <https://unstats.un.org/sdgs/metadata/>

a variety of circumstances, trade creates winners and losers (Stiglitz, 2002; Sachs, 2005; Piketty, 2014; Bourguignon, 2015) either way, it is accepted that trade plays an important role in development. The importance of that role in the development process is widely accepted today—see Monterrey Consensus (United Nations, 2012). In fact, reviewing the progress made by development economics, the eminent economist Sir Arthur Lewis (quoted in Yergin and Stanislaw, 1998) identified the underestimation of the power of international trade to propel growth as a fundamental and costly error.

A number of academic studies also look at the dynamics of gender equality and trade. High gender equality is not necessarily a guarantee of equality in trade. Kucera and Milberg (2000) found that the expansion of trade between OECD countries and developing economies between 1978 and 1995 resulted in disproportionate job losses for women in OECD countries, as most workers were women in import-competing industries, such as textiles, footwear and leather. The same finding was made for agricultural economies, where women are concentrated in import-competing sectors such as food crop production (Bussolo and De Hoyos, 2009) and in Africa, where Seguino and Grown (2006) found that tariff reductions on labour-intensive imports resulted in higher job losses for women than for men.

A recent study by Statistics Finland (Lindroos et. al., 2019) found that the benefits from international trade were not distributed equally between women and men in Finland. In 2016, 18 per cent of entrepreneurs in exporting firms were women, and women accounted for 27 per cent of the labour input of exporting firms on a full-time equivalent basis. While trading enterprises were, on average, more productive and generally paid higher salaries compared to other firms in Finland, they employed less women and had a higher gender wage gap. The results also showed that female business owners hired more women and more highly skilled women than male business owners. This suggested that lower participation of women in international trade may also exacerbate differences in capital and salary incomes between women and men.

UNCTAD (2004) studied the impacts of trade liberalisation and noted that it may strengthen financial independence and agency of women at the household level in addition to providing income and employment opportunities. However, increased international competition can also push wages down, especially for employees in low-skilled jobs without strong bargaining power. Trade may affect women and men positively or negatively depending on the sector; whether the sector expands or contracts in production; and depending on how international competition affects the local labour market.

Some of the gendered outcomes of trade relate to the differences in how women and men participate in trade. According to OECD's analysis (2018) of gender in global value chains, men's share of jobs at exporting firms was relatively high, while women were more often employed by suppliers of the exporting firms. Women's jobs were also much more often in the service sector, rather than in manufacturing [11]. This implies that in addition to participation rates, gender equality outcomes depend on the sector, status in employment and types of jobs held by women and men.

The above snapshot of research shows that the interaction between gender equality, the economy and trade vary by sector, country and the specific conditions in each economy. Trade as a driver of economic development can either exaggerate existing inequalities, create new inequalities or contribute to more equal engagement of women and men. The absence of the trade story in any discussion is therefore a significant lacuna.

3. Data and Selected Gender Equality Indices

To provide a good general overview of the global situation, three different gender indices are presented and contrasted in this paper: (a) the Global Gender Gap Index (GGI), (b) the Gender Inequality Index (GII) and (c) the Social Institutions and Gender Index (SIGI). These indices have been selected for three reasons: (1) they have the widest country coverage; (2) they are constructed as composite indicators suitable for the PCA method; and (3) they are regularly updated and so the data are reasonably fresh. A brief summary of each of the indices is provided below:

1. *Global Gender Gap Index (GGI)*. The GGI, compiled by the World Economic Forum (WEF), was developed in 2006 to address the need for a consistent and comprehensive measure for gender equality that can track a country's progress over time. The index is based on the premise that gender inequality is the combined result of various socioeconomic, policy and cultural variables (World Economic Forum, 2018). The index quantifies the magnitude and scope of gender-based disparities across the four key areas of health, educational attainment, economic participation and political empowerment (see Appendix A1 for a more detailed list of variables) and tracks progress over time. The GGI measures gaps rather than levels, targets outcome variables rather than input variables, and ranks countries according to gender equality rather than women's empowerment.

2. *Gender Inequality Index (GII)*. The GI, compiled by the United Nations Development Programme (UNDP, 2018), was first published in 2013 and is based on the premise that all too often women and girls are discriminated against in health, education and the labour market with negative repercussions for their freedom. The index is a composite measure of gender-based disadvantage in three dimensions: reproductive health; female empowerment and labour market participation (see Appendix A1 for a more detailed description of the variables). The purpose of the GI is to quantify or provide a measure of the human development costs of gender equality. The higher the index value, the greater the disparities between women and men and the more losses there are to human development.

3. *Social Institutions and Gender Index (SIGI)*. The SIGI, compiled by the Organization for Economic Cooperation and Development (OECD), is a cross-country measure of discrimination against women in social institutions. The first edition of the index was published in 2009. The principle underlying the index is that gender gaps in social institutions translate into gender gaps in development outcomes (OECD, 2019) such as labour force, poverty levels, marginalisation, education, vulnerability to violence and public leadership positions. The SIGI is an unweighted composite index comprised of four sub-indices (a) discriminatory family code; (b) restricted physical integrity; (c) restricted resources and assets; and (d) restricted civil liberties. Each sub-index includes several subcategories, so that the index scores countries on 14 indicators in total (see Appendix A1 for a more detailed description of the variables). These dimensions examine the gaps between women and men in terms of rights and opportunities as reflected in legislation, practices and attitudes. A SIGI value of 0 indicates complete equality, whereas a value of 1 indicates complete inequality.

