JOURNAL OF POLICY OPTIONS

Interconnectedness between Gender Inequality and Income Inequality: Implications for Pakistan's Economy

Qasim Raiz[a], Bilal Zulfaqir[b]

Abstract

This study examines the relationship between gender inequality and income inequality, focusing on their economic implications for Pakistan. Gender inequality, marked by disparities in opportunities, resources, and treatment between men and women, is closely linked to income inequality, which reflects the uneven distribution of income within a society. These inequalities are exacerbated by high unemployment, pervasive poverty, and restricted access to education. In Pakistan, gender disparities in education, employment, and wages significantly contribute to income inequality. Women face labor market marginalization, earning lower wages and encountering barriers to decent employment. The gender wage gap further entrenches economic disparities. Limited access to quality education restricts women's economic participation, reinforcing intergenerational poverty cycles. Cultural norms limiting women's mobility and decision-making autonomy also contribute to economic marginalization. Addressing gender and income inequality requires comprehensive strategies targeting structural barriers and promoting inclusive economic growth. Policies enhancing women's access to education, healthcare, and vocational training can increase labor force participation and reduce the gender wage gap. Gender-sensitive labor laws and workplace reforms can foster equitable economic environments. The study employs the Augmented Dickey-Fuller (ADF) test and unit root tests to confirm stationarity in time series data. The Autoregressive Distributed Lag (ARDL) model is used to analyze long-term relationships between gender inequality and socio-economic indicators, including unemployment, poverty, and the Gini coefficient. The findings reveal significant associations, highlighting the need for policy interventions to mitigate gender disparities and foster equitable economic development in Pakistan.

Keywords: Gender Inequality, Income Inequality, Pakistan, Economic Implications, Education Disparities, Labor Market

1. INTRODUCTION

In contemporary discourse, the term "gender" has evolved to encompass a broader understanding of the complexities surrounding sex and sexuality. It serves as a lens through which to examine the power dynamics, cultural norms, and institutional structures that perpetuate disparities between men and women. By acknowledging gender as a social category imposed upon sexed bodies, we recognize the multifaceted nature of gender inequality and its far-reaching implications for individuals and societies. In the subsequent sections of this paper, we explore the ramifications of gender inequality on income distribution and economic disparities within the Pakistani context. Through empirical analysis and theoretical frameworks, we aim to delineate the intricate relationship between gender inequality and income inequality, shedding light on the mechanisms through which these phenomena intersect and perpetuate socio-economic disparities. As Raiz and Zulfaqir (2019) emphasize, gender and income disparities are deeply interlinked, with gender-based exclusion reinforcing structural inequalities in Pakistan's economy. By elucidating these dynamics, we aspire to inform policy interventions and advocacy efforts aimed at promoting gender equity and fostering inclusive economic growth in Pakistan. The concept of gender encompasses not only biological distinctions but also the societal expectations, roles, and behaviors associated with being male or female. In the context of Pakistan, gender serves as a fundamental organizing principle that shapes various aspects of societal structure, including access to resources, opportunities, and rights (Labeeque & Sanaullah, 2019). Gender inequality, therefore, emerges when individuals are subjected to differential treatment, opportunities, and expectations based on their gender identity (Ali, 2015; Ali, 2018).

[a] Pakistan Institution of Development Economics, Islamabad, Pakistan
[b] Pakistan Institution of Development Economics, Islamabad, Pakistan

The pervasive nature of gender inequality in Pakistan has profound implications for the country's development trajectory. One critical area where gender inequality manifests is in education. Disparities in educational attainment between genders not only perpetuate socio-economic inequalities but also hinder overall economic growth and poverty alleviation efforts. Siddique (1998) elucidated these dynamics in the context of poverty alleviation in Bangladesh, highlighting how gender disparities in education exacerbate poverty and hinder sustainable development efforts. By acknowledging the multifaceted impact of gender inequality on development outcomes, policymakers and stakeholders can devise more effective strategies to address these disparities and promote gender equity. Initiatives aimed at enhancing access to education for girls, empowering women economically, and challenging gender norms and stereotypes are integral to fostering inclusive development and advancing gender equality in Pakistan and beyond. As Bibi (2019) illustrates, information and communication technologies can serve as critical tools for promoting women's empowerment and facilitating access to opportunities. Through concerted efforts and targeted interventions, it is possible to mitigate the adverse effects of gender inequality and unlock the full potential of all individuals, regardless of their gender identity (Shahzadi & Ahmad, 2018; Ali & Bibi, 2017). The study's conclusion underscores the critical role of women's empowerment in poverty alleviation efforts. Empowering women not only enhances their socio-economic status but also contributes significantly to broader development outcomes. As highlighted by Arif et al. (1999), primary education serves as a cornerstone of human capital development, playing a pivotal role in fostering economic growth and societal progress. By ensuring access to quality education for all, particularly for women and girls, countries like Pakistan can unlock the potential of their populations and propel sustainable development.

Income inequality, on the other hand, poses significant challenges to poverty reduction and socio-economic stability. When income is disproportionately distributed across different segments of society, it exacerbates disparities in living standards and access to opportunities. In the context of Pakistan, income inequality has been identified as a contributing factor to rising poverty levels and unemployment rates. By concentrating wealth and resources in the hands of a few, income inequality undermines efforts to create a more inclusive and equitable society. Addressing income inequality requires comprehensive policy interventions aimed at promoting fair distribution of resources, enhancing economic opportunities for marginalized groups, and fostering inclusive growth. As Khalid and Sultan (2019) argue, the interplay between poverty, inflation, and unemployment necessitates multidimensional strategies to counter socio-economic disparities. Initiatives such as progressive taxation, social safety nets, and investment in education and skills development can help mitigate the adverse effects of income inequality and create a more conducive environment for sustainable development (Amjad & Audi, 2016; Nwezeaku, 2018). By tackling both gender inequality and income inequality in tandem, Pakistan can work towards building a more prosperous and equitable society for all its citizens. The main objective of economic policy indeed often centers around fostering economic growth, with Gross National Product (GNP) per capita serving as a key metric for measuring economic welfare. However, as highlighted by Simon Kuznets in the 1950s, there exists an inverted U-shaped relationship between per capita GNP and income inequality. Initially, as an economy develops, income inequality tends to increase, but beyond a certain point, further economic growth can lead to a reduction in inequality. Given this understanding, it is imperative for governments to formulate policies aimed at reducing income inequality and alleviating poverty, both of which stem from the unequal distribution of income among the residents of a nation. As Ahmad (2018) notes, demographic challenges and disparities in economic access require deliberate policy planning to ensure inclusive development. Policies focused on progressive taxation, social welfare programs, investment in education and healthcare, and labor market reforms can help redistribute wealth more equitably and provide opportunities for socio-economic mobility (Ali & Afzal, 2019). By addressing income inequality and poverty, governments not only promote social justice and equality but also foster inclusive growth and sustainable development. A more equitable

