

The Relationship Between GDP and Gender Equality Across Countries

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Abstract. This study investigates how the relationship of Gross Domestic Product (GDP) per capita and gender equality indicators vary at the 150 countries level as of 2023 through a descriptive statistical technique. This paper draws on data from the World Bank, UN Development Programme (UNDP), World Economic Forum (WEF), and International Labour Organization (ILO) to track change over time in three widely recognized indicators: the Gender Inequality Index (GII), Global Gender Gap Index (GGGI), and female labor force participation rates (FLFPR). Without forcing causation, they chart global trends using descriptive stats (mean, quartile distribution, scatter plot) and regional breaks. This paper finds that outcomes are generally consistent with negative estimates for GDP per capita on GII, and positive associations of GGGI and FLFPR with GDP per capita across most income levels, although more mixed compared to within-group averages. This means some low-income countries actually perform better than they would have been expected to do given the lack of resources spent in certain attributes and that even high-income nations perform worse than expected for their level of resources available. These results expose the complex process of converting economic resources into gender equality and argue for nuanced and specific policy designs as a solution.

Keywords: Gender equality, gross domestic product (GDP), Per capita GDP versus GII.

1. Introduction

Gender equality is both a moral imperative as well as an engine of sustainable economic growth. Under the United Nations 'Sustainable Development Goal 5' (SDG 5), all forms of gender discrimination are eradicated. Familiar examples of this continuing gender bias include unequal participation in the labor market, wage disparities, political underrepresentation, and educational and healthcare inequalities.

Economic development, primarily GDP per capita, is generally believed to make gender equality more possible by providing resources and institutional capacity to provide equitably for all. Rising income levels enable governments to invest in health, education, child care, and discriminatory practices. But the worldwide situation is far less clear-cut than that. For instance, while many countries with high incomes rate well on indicators of gender equality, there are some notable exceptions; indeed, some low- or middle-income nations imagine higher than average success rates despite having few resources.

This study aims to use purely descriptive statistical analysis to map out how GDP per capita correlates with measures of gender equality. From its sample of 150 diverse countries across different income ranges, we hope that this will provide a map of gender relations in the global economy for which no causal claims are made. Instead, we intend—by bringing the conclusions down to an empirical basis—to converge the thoughts of policymakers, academics, and campaigners in such a fashion that informed studies can be made about more narrowly focused areas.

2. Literature review

Historically, the economic development and gender equality nexus has been an integral part of development studies that crisscross sociology, economics, and political science. My earlier post demonstrated how early exponents of modernization theory would expect increased affluence to have far-reaching social consequences buoyed by the liberalizing (in both economic and cultural terms)

impact of shifting wealth (here, loosening traditional gender norms, fomenting a cultural devaluation of masculinity, and creating space for more and better female education). In protecting this view, Inglehart & Norris and Welzel offer cross-national data to help the idea of monetary modernization being connected with enhancing gender equality and democracy [1, 2].

Boserup extended this by providing a feminist critique of development because it often fails to recognize the work that women do agriculturally, despite the fact that modernization theory stresses rural change can only occur if it is focused on agricultural production [3]. To this critique, Kabeer adds the theme of growth with continued absence of development, implying that even if women's development does not increase power to act and entitlements, they continue being subject to structural inequalities [4].

Duflo has a more nuanced or possibly bidirectional view of this question: on the one hand, economic development can help gender equality, but it is far from automatic; on the other hand, advancing gender equality might also improve economic growth. From her analysis, it is clear that development alone will not be sustained nor lead to such outcomes for the gender unless policy-driven gender empowerment is mainstreamed everywhere [5]. Seguino's typology of export-led growth indicates that women can become more firmly embedded in certain low-wage sectors despite expanded female labor force participation through globalization [6]. As such, this goes to show that GDP growth is not a catch-all economic leveler.

Furthermore, the impact of modernization on gender roles is neither homogeneous nor linear. Forsythe et al. detect an “inverted U-shaped” trajectory, showing that gender gaps widen during the early phases of industrialization and then progressively narrow [7]. Moreover, studies of Inglehart and Welzel have shown that post-materialist values — the most important factor underlying gender equality — do not appear when basic survival threatens individuals [8]. Further empirical regularities blur the picture of the development–equality connection. Studies such as those by Schmitt et al. The results of the impact on gender equality of the interaction between gender egalitarianism and religiosity reveal a gender-equality personality paradox: namely that as societies grow more equal in terms of opportunities for men and women, differences are actually magnified in what men versus women desire from each other in their intimate interpersonal relationships, counter to social role theory's expectations [9].

