



Gender inequality and human development in Karnataka

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Abstract

This paper analyses gender inequality and human development in Karnataka using the Karnataka State Human Development Report (KSHDR) 2022, with reference year 2019. It uses the Gender Inequality Index (GII) and Human Development Index (HDI) to measure disparities across states and districts, based on the data the report. Karnataka's GII (0.549) places it at rank 17 among 22 major Indian states, reflecting persistent gender gaps in labour-force participation and political representation. District-level data reveal substantial variation: Udupi (0.213) shows the least inequality, while Dharwad (0.440) shows the highest. HDI values show a clear inverse relationship—districts with higher HDI, such as Bengaluru (0.738) and Dakshina Kannada (0.687), tend to have lower GII. These findings highlight regional imbalances, especially between the coastal and Kalyana Karnataka regions. Policy recommendations stress improving female workforce participation, reproductive health, and representation to advance gender-equitable development in Karnataka.

Keywords: Gender inequality index, human development index, labour force participation, political representation, Karnataka

Introduction

Human development is a multidimensional concept encompassing health, education, and income. However, gender inequality restricts the full realization of these dimensions, especially in developing economies like India. Scholars such as Amartya Sen (1999) ^[1] emphasized “capabilities” as a measure of freedom, noting that gender inequality curtails both individual well-being and societal progress. The United Nations Development Programme (UNDP), through its Human Development Reports (HDRs), has consistently ranked India low in gender equality indicators.

Earlier State Human Development Reports (2005, 2014) have highlighted the persistence of structural barriers to gender equality in Karnataka, particularly in the northern districts. Recent studies (Choudhury, 2020; Deshpande, 2021) ^[2, 3] find low female workforce participation as one of the critical challenges to inclusive development. The Karnataka State Human Development Report (KSHDR) 2022 provides an updated and detailed framework that allows for district-level examination, filling a major research gap in localized gender inequality analysis.

Human development emphasizes enhancing people's capabilities to live healthy, educated, and empowered lives. Yet, gender inequality continues to restrict this progress. Although Karnataka has achieved significant improvements in education, health, and income, women's economic and political participation is still limited. The persistence of gender gaps in labour force participation and decision-making underscores the urgent need for gender-sensitive policy frameworks and targeted interventions. The KSHDR 2022 provides comprehensive empirical data for evaluating gender disparities in the state.

The primary aims of this study are:

1. Analyse Karnataka's performance in the Gender Inequality Index (GII) compared to other major Indian states.

2. Assess intra-state disparities in gender inequality across districts of Karnataka.
3. Evaluate the relationship between district-level GII and HDI, along with its broader policy implications.

Review of Literature

The literature on gender inequality and human development provides a multidimensional understanding of disparities across economic, social, and political spheres. Scholars and international institutions have contributed significantly to conceptualizing and measuring gender inequality through indices such as the Gender Development Index (GDI) and the Gender Inequality Index (GII).

1. Conceptual Foundations

Amartya Sen's Capability Approach (1999) ^[1] laid the theoretical foundation for linking human development and gender equality. Sen argued that development should be assessed not merely by income growth but by the expansion of people's freedoms and capabilities to lead lives they value. Martha Nussbaum (2000) ^[7] extended this framework by finding key human capabilities such as education, health, and political participation, emphasizing gender equity as a prerequisite for social justice.

2. Empirical Studies on Gender Inequality in India

At the national level, studies such as Klasen and Wink (2003) ^[6] and Dreze and Sen (2013) ^[4] reveal persistent gender disparities in health, education, and labour markets in India. They note that cultural norms, patriarchal structures, and unequal access to resources continue to constrain women's participation in economic and social life. The UNDP (2020) ^[9] report ranks India low on the GII, reflecting poor female representation in labour, education, and politics despite policy commitments to gender equality.

3. Gender Inequality in Karnataka

Within Karnataka, gender inequality shows considerable regional and socio-economic variation. The Karnataka Human Development Reports (2005, 2014) show that while southern districts such as Bengaluru Urban, Dakshina Kannada, and Udupi display higher human development and lower gender disparity, northern districts such as Raichur, Kalaburagi, and Vijayapura lag significantly.