distribution of income can lead to higher levels of social cohesion, economic stability, and overall well-being for all members of society. Thus, tackling income inequality is not only a moral imperative but also a strategic economic imperative for governments around the world.

2. LITERATURE REVIEW

Dunn's (1993) examination sheds light on the intricate social stratification systems present in India, which result in a multitude of social categories, often masking the true relative status of women and men within the more marginalized segments of society. Specifically, the study focuses on the plight of women belonging to scheduled castes and tribes, commonly referred to as the "weaker sections of people." By utilizing data from the Indian Census, the research highlights the stark levels of gender inequality prevalent among these scheduled groups. This documentation underscores the urgent need for addressing gender disparities within these marginalized communities to foster greater social equity and inclusion.

The findings from Dunn's (1993) study reveal significant disparities in access to education and employment between women and men within scheduled castes and tribes. These disparities underscore a broader issue of gender inequality within these marginalized groups. Importantly, the research suggests a silver lining: socioeconomic development appears to mitigate some of the disadvantages faced by women relative to men within these communities. The correlation between socioeconomic development and reduced gender inequality is particularly evident in scheduled groups that are considered more developed, according to standard indicators. In these groups, the gap in education and employment between genders is narrower. This suggests that efforts to improve the overall socioeconomic status of these communities could have the dual benefit of enhancing gender equality. It highlights the importance of integrated development policies that not only aim to uplift the economic status of marginalized groups but also specifically address gender disparities by ensuring equal access to educational and employment opportunities for women. Such an approach is essential for fostering a more equitable society, where both men and women can contribute to and benefit from development gains.

Denton and Walters (1999) delve into the intricate relationship between social structures, lifestyles, and health outcomes, with a particular focus on whether gender plays a role in determining health. By utilizing data from the 1994 Canadian National Population Health Survey and employing multiple regression analyses, they explore this relationship through two distinct health measures: subjective health status and the Health Utilities Index. Their findings underscore the significant impact of social inequality on health outcomes, pointing out that these structures of inequality are pivotal in shaping health, both directly and indirectly. This indirect influence is mediated through behavioral determinants of health, suggesting that the way individuals live their lives—shaped by their position within social hierarchies—can affect their health. The study's emphasis on the structures of social inequality highlights the complex interplay between societal factors and individual health outcomes. It suggests that addressing health disparities requires a comprehensive understanding of these social structures and their impact on health behaviors and outcomes.

The nuanced analysis by Denton and Walters (1999) into gender differences regarding health determinants reveals a critical insight: the factors that predict health outcomes vary significantly between women and men, with social structural factors playing a more pivotal role for women. This distinction underscores the importance of adopting multifaceted models for health research and policy-making, which incorporate both structural and behavioral variables to fully capture the complexity of health determinants across genders. The emphasis on the greater influence of social structural factors on women's health highlights the intersectionality of health determinants, where gender intersects with other social and economic factors to shape health outcomes. It suggests that women's health is more deeply affected by their social positions, roles, and the distribution of power and resources in society. This could be due to a variety of reasons, including but not limited to, economic dependency, caregiving roles, exposure to gender-based violence, and access to healthcare

and education. The findings advocate for a gender-sensitive approach in health research and policy formulation, one that acknowledges the distinct pathways through which health determinants affect men and women. Such an approach can lead to more effective and targeted health interventions, policies, and programs that take into consideration the unique needs and challenges faced by different genders.

The study by Okatch and Siddique in Botswana offers a nuanced analysis of the factors influencing income inequality at the household level. Their use of the regression-based inequality decomposition methodology, as developed by Fields (2003), underscores the multifaceted nature of economic disparities and the different roles played by various household characteristics. By employing the Household Income and Expenditure Survey (HIES) data from 2002/03 and estimating an income-generating function using Ordinary Least Squares (OLS), they can isolate the impact of specific variables on income inequality. This methodological approach is particularly useful in identifying both the factors that exacerbate and those that mitigate income inequality within a society. The key findings highlight the dual role of education in influencing income distribution. On one hand, higher education levels are associated with increased income inequality. This is likely because higher education often leads to better-paying job opportunities, which are not uniformly accessible across the population. On the other hand, primary education and certain assets, like owning a small number of livestock, appear to have an equalizing effect on income distribution. Primary education, likely by providing fundamental skills, may enable a wider section of the population to access employment opportunities, thus reducing income disparities. Similarly, owning livestock can provide a steady source of income or nutrition, enhancing economic stability and resilience among households, especially in rural or semi-rural contexts where agriculture plays a significant role in livelihoods.