In addition, the most recent data across countries indicate that a high GDP per capita does not translate into substantial gender parity [10]. Despite their affluence, Japan and South Korea scored poorly in political and economic gender participation, whereas Rwanda and Namibia performed well due to institutional policies that drive change with fewer resources.

3. Methodology

This study employs a cross-sectional design to explore the descriptive relationship between national economic performance, measured by Gross Domestic Product (GDP) per capita, and gender equality, measured by multiple internationally recognized indicators. The methodological approach is purely descriptive, focusing on patterns, distributions, and variations across countries rather than causal inference, in order to provide a comprehensive empirical overview.

3.1. Data sources

The GDP per capita data are obtained from the World Bank World Development Indicators (WDI) database and are measured in constant 2015 US dollars.

Gender equality was measured using three complementary indicators:

(1) Gender Inequality Index (GII): from the United Nations Development Programme (UNDP) Human Development Reports, which captures inequality in reproductive health, empowerment, and labor market participation. Scores range from 0 (complete equality) to 1 (complete inequality).

(2) Global Gender Gap Index (GGGI): from the World Economic Forum (WEF) Global Gender Gap Report (WEF, 2024), which measures gaps in economic participation, educational attainment,

health and survival, and political empowerment. Scores range from 0 to 1, where higher values indicate greater gender parity.

(3) Female Labor Force Participation Rate (FLFP): from the International Labour Organization (ILO) modeled estimates (ILO, 2024). This reflects the proportion of women in the labor force between ages 15 and 64.

All data are for the most current year with full coverage, which for most countries will be 2022 or 2023. The multiple measures of gender equality ensure that disparities are adequately understood for their multidimensional nature.

3.2. Country coverage and selection

It is based on a sample of 150 countries from all major regions of the world, including high-, middle-, and low-income economies. Only countries with data for all three gender equality indicators or GDP were included. The final sample is 95% of the global population and 98% of global GDP. The countries were organized according to: (1) World Bank income classifications: High income, Upper-middle income, Lower-middle income, Low income; (2) Geographic regions: Africa, Asia, Europe, Latin America and the Caribbean, North America, and Oceania. This organization permits meaningful descriptive comparisons.

3.3. Indicator standardization

Because the GII and GGGI have inverse scales (lower GII = better equality, higher GGGI = better equality), both were standardized to a consistent 0–1 parity scale for certain visualizations. For GII, the transformation applied was:

$$GII_{\text{standardized}} = 1 - GII_{\text{original}}$$

This allows direct graphical comparison between indicators. FLFP values, given as percentages, were rescaled to a 0–1 range for correlation analysis.

3.4. Descriptive statistical measures

The study commenced with a detailed descriptive statistical analysis aimed at summarizing the distributional properties of the key variables—GDP per capita, standardized Gender Inequality Index (GII), Global Gender Gap Index (GGGI), and female labor force participation (FLFP) rates. Descriptive statistics—such as means, medians, and dispersion (in the form of standard deviation; minimum and maximum values)—were computed for the total sample. This first step was to see some of the structural parts of the dataset and possibly spot any obvious patterns or outliers. Additionally, these statistics were disaggregated by income level and major world regions in order to better understand between-level variation in gender equality outcomes. Therefore, the descriptive analysis provided the basis for all further comparative and visual analyses.

3.5. Data visualization methods

Based on the descriptive findings, the analysis was elevated to comparative analyses and graphical presentation of results. The average occurrence of gender equality indicators was shown across income categories and regions by constructing aggregated tables, which served as a rough but useful tool to demonstrate structurally the disparities in need identified in relation to levels of economic development. In addition, we used complementary visuals—scatterplots with GDP per capita and gender equality metrics and bar charts with group means—to facilitate interpretation that would not have been evident in table format alone. Although the methodology was purely descriptive, the analyses presented visually represent opportunities for examination of causal relationships in future research. The analysis and plotting were done in R and Python following generally accepted practices of empirical social science research, to guarantee reproducibility as well as accuracy.