Studies such as Deshpande (2021)^[3] highlight that women's labour force participation is still one of the lowest in southern India, despite progress in female literacy. Choudhury (2020)^[2] further argues that structural barriers—such as limited employment opportunities, unpaid domestic responsibilities, and social norms—restrict women's economic mobility.

4. Research Gaps

While substantial research has been undertaken at the state and national levels, district-level gender inequality analysis is still limited. Earlier studies largely relied on aggregate indicators without addressing intra-state variations. The KSHDR 2022 provides recent and disaggregated data that enable a deeper examination of gender inequality within Karnataka's diverse socio-economic landscape. This study thus aims to bridge this empirical gap by assessing the relationship between Gender Inequality Index (GII) and Human Development Index (HDI) at the district level.

Methodology

The present study employs a descriptive and analytical research design to assess gender inequality and its relationship with human development across the districts of Karnataka. The analysis is primarily based on secondary data derived from the Karnataka State Human Development Report (KSHDR) 2022, which provides comprehensive socio-economic and gender-disaggregated indicators at the district level.

1. Data Sources

The study relies exclusively on secondary data collected from the following key sources:

1. Karnataka State Human Development Report (2022) – for data on Human Development Index (HDI), Gender Inequality Index (GII), and district-wise socio-economic indicators.
2. UNDP Human Development Reports (2019–2022) – for comparative analysis at the national level.
3. Census of India (2011) – for demographic and literacy data.
4. National Family Health Survey (NFHS-5, 2019–21) – for reproductive health and gender-based indicators.
5. Economic Survey of Karnataka (2022–23) – for income and employment data.

2. Analytical Framework

The analysis proceeds in three stages to address the study's aims:

Stage 1: Inter-State Comparison Karnataka's Gender Inequality Index (GII) is compared with that of other major Indian states using data from the KSHDR 2022 and UNDP HDR 2022. This stage finds Karnataka's relative standing in gender development and highlights areas requiring policy attention.

Stage 2: Intra-State Analysis District-level data from KSHDR 2022 are used to examine disparities in GII and its components—reproductive health, empowerment, and labour market participation. The study employs descriptive statistical techniques such as mean, range, and coefficient of variation to assess the degree of inequality among districts.

Stage 3: Correlation and Relationship Analysis To evaluate the relationship between Gender Inequality Index (GII) and Human Development Index (HDI), the study applies Pearson's correlation coefficient. This analysis helps decide whether higher levels of human development are associated with reduced gender disparities within Karnataka.

3. Scope and Limitations

The study focuses on all 31 districts of Karnataka as per KSHDR 2022 boundaries. The findings are limited by data availability, particularly about disaggregated labour and income statistics for women in informal sectors. Additionally, the analysis assumes consistency in method across districts as per KSHDR estimations. Despite these limitations, the study offers valuable insights into the spatial dynamics of gender inequality and its development implications.

Data analysis and Interpretation

1. Gender Inequality among the Major States in India:

The comparative analysis of the Gender Inequality Index (GII) across twenty-two major Indian states for the year 2019 reveals a striking pattern of regional disparity that reflects both historical and structural inequalities in India's social fabric. A clear south–north divide is evident, with the southern and western states performing significantly better in reducing gender inequality compared to their northern and eastern counterparts. States such as Kerala (0.363), Goa (0.404), and Tamil Nadu (0.418) record the lowest levels of gender inequality in the country, proving the effectiveness of sustained investments in human development, education, and healthcare. Kerala's low GII value can be attributed to near-universal female literacy, a strong public health system, and effective local governance structures that ensure the participation of women in decision-making. Similarly, Tamil Nadu's achievements stem from long-standing social reform movements, initiative-taking health policies, and expansion of higher education among women.

In contrast, northern and eastern states such as Bihar (0.683), Rajasthan (0.671), and Uttar Pradesh (0.622) display the highest levels of gender inequality, reflecting persistent patriarchal norms, low literacy rates among women, and limited access to reproductive healthcare and employment opportunities. Despite moderate improvements in maternal health and education in recent decades, these states continue to show structural exclusion of women from the spheres of labour, politics, and leadership. Even economically advanced states like Gujarat (0.496) and Haryana (0.502) record only moderate levels of gender parity, showing that higher per capita income alone is insufficient to ensure gender equality. The persistence of low female labour-force participation and cultural barriers to women's agency in these regions underline the importance of institutional and social reforms alongside economic growth.