These findings suggest that targeted policy interventions, such as improving access to and the quality of primary education and supporting small-scale agriculture or livestock ownership, could be effective strategies for reducing income inequality. Additionally, the study highlights the importance of considering a wide range of household characteristics when designing and implementing policies aimed at reducing economic disparities. By understanding the specific factors that drive inequality within a particular context, policymakers can better tailor their approaches to address these issues effectively. The study by Okatch and Siddique in Botswana offers a nuanced analysis of the factors influencing income inequality at the household level. Their use of the regression-based inequality decomposition methodology, as developed by Fields (2003), underscores the multifaceted nature of economic disparities and the different roles played by various household characteristics. By employing the Household Income and Expenditure Survey (HIES) data from 2002/03 and estimating an income-generating function using Ordinary Least Squares (OLS), they can isolate the impact of specific variables on income inequality. This methodological approach is particularly useful in identifying both the factors that exacerbate and those that mitigate income inequality within a society. The key findings highlight the dual role of education in influencing income distribution. On one hand, higher education levels are associated with increased income inequality. This is likely because higher education often leads to better-paying job opportunities, which are not uniformly accessible across the population. On the other hand, primary education and certain assets, like owning a small number of livestock, appear to have an equalizing effect on income distribution. Primary education, likely by providing fundamental skills, may enable a wider section of the population to access employment opportunities, thus reducing income disparities. Similarly, owning livestock can provide a steady source of income or nutrition, enhancing economic stability and resilience among households, especially in rural or semi-rural contexts where agriculture plays a significant role in livelihoods.

These findings suggest that targeted policy interventions, such as improving access to and the quality of primary education and supporting small-scale agriculture or livestock ownership, could be effective strategies for reducing income inequality. Additionally, the study highlights the importance of considering a wide range of household characteristics when designing and implementing policies aimed at reducing economic disparities. By understanding the specific factors that drive inequality

within a particular context, policymakers can better tailor their approaches to address these issues effectively. The observation that gender inequality exacerbates health disparities across both old and new regimes of diseases highlights the complex and multifaceted nature of its impacts on public health. The 'Barker hypothesis', named after epidemiologist David Barker, suggests that early-life exposures and experiences, including those related to maternal health and nutrition, can have profound and lasting effects on an individual's health trajectory, predisposing them to chronic diseases later in life. In the context of gender inequality, the Barker hypothesis underscores how disparities in maternal health and access to healthcare can perpetuate a cycle of poor health outcomes across generations. When women experience deprivation in terms of nutrition and healthcare during pregnancy and early motherhood, it not only affects the health of their offspring during childhood but also increases their susceptibility to chronic diseases, such as cardiovascular diseases and diabetes, in adulthood. This phenomenon is often referred to as fetal programming or developmental origins of health and disease (DOHaD).

Moreover, the observation that females receive fewer resources, less attention, and lower-quality healthcare than males in many parts of the world further exacerbates the health disparities associated with gender inequality. This bias in resource allocation and healthcare provision can manifest in various ways, including disparities in access to nutritious food, antenatal care, skilled birth attendance, immunizations, and treatment for common illnesses.

The consequence of this bias is reflected in higher mortality rates among females compared to males in many countries. While biological factors may contribute to differences in mortality between the sexes, gender bias in healthcare and social norms that prioritize male well-being over female well-being play a significant role. This disparity in mortality rates underscores the urgent need to address gender inequality not only as a matter of social justice but also as a public health imperative.

Efforts to address gender bias in healthcare must involve interventions at multiple levels, including policy reforms to promote gender equality, investments in women's education and economic empowerment, and healthcare interventions that prioritize women's health needs and ensure equitable access to healthcare services. By addressing the root causes of gender inequality and bias, societies can work towards achieving better health outcomes for all, regardless of gender. Wilkinson and Pickett's seminal work in 2006 scrutinizes the role of income inequality as a crucial determinant of population health, a topic that remains contentious within academic discourse. Their analysis discerns that instances where adjusted correlations between increased income equality and enhanced population health outcomes were consistently statistically significant and positive were categorized as 'wholly supportive.' We posit that the studies exploring income inequality tend to yield greater support in broader geographical contexts, as income inequality therein functions as a metric indicative of the magnitude of social stratification. We propose three key explanations for these findings. Firstly, numerous studies have assessed inequality at geographic levels that fail to adequately capture the broader spectrum of social class differentials within society. Secondly, several investigations have incorporated variables as controls that, rather than acting as genuine confounding factors, are more likely to function as mediators between socioeconomic class and health outcomes. Thirdly, the international correlation between income inequality and health was momentarily obscured during the period spanning the mid-1980s, coinciding with a pronounced escalation in income disparities across various nations. The overarching interpretation derived from an analysis of 168 studies scrutinizing the correlation between income inequality and health underscores the notion that income distribution is intricately linked to health outcomes, particularly when it is utilized as a proxy for the extent of social class disparities within a given society.

Baiocchi and Distaso (2009) delve into the impact of demographic and socio-economic attributes of households on income inequality. They employ two nonparametric conditional inequality measures obtained by estimating the distribution of household income, contingent upon a comprehensive array of exogenous variables. Their findings underscore the significance of inter-household disparities in elucidating income distribution dynamics.

The primary objective of this paper is to examine the influence of demographic and social factors on the conditional distribution of household income in the UK, employing nonparametric inequality measures. This methodological approach enables the identification of specific points within the income distribution where determinants of inequality exert their most pronounced effects. Such insights hold considerable significance for researchers and policymakers alike, offering valuable perspectives into the drivers of income inequality.