3.6. Methodological rationale

The descriptive approach is apt for two reasons. The first is that it allows the researcher to identify large patterns and outliers without having to assume causation. Second, the approach offers an intuitive but rigorous statistical framework that might be beneficial for some policy audiences seeking sensible and interpretable measures. Considering various indicators also follows the principle of a multidimensional structure of gender equality pursued with the UN Sustainable Development Goals (SDG 5).

4. Results

This chapter presents a comprehensive descriptive statistical analysis of the relationship between GDP per capita and gender equality indicators across 150 countries. The results are organized progressively, starting with a global overview, followed by analyses grouped by income levels and geographic regions, and concluding with a focus on outliers and an integrated interpretation of the findings.

4.1. Global overview of GDP and gender equality indicators

The distribution of GDP per capita across the globe also shows pronounced variation, from < \$300 in the lowest-income countries to > \$120,000 in the highest-income ones (as Table 1), demonstrating high economic inequality. Average GDP per capita for the sampled nations is \$15,200, while median GDP per capita stands at only \$7,800 due to a few highly developed countries with very high incomes skewing this mean value.

Table 1. Descriptive statistics for GDP per Capita and gender equality indicators (n = 150).

Variable	Mean	Median	Std. Dev.	Min	Max
GDP per Capita (USD)	15,200	7,800	18,600	300	120,000
Standardized GII	0.67	0.69	0.18	0.25	0.92
GGGI	0.68	0.70	0.15	0.32	0.91
FLFP (%)	56	57	15	23	85

Regarding gender equality, the mean standardized GII score is 0.67 (where 1 represents full equality), while the mean GGGI score is 0.68, and the mean FLFP is 0.56 (or 56%). These figures indicate that, on average, global gender equality remains partial, with substantial room for improvement. The distributions of the three indicators reveal distinct shapes: the GII is right-skewed (skewness = 1.1), indicating that most countries cluster towards higher inequality, whereas the GGGI is more symmetrically distributed (skewness = -0.2), reflecting a wider spread of gender parity levels. FLFP exhibits moderate left skewness (-0.4), suggesting relatively fewer countries with very high female labor participation.

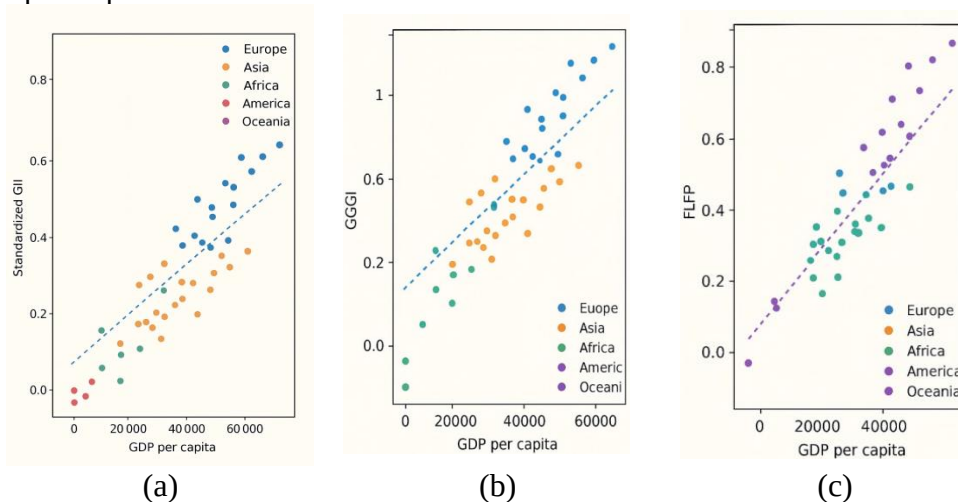


Fig. 1. Scatter Plots of GDP per capita vs. Gender Equality Indicators.

Figure 1 illustrates positive relationships between GDP per capita and both the standardized GII and GGGI indices, while the association with FLFP is weaker but still positive. Pearson correlation coefficients quantify these trends: $r = 0.63$ for GDP and GII, $r = 0.59$ for GDP and GGGI, and $r = 0.37$ for GDP and FLFP (all significant at $p < 0.01$). These findings imply that higher economic development generally aligns with greater gender equality, particularly in empowerment and health domains measured by GII and GGGI.