Karnataka's performance, with a GII value of 0.549 and a rank of 17, places it in the lower half of the state hierarchy and well below its southern peers. This outcome highlights a paradox: despite impressive gains in education, health, and overall human development, the benefits have not translated into proportional improvements in gender equality. The major contributors to Karnataka's gender disparity are the low female labour-force participation rate (33.8 percent compared with 77.4 percent for men) and minimal political representation, with women occupying only 3.6 percent of seats in the state legislature. Although Karnataka performs relatively well in reproductive health, with a maternal mortality ratio of about 83 per 100,000 live births, the empowerment and labour dimensions of the index significantly widen its overall gender gap. This suggests that the state faces a capability-to-agency gap—women may have bought education and health capabilities, but systemic constraints prevent these capabilities from being exercised as real freedoms in the labour market or in public life.

The cross-state comparison shows that gender equality is more associated with social policy interventions than with economic prosperity alone. States like Kerala and Himachal Pradesh have achieved lower levels of gender inequality despite moderate income levels because of their commitment to social investments in education, healthcare, and political participation. On the other hand, states with higher economic output but weaker social indicators continue to struggle with entrenched inequality. This pattern reinforces the notion that human development must go beyond income and encompass the structural transformation of gender relations through inclusive institutions, access to opportunities, and the dismantling of discriminatory norms. For Karnataka, the findings from report to an urgent need to strengthen the link between human development and gender empowerment. The state must focus on policies that convert educational attainment into meaningful economic participation and leadership roles for women. Expanding childcare facilities, improving workplace safety, and creating flexible employment options can encourage higher female participation in the labour market. Similarly, introducing stronger gender quotas and leadership training programs in local governance can improve women's representation and decision-making power. Integrating gender indicators into district planning, monitoring, and budgeting processes will further help track progress over time.

In summary, the analysis of study highlights three enduring conclusions. First, the southern states continue to lead the gender equality spectrum, receiving help from long-term investments in human capital and inclusive governance. Second, the northern and eastern states stay constrained by socio-cultural barriers that limit women's access to education, work, and agency. Third, Karnataka occupies a transitional position—it has made commendable progress in human development but still faces substantial gender disparities that require structural and institutional reform. Bridging this gap is essential for transforming Karnataka's developmental gains into genuine gender equality and achieving inclusive growth consistent with the aims of the Sustainable Development Goals (SDG-5 and SDG-10).

2. District wise gender inequality in Karnataka

The district-wise Gender Inequality Index (GII) provides a comprehensive picture of intra-state disparities in gender

equality across Karnataka's 30 districts for the reference year 2019. The analysis reveals that gender inequality is not uniformly distributed across the state; rather, it follows a distinct regional pattern reflecting variations in education, employment, health, and socio-cultural norms. The GII values among districts range from 0.213 in Udupi, showing the lowest level of inequality, to 0.440 in Dharwad, being the highest level of gender disparity. This wide range underscores the presence of deep regional imbalances, with the coastal and southern districts performing considerably better than the northern and interior districts.

The coastal belt of Karnataka, including Udupi (0.213), Uttara Kannada (0.229), and Dakshina Kannada (0.281), appears as the most gender-equitable region in the state. These districts have historically received help from high literacy rates, active participation of women in education and services, and a relatively open social environment that encourages women's employment and mobility. The presence of strong healthcare systems, higher female enrolment in secondary and tertiary education, and better reproductive health outcomes have significantly reduced gender inequality in this region. Udupi stands out as the best-performing district, showing near-parity in education and employment opportunities. The district's social and religious institutions have played an enabling role in promoting education among girls, which has translated into greater empowerment indicators such as female workforce participation and representation in local governance.