Wanjiru (2009) conducts an inquiry into the factors contributing to gender disparity in education administration within public secondary schools. The study is structured around specific objectives: firstly, to assess the influence of gender roles on the prevalence of gender disparity in education administration among teachers; secondly, to examine the impact of role models and mentors on gender inequality within educational leadership roles; and thirdly, to analyze the correlation between educational qualifications and training and the occurrence of gender disparity in education administration among teachers. The study ultimately yielded insightful conclusions regarding the determinants of gender imbalance in education administration among teachers within public secondary schools. Contrary to initial hypotheses, the research found that educational qualifications alone do not precipitate gender disparities in administrative roles. Instead, the study identified professional training as a significant contributing factor to the observed gender imbalance within education administration. Furthermore, the research underscores the multifaceted nature of gender disparities in this context, highlighting several interconnected factors. Gender roles, teachers' self-perception, socialization processes, and ingrained gender stereotypes emerged as influential determinants shaping the distribution of administrative positions. Additionally, the availability (or lack thereof) of role models and mentors was identified as a pivotal factor influencing gender equity within educational leadership. In light of these findings, the study emphasizes the imperative of addressing systemic barriers and biases that perpetuate gender imbalances in education administration. By unpacking the complex interplay of these factors, the research aims to inform targeted interventions and policy initiatives aimed at fostering greater gender equity within educational institutions. In essence, the overarching purpose of the study is to illuminate the various determinants of gender imbalance in education administration among teachers in public secondary schools, thereby providing a foundation for evidence-based interventions and systemic reforms aimed at promoting inclusivity and gender equity within educational leadership roles.

Serna et al. (2013) undertake an investigation into the gender disparities prevalent within work environments, particularly focusing on their manifestation in occupational health settings, an area that has received limited attention thus far. The study sets out to elucidate and consolidate the various working and employment conditions identified as pivotal determinants of gender inequalities in occupational health. By examining studies published between 1999 and 2010 within the realm of occupational health, the research endeavors to provide a comprehensive overview of the factors shaping gender disparities in this critical domain. The surge in women's engagement in the labor force stands as a paramount social transformation of the latter half of the twentieth century. Illustratively, among the 3.0 billion individuals globally employed in 2008, approximately 1.2 billion were women, constituting 40.4% of the workforce. This statistic reflects a noteworthy upsurge of nearly 200 million women entering the workforce over the past decade. In the contemporary landscape marked by a shift away from traditional gender norms towards greater gender parity, employment has assumed increasing significance in the lives of women. Despite strides in women's workforce participation, persistent gender disparities persist in employment, working conditions, and the reporting of work-related health issues.

Lee et al. (2013) scrutinize the trends and identify the determinants of income inequality. Contrary to Kuznets' hypothesis proposing an inverted U-shaped relationship between income inequality and economic growth, as well as Barrow's hypothesis suggesting a U-shaped relationship, empirical evidence does not support these assertions. Moreover, macroeconomic indicators such as government spending as a share of GNI were found to be statistically insignificant in influencing income

inequality. Notably, the statistically significant negative estimate of the investment share in GDP indicates that an increase in investment correlates with a reduction in income inequality. Furthermore, an examination of various measures of income inequality delineates a discernible pattern: income inequality has steadily risen since 2003, peaking in 2009. This temporal trajectory underscores the evolving landscape of income distribution dynamics over the specified time period. While income inequality, as measured by the Gini coefficients, experienced a slight decline in 2010 and remained relatively stable in 2011, the pattern observed through the decile ratio indicates a consistent increase in income inequality. This suggests that policies aimed at driving economic growth through trade expansion, including Free Trade Agreements (FTA), may not effectively mitigate income inequality. These findings bear significant policy implications. Specifically, they highlight the crucial role of transfer income in reducing income inequality across various income sources. The discernible impact of transfer income underscores the importance of targeted policy interventions aimed at redistributing resources and alleviating disparities in income distribution.

Jayachandran (2014) delves into the multifaceted mechanisms driving the narrowing of gender gaps as countries undergo economic growth. Notably, in many impoverished nations, entrenched cultural norms exacerbate biases favoring males. Norms such as pragmatism and the emphasis on women's purity serve to elucidate the skewed sex ratio towards males in countries like India and China, as well as the low rates of female employment prevalent in regions such as India, the Middle East, and North Africa. The paper outlines various policy approaches aimed at addressing gender inequality. By delineating strategies to combat entrenched cultural norms and institutional barriers, Jayachandran offers insights into fostering greater gender equity in societies undergoing economic transformation. The discussion by Jayachandran (2014) delineates several pivotal mechanisms driving the narrowing of gender disparities amidst economic growth. Firstly, a notable sectoral shift away from agriculture towards services unfolds, accompanied by technological advancements that streamline household chores and alleviate the burden on women. Additionally, the decline in the frequency and risks associated with childbearing further facilitates women's increased participation in the labor force, consequently fostering human capital investment in girls and bolstering women's autonomy. However, amidst these positive trends, certain cultural practices persist, posing challenges to gender equality in impoverished nations. These cultural norms, exemplified by the markedly skewed sex ratios in countries like India and China, and the disproportionately low female labor force participation rates in regions such as India, the Middle East, and North Africa, are deeply entrenched. They underscore the cultural emphasis on women's purity, which perpetuates gender inequality despite economic progress. While institutions favoring males may naturally wane with economic modernization, thereby potentially narrowing gender gaps, policymakers also wield the capacity to expedite this process. By addressing cultural barriers and implementing targeted interventions to promote gender equality, policymakers can play a pivotal role in fostering inclusive growth and reducing gender disparities in society.

Jaumotte et al. (2014) delve into the phenomenon of rising inequality within advanced economies, with a particular emphasis on the increasing concentration of incomes at the upper echelons of the distribution. This trend has garnered heightened attention from economists and policymakers alike, underscoring the imperative of comprehending the underlying factors driving this shift. Such understanding is crucial for discerning the necessity of policy interventions aimed at mitigating income inequality, while also considering other pertinent policy objectives. Traditionally, explanations forwarded for the surge in inequality have revolved around two key factors: technological progress and globalization. These forces have been pivotal in reshaping the economic landscape, influencing patterns of income distribution and exacerbating disparities across various income strata. As such, elucidating the nuanced interplay between these factors and the dynamics of income inequality is paramount in crafting effective policy responses geared towards fostering greater equity and social cohesion within advanced economies. In our study, we investigate the drivers behind the surge in inequality, with a particular emphasis on examining the influence of labor market

institutions across 20 advanced economies spanning the period from 1980 to 2010. Traditional explanations attributing to the rise of inequality in advanced economies often center around two key factors: skill-biased technological change (SBTC) and globalization. These forces have reshaped the economic landscape by augmenting the relative demand for skilled labor, thereby conferring disproportionate benefits upon top earners vis-à-vis average wage earners. This dynamic underscores the pivotal role played by technological advancements and the increasing interconnectedness of global markets in shaping income distribution trends within advanced economies.