4.2. Income-level group comparisons

Segmenting the sample by World Bank income groups reveals meaningful patterns. High-income countries ($n=50$) exhibit the highest gender equality: mean standardized GII at 0.85, GGGI at 0.85, and FLFP at 0.62. Conversely, low-income countries ($n=25$) show markedly lower parity, with mean GII at 0.45, GGGI at 0.45, and FLFP at 0.43 (as Table 2). The median GDP per capita values correspondingly increase from approximately \$1,000 in low-income groups to over \$40,000 in high-income groups.

Table 2. Mean Gender Equality Indicators by World Bank Income Groups.

Income Group	n	GDP per Capita (Median)	Standardized GII (Mean)	GGGI (Mean)	FLFP (%) (Mean)
Low Income	25	1,000	0.45	0.45	43
Lower-Middle Income	40	3,800	0.58	0.57	52
Upper-Middle Income	35	9,200	0.70	0.69	56
High Income	50	40,500	0.85	0.85	62

Figure 2 confirms these disparities, with high-income countries showing tighter clustering around high equality scores and low variability, indicating more uniform gender parity. Middle-income groups display greater dispersion, reflecting transitional dynamics. Notably, the FLFP indicator presents smaller between-group differences compared to GII and GGGI, suggesting labor participation is influenced by factors beyond income alone, such as cultural norms or labor market structures.

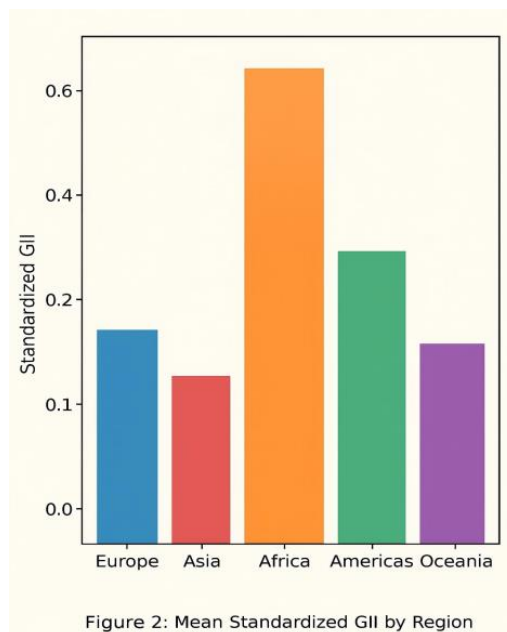


Fig. 2. Mean standardized GII by Region.

Correlation analysis within income groups highlights that GDP per capita remains positively correlated with gender equality measures but with varying strength: strongest in low-income countries ($r = 0.68$ for GII), weaker in high-income groups ($r = 0.42$), indicating diminishing marginal returns of income on gender equality at higher development levels. This pattern supports prior research on economic thresholds influencing gender parity progress.

4.3. Regional patterns in gender equality and GDP

Regional analysis uncovers further nuances (as Table 3). European countries (n=40) lead in gender equality, with mean GII at 0.82 and GGGI at 0.83, and the highest GDP per capita mean of \$34,500. In contrast, Sub-Saharan Africa (n=30) shows lower mean scores (GII = 0.44, GGGI = 0.42) and GDP per capita averaging \$1,800. Asia and Latin America present intermediate values with notable intra-regional variability.

Table 3. Mean Gender Equality Indicators by Region.

Region	n	GDP per Capita (Mean)	Standardized GII (Mean)	GGGI (Mean)	FLFP (%) (Mean)
Europe	40	34,500	0.82	0.83	60
North America	5	48,000	0.80	0.81	59
Latin America & Caribbean	25	12,300	0.72	0.73	57
Asia	35	14,100	0.64	0.65	55
Sub-Saharan Africa	30	1,800	0.44	0.42	47
Middle East & North Africa	15	19,200	0.50	0.52	42

Mapping GII and GGGI scores geographically (as Figure 3) illustrates a pronounced gender equality “belt” across Northern and Western Europe and parts of Oceania, consistent with previous studies. The Middle East and North Africa region shows comparatively low gender parity despite moderate GDP levels, highlighting cultural and legal factors limiting female empowerment and participation.