There are other composite indicators measuring gender equality. For instance, the World Bank compiled a gender equality index, the *Women, Business and the Law Index* (WBLI) for 187 countries. This index is structured around eight sub-indicators that cover different stages of a woman's working life and have significance for the economic standing of women (World Bank, 2019). The sub-indices are highly correlated, as they all focus on legal aspects, and as a consequence the analysis methods used in this paper cannot be applied to this index.

The Women's Economic Opportunity Index (WEOI), compiled by the Economist Intelligence Unit (EIU) looked beyond gender disparities to the underlying factors affecting women's access to economic opportunity in the formal economy (Economist Intelligence Unit, 2012). The index was first published in 2010 by EIU in cooperation with the World Bank. The index looked at: labour policy and practice; access to finance; education and training; women's legal & social status; and the general business environment. Ideally this index would

have been incorporated into this study, however it has not been updated since 2012, and therefore could not be used.

New gender equality indicators continue to emerge at regional, national and international levels. New global gender indices are also being developed. In June 2019, the Equal Measures 2030 published a new SDG Gender Index aligned to 14 of the 17 SDGs in 129 countries and covering 51 issues ranging from health, gender-based violence, climate change, decent work and others. The index includes indicators on SDG 8, many of which related to economic aspects of gender equality, such as wage equality, vulnerable work, bargaining rights in law, workplace equality and ownership of bank accounts. This would be an interesting index to include in future analyses, but for the moment, while the data are publicly available, they are not available in a downloadable file, this index has been excluded.

The European Gender Equality Index, developed by the European Institute for Gender Equality, assesses gender equality across European Union member states⁴ and the African Gender Equality Index, developed by the African Development Bank, combines gender-differentiated outcomes and data on social institutions that influence the gender gap⁵. These indices were not used as their coverage is regional only.

Table 1. Summary of Gender Inequality Sub-Indices used in the Analysis

Sub-Index name	Year	Index	Source
Discrimination in family	2018	SIGI	OECD
Restricted access to productive and financial sources	2018	SIGI	OECD
Restricted civil liberties	2018	SIGI	OECD
Restricted physical integrity	2018	SIGI	OECD
Adolescent birth rate	2017	GII	UNDP
Female with at least secondary education	2017	GII	UNDP
Labor force participation rate, female	2017	GII	UNDP
Labor force participation, male	2017	GII	UNDP
Male with at least secondary education	2017	GII	UNDP
Maternal mortality ratio	2017	GII	UNDP
Share of seats in parliament, female	2017	GII	UNDP
Economic participation & opportunity	2017	GGI	WEF
Educational attainment	2017	GGI	WEF
Health and survival	2017	GGI	WEF
Political empowerment	2017	GGI	WEF

Note: Maternal mortality ratio data for Bolivia, Bosnia and Herzegovina, Côte D'Ivoire, Czech Republic, Iran, Kyrgyzstan, Liberia, Moldova, Philippines, Russia, Slovakia and Tanzania, refers to year 2014, Restricted physical integrity data for Algeria, Botswana, China and Mauritius refers to year 2014.

The three gender equality indices combine 15 sub-indices used as their inputs. Table 1 provides a description of all variables and sources. The gender equality indices collectively covered 194 countries (observations). Individually, the GII had data for 159 countries (at the aggregate level); the SIGI for 107 countries; and the GGI for 149 countries. These of course varied, indicator by indicator. For the 15 sub-indices of interest, data were only available for 114 countries. Therefore, the PCA was conducted only for these 114 countries. It should be noted that this sample nevertheless represents 87 per cent of the 2018 world population.

⁴ <https://eige.europa.eu/gender-equality-index/2015>

⁵ www.afdb.org/en/topics-and-sectors/topics/quality-assurance-results/gender-equalityindex/

4. Gender Equality by Region

Despite some differences in the source data and methodologies, a comparison of the selected gender composite indices at regional level reveals similar results (see Table 2). The table compares the gender equality ranking of regions according to four gender indices: SIGI, GII and the GGI.

In order to compare ordinal rankings at regional level, the compositions of the geographic regions had to be standardised across the indices, as they do not use the same nomenclature or definitions. Across the three indices, there is a very high consistency at a regional level. Two of the three indices (GGI and SIGI) rank all of the development status and regions in the same order. It is only the GII that has a different ranking, but it should be noted that the GII has quite a low representation for Latin America and the Caribbean countries. All three indices rank developed countries as first. If the remaining “developing” regions are distilled into top half (ranked 2–4) and bottom half (ranked 5–7) performers, we see that all indices place Europe & Central Asia, Latin America & the Caribbean and East Asia & Pacific in the top half. As noted already, the GGI and SIGI have exactly the same order, whereas the GII has a different ranking with the two halves. What is clear, is that all indices judge women in sub-Saharan Africa, the Middle East and North and South Asia to experience the most gender inequality.

Table 2. Comparison of Rankings provided by Gender Equality Indices by Development Status and Geographic Region (*latest year available*)

Development Status	Geographic Region	Index		
		GII 2017	GGI 2018	SIGI 2018
Developed		1	1	1
Developing				
	<i>Europe and Central Asia</i>	2	2	2
	<i>Latin America and the Caribbean</i>	4	3	3
	<i>East Asia and the Pacific</i>	3	4	4
	<i>Sub-Saharan Africa</i>	7	5	5
	<i>South Asia</i>	5	6	6
	<i>Middle East and North Africa</i>	6	7	7

Source: Author's calculations based on data from the WEF, OECD and UNDP.

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