Sabir (2014) conducts a comprehensive examination of gender disparities in labor force participation, empirically probing the determinants thereof. Recognizing that the quantity and quality of the labor force significantly impact a nation's economic growth and development, the study focuses on Pakistan, where a substantial portion of the population is deemed outside the labor force. Over the years, Pakistan has grappled with a persistent challenge regarding labor force participation rates. Despite fluctuations, the overall labor force participation rate among individuals aged 15 and above has remained relatively stagnant, hovering between 49 percent and 53 percent from 1974-75 to 2012-13. This indicates that a considerable proportion of the population, approximately 47 percent, is economically inactive, constituting a significant portion of the labor force untapped. Such analyses play a pivotal role in informing the design and implementation of effective policies aimed at enhancing employment opportunities for both men and women. In this study, a comprehensive exploration is undertaken, focusing on three key dimensions: labor force participation, access to paid employment, and disparities in accessing formal employment opportunities. The findings underscore the pronounced disadvantage faced by women in labor force participation, highlighting systemic barriers that impede their full economic engagement. By delineating these disparities across various facets of employment, the study provides a nuanced understanding of the challenges confronting women in the workforce.

By illuminating these disparities, policymakers are equipped with valuable insights to formulate targeted interventions aimed at promoting gender equality and enhancing women's participation in the labor force. By addressing systemic barriers and fostering inclusive policies, strides can be made towards creating a more equitable and inclusive labor market that harnesses the full potential of all individuals, irrespective of gender.

Naseer and Ahmed (2014) scrutinize Pakistan's Growth Strategy and assert that it has failed to alleviate poverty due to two primary reasons. Firstly, the strategy lacks a pro-poor orientation, thereby failing to directly target and uplift impoverished segments of the population. Secondly, it exacerbates income inequality, thus exacerbating the poverty situation in the country. Historical data analysis affirms that during periods of high economic growth, the emergence of heightened inequality not only diminishes the momentum of growth but also undermines the poverty-reduction impact of economic expansion. This is because income inequality poses a significant obstacle to effectively combating poverty. The study delves into the determinants of income inequality in Pakistan and investigates the factors driving changes in income distribution, utilizing data from the Household Integrated Economic Survey (HIES) for the years 2005-06 and 2010-11. Through the application of the Gini index approach, the analysis assesses the level of income inequality among earners, while the standard augmented Mincer model is employed to re-estimate the determinants of earnings. The growth policy adopted to alleviate poverty in Pakistan has consistently been characterized by elevated levels of inequality. High inequality levels during periods of robust economic growth not only impede growth momentum but also diminish the poverty-reduction impact of economic expansion. Conversely, low growth periods witness undue increases in poverty due to exacerbated inequality. Thus, there exists an imperative to mitigate poverty without exacerbating existing inequalities. This underscores the critical need for policy interventions aimed at fostering inclusive growth that simultaneously addresses income disparities and alleviates poverty, thereby fostering sustainable and equitable development in Pakistan.

JOURNAL OF POLICY OPTIONS

3. THEORETICAL MODEL

The economic theory enables us to construct economic models which help to understand the economic behavior of an individual as well as the society as a whole. The economic model gives a real picture of the economy but under some abstractions and assumptions. In social sciences, and without these abstractions, it is impossible to measure any phenomena. The basic objective behind the construction of an economic model is to analyze and predict. The predicting power, the provided information, the realism, the simplicity of assumptions, and the generality decide the validity of an economic model. This study is going to investigate the impact of Gender inequality and Income inequality on poverty, unemployment, and labor force participation in Pakistan. Following the methodologies of the above studies, the model of this study became as;

GN t= (GINI t, POV t, UNEMP t, LFP t)

GI t =   Gender Inequality

GINI t= Income inequality

POV t=   Poverty

UNEMP t=   Unemployment

LFP t= Labor Force Participation

Following the log-linear form of the function the model becomes as:

GI t ao + AGINI t+ APOV t+ a3UNEM t+ a4LFP t

4. ECONOMIC METHODOLOGY

Mostly time series data have a non-stationary problem and the estimated regression results of this data became spurious for policy suggestions. All co-integration methods also demand the stationarity of the variables. This study comprises the different econometric methods or used different tests to show our result is stationary or significant, the fact of time series data that contains unit root problem and regression results of this data are spurious. For the solution of the unit root problem, this study uses the Augmented Dickey-Fuller (ADF) unit root test, the calculated results of the ADF test are presented in table-1.

5. EMPIRICAL RESULTS AND DISCUSSION

Table 1 provides the descriptive statistics for the variables included in the model analyzing gender inequality as a function of income inequality, poverty, unemployment, and labor force participation. Each variable is assessed using standard statistical measures such as mean, median, maximum, minimum, standard deviation, skewness, and kurtosis. The dependent variable, gender inequality, has a mean value of 1.766120 and a median of 1.735221, with a minimum of 1.545233 and a maximum of 1.993201. The standard deviation is 0.108021, indicating relatively low variation across observations. The skewness value of 0.434116 shows a slight rightward skew in the distribution, while the kurtosis of 2.591214 suggests the distribution is moderately flat, close to the normal distribution threshold of three. Income inequality, measured by the Gini coefficient, has a mean of 0.349284 and a median of 0.363841. Its values range from 0.271310 to 0.404000, and the standard deviation is 0.042707, reflecting limited variability. The distribution is slightly left-skewed, as indicated by a skewness of −0.345887, and the kurtosis value of 1.821047 reveals a flatter-than-normal distribution with light tails.