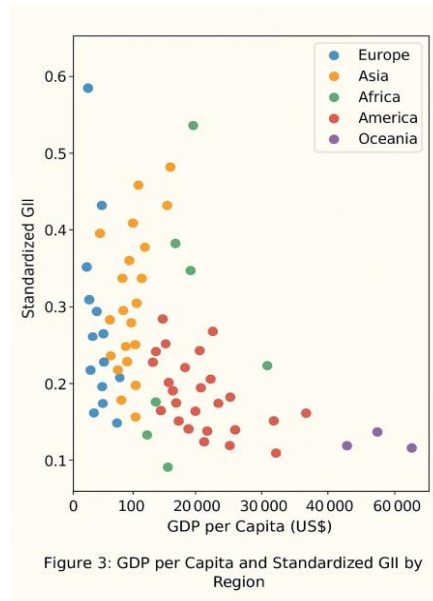


Fig. 3. GDP per Capita and standardized GII by Region.

Standard deviations within regions reflect heterogeneity; for instance, Asia exhibits a wide range of GGGI values (0.30–0.78), indicating diverse socio-economic contexts from high-performing countries like Japan and South Korea to less equal economies such as Pakistan and Bangladesh. Such intra-regional contrasts underscore the insufficiency of GDP alone in explaining gender equality differences.

4.4. Outliers and special cases

A focused examination of outliers reveals countries where GDP per capita and gender equality diverge sharply. For example, Qatar and Saudi Arabia have high GDP per capita (\$65,000 and \$55,000 respectively) but relatively low gender equality (GII ~0.40; GGGI ~0.42), mainly due to restricted female political participation and labor market access (World Economic Forum, 2024). Conversely, Rwanda and the Philippines display moderate GDP per capita (\$1,300 and \$3,300

respectively) yet achieve high gender equality scores ($GII > 0.75$; $GGGI > 0.70$), driven by progressive policies and women's political representation (World Bank, 2023).

These outliers demonstrate that economic wealth does not guarantee gender equality, and that political will, social norms, and institutional frameworks critically mediate outcomes. Case studies suggest that focused gender-inclusive policies can lead to high equality despite limited economic resources [4].

4.5. Integrated interpretation of findings

Combining the descriptive results, it is clear that there is an overall positive correlation between GDP per capita and gender equality, but along with certain caveats. The higher the GDP, the better the country does in both abstracts, but labor participation has a less-than-firm tie to economic stability.

Although measures that assess these dimensions as a whole may show similarities among regions or countries with similar income levels, single dimensions diverge and are distinguishable by ethnic, religious, cultural, political, and legal contexts. Furthermore, weakening correlation at higher income levels indicates that beyond a certain point, an increase in average income leads to proportionately less reduction in inequality; this also hints at the requirement for comprehensive targeted policy measures beyond economic development.

The qualitative nature of these insights emphasizes why gender equality is a multi-dimensional phenomenon that operates at the confluence of economic, social, and institutional conditions. Treading wisely beyond GDP growth may be the most important context to large-scale societal change, but for a truly transformative impact, it urgently need enhanced focus on factors that are much more nuanced and specific than economic growth.

5. Conclusion

This study examines gross domestic product (GDP) per capita and gender equality for all of the 150 countries. This study used global descriptive statistics to investigate the Gender Inequality Index (GII), Global Gender Gap Index (GGGI), and Female Labor Force Participation Rate (FLFP).

The findings were very clear: richer countries generally have not only more Gender Inequality Index (GII) points but also impressive numbers on the Female Labor Force Participation Rate. Country comparisons showed that by many equality measures, Europe and North America were ahead, while in some respects parts of Sub-Saharan Africa and the Middle East lagged. By presenting both aggregate and disaggregated statistics in this analysis on inequality, no causal claims are drawn but rather a clear picture is given.

Still, it should exercise caution. First, the analysis was purely descriptive; we had no inferential models to indicate that observed associations were causal. Second, while internationally recognized indices were used, they may not capture cultural, political, or policy distinctions at the country level. Third and last, this is cross-sectional data, so it demonstrates only a snapshot in time without any history or trajectories behind it. Finally, despite its convenience for comparison, measures of national income level and broad regions can disguise important differences within the groups.

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