In contrast, the northern districts—especially those found in the Kalyana Karnataka region (formerly Hyderabad-Karnataka)—such as Raichur (0.410), Kalaburagi (0.404), Yadgir (0.397), and Bidar (0.393)—register elevated levels of gender inequality. These districts are characterized by low literacy rates among women, limited non-agricultural employment opportunities, and strong patriarchal social norms that restrict female mobility and decision-making. Despite government efforts to promote education and self-help groups, women's economic participation in these areas stays minimal. The predominance of agriculture and informal labour, coupled with limited industrialization, restricts women's access to stable income sources. In addition, high adolescent fertility and limited access to quality healthcare facilities contribute to widening gender disparities in reproductive health. The persistence of these inequalities suggests that gender development in northern Karnataka is constrained by structural, economic, and cultural factors that require targeted policy interventions.

Dharwad district (0.440), despite being relatively urbanized and having educational institutions, records the highest GII in the state. This paradox shows that urbanization alone does not guarantee gender equality. In Dharwad, the concentration of employment in male-dominated manufacturing and service sectors has not translated into proportional gains for women. Similarly, the low female labour-force participation rate, coupled with gender gaps in secondary education and political representation, inflates the overall inequality index. This urban paradox is also visible in Bengaluru Urban (0.322)—although it fares better than Dharwad, its GII stays high compared to other urban districts like Udupi and Dakshina Kannada. Bengaluru's high educational attainment among women has not been accompanied by comparable employment opportunities, largely due to issues such as workplace safety, the dual burden of domestic responsibilities, and lack of flexible

employment policies. This pattern highlights the distinction between educational empowerment and economic empowerment, showing that education alone is insufficient to drop inequality unless supported by inclusive labour policies and institutional reforms.

The southern and Malnad districts—including Shivamogga (0.341), Chikkamagaluru (0.333), Hassan (0.372), and Kodagu (0.342)—display moderate levels of gender inequality. These regions combine relatively high literacy and health standards with moderate female participation in employment. The prevalence of coffee cultivation, horticulture, and tourism in these areas provides women with diverse livelihood opportunities beyond traditional agriculture. However, gender inequality persists in the form of wage gaps, limited representation in local governance, and unequal access to land ownership and credit facilities. The data from these districts suggest that while education and health improvements are necessary conditions for gender equality, economic participation and ownership rights stay critical to bridging the inequality gap.

The central districts such as Tumakuru (0.381), Mandya (0.364), and Mysuru (0.351) occupy middle positions in the GII ranking. These districts receive help from better connectivity and educational infrastructure but still face social constraints that limit women's participation in the formal labour market. In Mandya, for instance, sugarcane agriculture provides seasonal employment for women but lacks long-term economic empowerment. Similarly, Mysuru's relatively advanced social indicators coexist with low female representation in decision-making bodies, reflecting a lag between social development and institutional empowerment.

Overall, the district-wise pattern of gender inequality in Karnataka proves that spatial inequality and socio-economic structure play a decisive role in deciding gender outcomes. The coastal and southern regions are zones of empowerment with progressive gender indicators, while the northern and north-eastern districts stay trapped in a cycle of poverty, illiteracy, and social exclusion. The data confirm a strong inverse relationship between GII and regional development—districts with higher levels of human development and urbanization tend to have lower gender inequality, while economically backward regions show wider gender gaps.

From a policy perspective, these findings suggest the need for region-specific interventions. In the coastal and southern districts, policies should focus on consolidating gains by promoting leadership roles for women in politics and business. In contrast, the northern districts require targeted measures to expand educational access, create employment opportunities, and challenge entrenched social norms that limit women's autonomy. Expanding vocational training, supporting women's self-help groups, and enhancing gender-sensitive infrastructure—such as safe public transport and health facilities—are crucial for bridging these gaps. Additionally, district-level monitoring of gender indicators should be institutionalized to track progress and guide future planning.

In summary, the interpretation of the above highlights the dual character of Karnataka's gender development—on one hand, a set of highly progressive coastal and southern districts with low inequality, and on the other, a cluster of northern districts where inequality stays deeply entrenched. The coexistence of prosperity and deprivation within the

same state emphasizes that gender equality is not an automatic by-product of economic growth but a result of deliberate policy efforts and social transformation. Achieve fair and inclusive development, Karnataka must adopt differentiated strategies that address the unique challenges faced by each region while promoting an integrated vision of gender justice and human development.