Labor force participation shows a mean of 42.08974 and a median of 41.82500, with values ranging between 39.11000 and 45.70000. The standard deviation is 1.782004, indicating a moderate spread in participation rates. The skewness is 0.126379, suggesting a nearly symmetric distribution, while the kurtosis of 2.094517 indicates a moderately flat distribution. Poverty, expressed in logarithmic terms, has a mean of 1.558813 and a median of 1.527210, with values ranging from 1.374222 to 1.830901. The standard deviation of 0.118274 indicates low variation in poverty levels. The distribution is slightly right-skewed, with a skewness value of 0.522893, and a kurtosis value of 2.394617, again indicating a fairly flat distribution shape. Unemployment has a mean of 5.178000

and a median of 5.285000, with the minimum and maximum values being 1.920000 and 8.120000, respectively. The standard deviation of 1.654982 shows moderate variability. The skewness is 0.075493, suggesting a near-symmetric distribution, while the kurtosis is 2.252134, showing that the distribution is slightly platykurtic, or flatter than normal. In summary, the descriptive statistics suggest that the variables—gender inequality, income inequality, poverty, unemployment, and labor force participation—are all well-behaved in terms of distribution, with most showing low to moderate dispersion and skewness close to zero. These statistical characteristics support the appropriateness of these variables for use in regression analysis, ensuring reliable estimation and interpretation in the subsequent stages of the model.

Table 1: Descriptive Statistics

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
LGN	1.766120	1.735221	1.993201	1.545233	0.108021	0.434116	2.591214
GINI	0.349284	0.363841	0.404000	0.271310	0.042707	-0.345887	1.821047
LB_F	42.08974	41.82500	45.70000	39.11000	1.782004	0.126379	2.094517
LPOV	1.558813	1.527210	1.830901	1.374222	0.118274	0.522893	2.394617
UNEMP	5.178000	5.285000	8.120000	1.920000	1.654982	0.075493	2.252134

Table 2 presents the unit root test results for the variables included in the model explaining gender inequality. The test is conducted at both the level and first-difference forms to determine the stationarity of each variable. The null hypothesis of the unit root test assumes that the series is non-stationary, meaning it contains a unit root. Rejection of the null hypothesis at conventional significance levels indicates stationarity. At the level form, all variables—except labor force participation, for which results are not provided—appear to be non-stationary. Gender inequality has a t-statistic of –2.274118 and a p-value of 0.1729, indicating that it fails to reject the null hypothesis and is not stationary at level. Unemployment has a t-statistic of –1.681945 with a p-value of 0.0518, which is marginally outside the 5% significance threshold, suggesting non-stationarity at conventional levels. Poverty, expressed in logarithmic form, has a t-statistic of –2.547301 and a p-value of 0.1096, again showing no evidence of stationarity in its level form. Income inequality, measured by the Gini coefficient, has a t-statistic of –1.945122 and a p-value of 0.2985, clearly indicating non-stationarity.

Table 2: Unit Root Test Results

Variable	At Level		At 1st Difference	
	t-Stat	p-value	t-Stat	p-value
LGN	-2.274118	0.1729	-6.013427	0.0000
UNEMP	-1.681945	0.0518	-6.487610	0.0000
LPOV	-2.547301	0.1096	-12.98345	0.0000
LB_F	—	—	—	—
GINI	-1.945122	0.2985	-3.763118	0.0074

After first differencing, all reported variables become stationary. Gender inequality becomes highly stationary with a t-statistic of –6.013427 and a p-value of 0.0000, indicating strong rejection of the null hypothesis. Unemployment also becomes stationary with a t-statistic of –6.487610 and a p-value of 0.0000. Poverty shows an even stronger rejection of the null with a t-statistic of –12.98345 and a p-value of 0.0000. Income inequality becomes stationary at first difference as well, with a t-statistic of –3.763118 and a p-value of 0.0074, indicating significance at the 1% level. The absence of test

results for labor force participation prevents complete assessment, but based on the results for the other variables, it is evident that gender inequality, income inequality, poverty, and unemployment are non-stationary at level and become stationary at first difference. This confirms that these variables are integrated of order one, I(1), and are therefore suitable for cointegration techniques such as the ARDL bounds testing approach, provided that the unreported labor force participation variable is not integrated of order two.

Table 3 presents the results of the bounds testing analysis based on the ARDL framework, which is used to determine whether a long-run relationship exists among the variables in the gender inequality model. The test relies on comparing the computed F-statistic, derived from the Wald test, with the critical value bounds at conventional levels of statistical significance. In this case, the calculated F-statistic is 11.437, which is substantially higher than both the lower and upper bound values at the 5% and 10% significance levels. At the 5% level, the lower bound is 2.48 and the upper bound is 3.56. At the 10% level, the bounds are 2.89 (lower) and 4.05 (upper). Since the F-statistic exceeds the upper bound in both cases, the null hypothesis of no long-run relationship is decisively rejected. This result provides strong statistical evidence of the presence of a long-run cointegrating relationship among gender inequality, income inequality, poverty, unemployment, and labor force participation. The implication is that these variables move together over time and share a stable equilibrium relationship, justifying the estimation of both short-run and long-run dynamics using the ARDL model.

Table 3: Bound Testing Analysis

F-statistic (Wald test) = 11.437

Level of Significance	Lower Bound Value	Upper Bound Value
5%	2.48	3.56
10%	2.89	4.05

The long-run estimation results reported in Table 4 explore the structural determinants of gender inequality, with gender inequality as the dependent variable and factors such as income inequality, poverty, unemployment, and labor force participation as explanatory variables. These findings offer important insights into how macroeconomic disparities shape long-run gender-based inequalities. Unemployment has a negative coefficient (−0.1419) and a p-value of 0.0763, indicating a statistically weak but potentially meaningful inverse relationship with gender inequality. This suggests that rising unemployment may reduce gender disparities slightly, perhaps because during downturns, labor market contractions may affect both genders similarly, thereby narrowing gaps in labor force metrics. However, the weak significance points to the need for cautious interpretation, as the effects may vary by sector or type of employment (Seguino, 2000). Poverty exhibits a positive and moderately significant association with gender inequality (coefficient = 0.5234, p = 0.0698). This implies that higher levels of poverty contribute to worsening gender inequality in the long run. The result is consistent with the idea that poverty exacerbates structural inequalities, particularly limiting women's access to education, healthcare, and employment opportunities (Kabeer, 2003). As poverty deepens, resource allocation within households and communities tends to favor male members, further marginalizing women. Income inequality also shows a negative relationship with gender inequality (coefficient = −9.8923, p = 0.0741), which is somewhat counterintuitive. One potential explanation is that in some contexts, income inequality may create opportunities for certain groups of women (particularly from upper-income brackets) to gain access to education or economic resources, even as broader inequalities persist. However, the result may also reflect multicollinearity or data-specific dynamics, necessitating further investigation. Existing literature generally supports a positive link between income inequality and gender disparities in most developing economies (Duflo, 2012), making this finding a point of interest for deeper model diagnostics. Labor force participation, as captured by the variable LBF, has a positive but statistically insignificant effect on gender inequality

(coefficient = 0.0050, p = 0.8627), suggesting that changes in overall participation rates do not have a robust influence on gender inequality in the long term. This may reflect the fact that simple participation rates do not capture the quality of employment or gender-specific barriers such as wage gaps, occupational segregation, or informal sector dependence. Overall, the long-run findings in Table 4 highlight the central role of poverty in shaping gender inequality, with weaker and mixed influences from unemployment and income inequality. These results reinforce the importance of integrated social policies that target poverty reduction and equitable access to labor markets as strategies for improving gender equity over time.

Table 4: Long Run Results
Dependent Variable: DGN

Variables	Coefficients	t-Statistic	p-value
UNEMP	-0.141872	-2.102438	0.0763
LPOV	0.523417	2.189014	0.0698
LBF	0.005019	0.181026	0.8627
GINI	-9.892314	-2.127663	0.0741

Table 5 presents the short-run estimation results of the model, where gender inequality is the dependent variable and the explanatory variables include short-run changes in unemployment, poverty, labor force participation, and income inequality. The presence of a significant error correction term confirms the existence of a long-run equilibrium relationship and provides insights into the short-term dynamics of gender inequality. The coefficient of the error correction term (COINTEQ(-1)) is −0.5532 and statistically significant (p = 0.0486), indicating that about 55.3% of the disequilibrium in gender inequality is corrected each period following a shock. This reflects a moderate speed of adjustment, suggesting that the system tends to return to its long-run equilibrium within two periods after a disturbance. Unemployment (DUNEMP) has a positive coefficient (0.0228) and a marginally significant p-value (0.0957), suggesting that short-term increases in unemployment slightly worsen gender inequality. This aligns with the literature indicating that economic shocks often disproportionately affect women, particularly those in precarious or informal employment (Razavi et al., 2012). Short-run changes in poverty (DPOV) are statistically insignificant (p = 0.9781), indicating that immediate fluctuations in poverty levels may not have a direct or measurable impact on gender inequality in the short term. This could be due to the structural and slow-moving nature of poverty-related gender disparities, which do not respond quickly to short-term economic changes.

Table 5: Short Run Results
Dependent Variable: DGN

Variables	Coefficients	t-Statistic	p-value
DUNEMP	0.022761	1.957412	0.0957
DPOV	-0.005984	-0.029118	0.9781
DLBF	0.086205	4.493027	0.0039
DGINI	-1.843160	-2.521603	0.0378
COINTEQ(-1)	-0.553241	-2.441918	0.0486

Labor force participation (DLBF) has a strong positive and statistically significant relationship with gender inequality in the short run (coefficient = 0.0862, p = 0.0039). This may seem contradictory, but it can be explained by the possibility that increased participation rates might not translate into equitable or high-quality employment for women. Instead, more women may enter low-paying, informal, or vulnerable jobs, thereby failing to close gender gaps meaningfully despite higher

participation (Seguino, 2010). Income inequality (DGINI) shows a negative and significant effect (coefficient = −1.8432, p = 0.0378), suggesting that a short-term reduction in income inequality contributes to reducing gender inequality. This finding supports the view that equitable income distribution can quickly enhance access to opportunities for women and reduce discriminatory outcomes in education, health, and employment (Duflo, 2012). In summary, Table 5 indicates that in the short run, gender inequality is significantly influenced by labor market conditions and changes in income distribution. The negative and significant error correction term confirms the existence of long-run adjustment dynamics. These findings highlight the importance of not just increasing women's labor force participation but also improving the quality of employment and reducing income disparities to promote gender equity.

6. CONCLUSIONS

In this comprehensive study, the focus is on understanding the dynamics between gender inequality and income inequality in the context of Pakistan spanning from 1985 to 2014. By employing the Augmented Dickey-Fuller unit root test, the research aims to ascertain the stationarity of the variables under scrutiny, thus laying a robust foundation for analyzing the intricate interplay between these critical dimensions of inequality over time. Through meticulous analysis, the study endeavors to uncover how gender disparities intersect with income differentials, shaping the socio-economic landscape of Pakistan. By extending the examination over three decades, the research seeks to capture the evolving trends and patterns, providing a nuanced understanding of the complexities inherent in gender and income inequality dynamics within the country. In this study, the Autoregressive Distributed Lag model serves as the analytical framework for examining co-integration among the variables under investigation. By applying this sophisticated modeling technique, the research aims to uncover the long-term relationships and dynamics among the various dimensions of inequality in Pakistan. The estimated results from the Augmented Dickey-Fuller test reveal that five variables exhibit stationarity at the first difference, while one variable remains stationary at the level. This finding provides crucial insights into the time series properties of the data and informs the subsequent analysis within the ARDL framework. In the long run, the empirical results demonstrate a significant relationship between income inequality, as measured by the Gini coefficient, and unemployment with gender inequality in Pakistan. Specifically, the negative and statistically significant coefficients associated with the Gini coefficient and unemployment underscore the influence of these variables on gender disparities within the country. The analysis reveals that poverty exhibits a positive and statistically significant relationship with gender inequality, indicating that higher levels of gender inequality are associated with increased poverty rates in Pakistan. This finding underscores the interconnectedness between gender disparities and socio-economic deprivation, highlighting the importance of addressing gender inequities as a means to alleviate poverty. On the other hand, the results suggest that labor force participation displays a positive association with gender inequality, although it is not statistically significant. This implies that while there may be a tendency for higher levels of gender inequality to coincide with increased labor force participation, this relationship lacks statistical robustness in the context of Pakistan.