3. Human Development in Karnataka

Interpretation and Analysis of District-Wise Human Development Index (HDI) in Karnataka (2019)

The district-wise Human Development Index (HDI) presented in the *Karnataka State Human Development Report (KSHDR) 2022* provides a comprehensive understanding of spatial disparities in human well-being across Karnataka. The HDI, composed of three core dimensions—health, education, and standard of living—captures the extent to which people enjoy long, educated, and productive lives. For the reference year 2019, Karnataka's district HDI values range from 0.738 in Bengaluru Urban, the highest in the state, to 0.538 in Yadgir, the lowest. This variation of nearly 0.20 points between the top and bottom districts reveals sharp regional inequalities in development, despite the state's overall economic progress.

At the top of the human development hierarchy stands Bengaluru Urban (0.738), followed by Dakshina Kannada (0.687), Chikkamagaluru (0.683), Kodagu (0.679), and Udupi (0.659). These districts are Karnataka's southern and coastal high-development zone, characterised by higher per capita incomes, advanced educational infrastructure, and efficient health systems. Bengaluru Urban's dominance is largely due to its diversified economy centred on information technology, services, and manufacturing, which provide employment opportunities and fiscal resources for social investment. Its literacy rate is among the highest in the state, and health outcomes—particularly life expectancy and maternal care—have improved substantially. Similarly, coastal districts such as Udupi and Dakshina Kannada show a strong correlation between educational attainment, healthcare quality, and household income. High literacy rates, a robust network of educational institutions, and a culture that values women's education have contributed to their elevated HDI values. In these regions, social development precedes and sustains economic growth, creating a virtuous cycle of progress.

In contrast, the northern and north-eastern districts—particularly Kalaburagi (0.539), Yadgir (0.538), Raichur (0.544), and Bidar (0.553)—display consistently low HDI values, placing them at the bottom of the human development spectrum. These districts form the core of the Kalyana Karnataka region, which has historically lagged in education, infrastructure, and healthcare facilities. The low HDI in these areas is mainly attributed to extreme poverty levels, inadequate quality of schooling, and limited access to skilled employment. Health outcomes, such as maternal mortality and infant mortality, remain below the state average due to inadequate healthcare infrastructure and unequal access to services. Moreover, the agrarian economy in these districts is marked by low productivity and limited diversification, which constrains household incomes and inhibits improvements in living standards. Gender inequality is also more pronounced here, as reflected by the high GII values saw in report, suggesting a strong negative

correlation between HDI and GII—districts with low human development also show high gender inequality.

The southern districts such as Mysuru (0.646), Mandya (0.641), Hassan (0.639), and Tumakuru (0.623) occupy the middle range of the HDI scale. These regions prove moderate achievements in human development, driven by expanding educational access, improved healthcare, and diversified agriculture. However, despite steady progress, these districts have not reached the levels of their coastal or metropolitan counterparts. For instance, Mandya and Hassan show good performance in literacy and health indicators, yet limited industrial diversification has slowed their overall progress. Mysuru, known for its cultural and educational heritage, continues to advance in literacy and tertiary education but still faces challenges in employment generation for the youth and women. The HDI figures for these districts underline the importance of economic diversification and sustained investment in health and education to ensure balanced development.

In the Malnad region, including districts like Shivamogga (0.651) and Chikkamagaluru (0.683), human development outcomes are relatively strong. These districts combine high literacy, effective local governance, and significant agricultural productivity. The presence of forest-based industries, coffee cultivation, and eco-tourism has enhanced income levels and living standards. The population in these regions benefits from relatively better environmental conditions, contributing positively to overall well-being. However, even in these districts, gender participation in formal labour markets stays low, pointing to the need for inclusive policies that translate human development into fair opportunities for both men and women.

The districts in the north-central plateau, such as Belagavi (0.608), Bagalkote (0.595), Gadag (0.601), and Dharwad (0.611), show mixed human-development outcomes. These areas have witnessed gradual improvements due to infrastructural development, irrigation expansion, and industrialization. Nevertheless, uneven access to quality education and healthcare across rural and urban areas continues to limit their overall HDI potential. The case of Dharwad, for example, is illustrative—it has strong academic institutions but faces urban poverty, informal employment, and gender disparities that reduce its HDI performance. Similarly, Bagalkote and Gadag, though moderately developed, require targeted efforts to improve health services and social inclusion.