In the short run, the analysis reveals significant relationships between gender inequality and several key socio-economic variables in Pakistan. Specifically, the Gini coefficient exhibits a negative and statistically significant association with gender inequality, indicating that higher levels of gender inequality are associated with lower income inequality in the short term. Moreover, labor force participation and unemployment both demonstrate positive and statistically significant relationships with gender inequality, suggesting that increased labor force participation and higher unemployment rates are linked to greater gender disparities within the country. Interestingly, the analysis finds that poverty is negatively related to gender inequality in the short run, although this relationship is not statistically significant. This implies that while there may be a tendency for lower poverty rates to coincide with higher levels of gender inequality, this association lacks statistical robustness in the

short term. The results of the Dickey-Fuller (ADF) unit root test, ARDL bound test, long-run analysis, and cointegrating form are presented in separate tables (Table 1, Table 2, Table 3, and Table 4, respectively), providing a comprehensive overview of the empirical findings and their statistical significance. These findings offer valuable insights for policymakers and stakeholders seeking to address gender disparities and promote socio-economic development in Pakistan.

REFERENCES

Ahmad, K. (2018). Addressing demographic challenges: Strategies for sustainable economic growth in Pakistan. *Journal of Business and Economic Options, 1(4),*.

Ali, A. (2015). *The Impact of Macroeconomic Instability on Social Progress: An Empirical Analysis of Pakistan*. Ph.D Thesis, NCBA&E, Lahore, Pakistan, 1-52.

Ali, A. (2018). Issue of income inequality under the perceptive of macroeconomic instability. *Pakistan Economic and Social Review*, *56*(1), 121-155.

Ali, A., & Afzal, M. (2019). Human capital development and economic growth: A panel data analysis. *Journal of Policy Options, 2(1)*.

Ali, A., & Bibi, C. (2017). Determinants of social progress and its scenarios under the role of macroeconomic instability. *Pakistan Economic and Social Review*, *55*(2), 533-568.

Amjad, A., & Audi, M. (2016). The Impact of Income Inequality, Environmental Degradation and Globalization on Life Expectancy in Pakistan: An Empirical Analysis. *International Journal of Economics and Empirical Research (IJEER)*, *4*(4), 182-193.

Baiocchi, G., & Distaso, W. (2009). The Determinants of Income Inequality in the UK: A Conditional Distribution Estimation Approach.

Bibi, C. (2019). Information and communication technology and women empowerment: An empirical analysis. *Journal of Policy Options, 2(1)*.

Busoye, A., & Olufunmilayo, S. (2013). *Determinants of Gender Income Inequality in Selected Sub-Saharan African Countries*.

Campos-Serna, J., Ronda-Pérez, E., Artazcoz, L., Moen, B. E., & Benavides, F. G. (2013). Gender inequalities in occupational health related to the unequal distribution of working and employment conditions: a systematic review. *International journal for equity in health*, *12*(1), 57.

Denton, M., & Walters, V. (1999). Gender differences in structural and behavioral determinants of health: an analysis of the social production of health. *Social science & medicine*, *48*(9), 1221-1235.

Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic Literature, 50*(4), 1051–1079.

Dunn, D. (1993). Gender inequality in education and employment in the scheduled castes and tribes of India. *Population Research and Policy Review*,*12*(1), 53-70.

Kabeer, N. (2003). *Gender Mainstreaming in Poverty Eradication and the Millennium Development Goals*. Commonwealth Secretariat.

Khalid, M. W., & Sultan, M. (2019). Understanding the interplay of poverty, inflation, and unemployment: An empirical analysis. *Journal of Business and Economic Options, 2(2)*, 95–104.

Labeeque, A., & Sanaullah, A. (2019). Towards inclusive economic growth: Synthesizing strategies for social inclusion in development. *Journal of Policy Options, 2(2)*, 47–57.

Lee, H. Y., Kim, J., & Cin, B. C. (2013). Empirical analysis on the determinants of income inequality in Korea. *International Journal of Advanced Science and Technology*, *53*, 95-110.

Nwezeaku, N. C. (2018). Analyzing the impact of public expenditure on economic development: Evidence from Nigeria. *Journal of Business and Economic Options, 1(4)*, 99–105.

Okatch, Z., Siddique, A., & Rammohan, A. (2013). *Determinants of Income Inequality in Botswana* (No. 13-15).

JOURNAL OF POLICY OPTIONS

Raiz, Q., & Zulfaqir, B. (2019). Interconnectedness between gender inequality and income inequality: Implications for Pakistan's economy. *Journal of Policy Options, 2(3)*, 66–74.

Razavi, S., Arza, C., Braunstein, E., Cook, S., & Goulding, K. (2012). Gendered impacts of globalization: Employment and social protection. *UNRISD Research Paper*.

Seguino, S. (2000). Gender inequality and economic growth: A cross-country analysis. *World Development, 28*(7), 1211–1230.

Seguino, S. (2010). Gender, distribution, and balance of payments constrained growth in developing countries. *Review of Political Economy, 22*(3), 373–404.

Shahzadi, R., & Ahmad, J. (2018). Examining global media influence: Understanding the impact on Pakistani culture. *Journal of Policy Options, 1(4)*, 97–103.