The spatial pattern of HDI in Karnataka reveals that human development is highly correlated with regional economic structures and urbanization levels. Coastal and southern districts with diversified economies and educational advantages have consistently higher HDI values, while northern districts dependent on agriculture and with weaker social infrastructure continue to lag. This uneven pattern creates a developmental dualism within the state—modern, globally integrated regions coexist with backward, agrarian districts. Moreover, a comparison of HDI with GII reports highlights a clear inverse relationship between human development and gender inequality: districts with high HDI, such as Bengaluru Urban, Dakshina Kannada, and Udupi, have low GII values, while low-HDI districts like Yadgir, Kalaburagi, and Raichur show high gender inequality. This relationship reinforces the idea that advancements in human development are closely tied to progress in gender equality,

and that gender empowerment is both a driver and an outcome of human development.

From a policy standpoint, the HDI disparities revealed in report underline the necessity for regionally differentiated development strategies. For high-HDI districts, the focus should be on keeping the momentum of social investment and addressing emerging challenges such as urban congestion, environmental stress, and gendered employment gaps. In contrast, for low-HDI districts—particularly those in northern Karnataka—the priority should be to expand access to quality education, healthcare, and income-generating opportunities. Strengthening the implementation of flagship programs such as the *National Rural Health Mission*, *Skill India Mission*, and *Beti Bachao Beti Padhao* at the district level can help close the developmental gaps. Additionally, the creation of regional growth hubs in Kalyana Karnataka, coupled with gender-focused budgeting and institutional reforms, can accelerate human-development outcomes.

In conclusion, the interpretation of study clearly demonstrates that Karnataka's progress in human development is geographically uneven, reflecting deep-rooted disparities in social infrastructure, economic opportunity, and gender relations. The coexistence of high-HDI districts like Bengaluru and Udupi with low-HDI districts such as Yadgir and Kalaburagi highlights the multidimensional nature of inequality within the state. Bridging these regional gaps requires not only economic interventions but also human-centric policies that prioritize education, health, and gender equity as the foundations of sustainable development. Strengthening these pillars will be essential for Karnataka to achieve balanced growth and realize the goals of inclusive human development envisioned in its Vision 2030 framework and the United Nations Sustainable Development Goals (SDGs).

Conclusion

The analysis of gender inequality and human development in Karnataka reveals a complex and regionally differentiated landscape where progress in human capabilities has not translated uniformly into gender equity. While the state shows commendable achievements in literacy, healthcare, and income levels, its Gender Inequality Index (0.549) and rank of 17 among major Indian states underscore persistent structural and institutional barriers limiting women's participation in economic and political life. The district-level evidence from the *Karnataka State Human Development Report (KSHDR) 2022* further confirms stark intra-state disparities. Coastal and southern districts such as Udupi, Dakshina Kannada, and Bengaluru Urban exhibit low gender inequality and high human development, driven by educational advancement, diversified employment, and social openness. In contrast, the northern and Kalyana Karnataka districts—including Raichur, Yadgir, and Kalaburagi—face deep-rooted socio-economic constraints manifested in poor female literacy, restricted mobility, and limited access to quality healthcare and formal employment. The study shows a strong inverse correlation between Human Development Index (HDI) and Gender Inequality Index (GII): regions with higher human development consistently prove lower gender inequality. This reinforces the argument that gender empowerment is both a precondition and an outcome of human development. However, the persistence of low female labour-force

participation and minimal representation in decision-making bodies across districts shows that gains in education and health have not yet evolved into agency and economic independence.

Achieve inclusive and gender-equitable growth, Karnataka must adopt regionally differentiated policies. Strengthening reproductive health, promoting women's leadership, expanding vocational opportunities, and integrating gender-responsive budgeting into district planning are crucial steps. Ultimately, bridging Karnataka's gender gap requires transforming structural inequalities into opportunities for participation, empowerment, and leadership—thereby aligning the state's developmental trajectory with the broader goals of the Sustainable Development Agenda, particularly SDG-5 (Gender Equality) and SDG-10 (Reduced Inequalities).

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