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Gap between Educational Attainment and Access to Formal Employment among Women in Indonesia: A Demographic and Labor Market Study

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Abstract

This study analyzes the gap between women's educational attainment and access to formal employment in Indonesia using a demographic and labor market perspective. Despite the increasing share of women of productive age and relatively high labor force participation, women remain largely concentrated in informal employment. This study employs a descriptive quantitative approach using aggregated national data from the 2024 National Labor Force Survey (SAKERNAS) published by Statistics Indonesia. The analysis focuses on demographic structure, educational attainment, labor force participation, and formal employment. The findings reveal a mismatch between demographic potential and employment quality. While women of productive age dominate the labor force, only a limited proportion have completed upper secondary education or are employed in the formal sector. This indicates the presence of structural barriers that constrain women's access to quality employment. The study highlights the need for policies that strengthen educational attainment and expand inclusive formal employment opportunities for women in Indonesia.

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Introduction

Changes in Indonesia's demographic structure over the past two decades have been marked by a substantial increase in the number of women of productive age. From a demographic perspective, this trend reflects a growing potential for female labor force participation and economic contribution. However, this demographic advantage has not been fully translated into equal access to employment opportunities, particularly in modern economic sectors such as technology, finance, and professional services, which tend to require higher levels of education and skills ^[1, 2].

Gender disparities in labor force participation remain wide and persistent in Indonesia. Data from the National Labor Force Survey (SAKERNAS) indicate that the female labor force participation rate (LFPR) continues to lag significantly behind that of males. As of February 2025, the LFPR for women stood at 56.7%, compared to 84.34% for men, resulting in a participation gap of more than 27 percentage points that has remained relatively stable for over a decade ^[1, 3]. While a large proportion of women are economically active, this high level of participation does not necessarily reflect the quality of human capital, particularly in terms of educational attainment and access to formal employment.

Beyond participation rates, women in Indonesia are disproportionately concentrated in informal employment characterized by low wages, limited job security, and minimal social protection. This pattern indicates the presence of structural barriers in the labor market that constrain women's access to higher-quality jobs. Previous studies have shown that demographic characteristics such as age, education, marital status, and place of residence play a significant role in shaping gender disparities in employment outcomes, particularly in open unemployment and labor market segmentation ^[4].

Married women, in particular, face a higher likelihood of labor market constraints due to domestic responsibilities and the burden of dual roles, which limit their ability to engage in stable and formal employment [4].

In the context of modern economic sectors and the Fourth Industrial Revolution, women's limited access to formal employment is also closely linked to their underrepresentation in science, technology, engineering, and mathematics (STEM) fields. Gender stereotypes, male-dominated work environments, and unequal access to education and training continue to restrict women's participation in these sectors [5]. These structural inequalities are further reflected in persistent wage gaps, where average earnings for men consistently exceed those of women, with evidence of widening disparities during certain periods, such as between 2015 and 2017 [5].

Gender gaps in employment refer to differences in women's access to, participation in, and position within the labor market compared to men. These gaps are not only reflected in lower labor force participation rates but also in women's concentration in informal employment and their limited access to formal jobs and modern economic sectors [5, 7]. Modern economic sectors are generally characterized by higher productivity, greater use of technology, and higher educational and skill requirements, making access to education a key determinant of employment quality [2].

From a demographic perspective, population characteristics such as age structure and educational attainment play a central role in shaping labor market outcomes. An increasing share of women in productive working ages should, in principle, expand opportunities for participation in formal employment. However, without adequate educational attainment and skill development, demographic potential does not automatically translate into improved job quality or economic security [9, 12].

Human capital theory emphasizes education as an investment that enhances individual productivity and access to better employment opportunities [2]. Nevertheless, in segmented labor markets commonly observed in developing economies, higher educational attainment does not always guarantee access to formal employment. Labor markets are often divided into a formal sector that offers job stability and social protection and an informal sector that absorbs workers with lower educational qualifications, potentially weakening incentives for women to pursue higher levels of education [12].

Previous studies consistently show that women with higher levels of education are more likely to access formal employment. However, structural barriers such as gender norms, domestic responsibilities, and labor market discrimination continue to limit women's participation in modern economic sectors [5, 12]. This situation highlights a persistent gap between women's demographic potential and the quality of employment opportunities available, particularly in developing country contexts such as Indonesia.

Based on this background, this study aims to examine the relationship between demographic characteristics and the quality of employment opportunities for women in Indonesia. Using a demographic data analysis approach based on national labor force data for 2024, this study focuses on women of productive age and explores how age structure, educational attainment, labor force participation, and access to formal employment reflect broader structural inequalities in the modern labor market. By highlighting the gap between

demographic potential and employment quality, this research seeks to contribute to the understanding of gender disparities in Indonesia's labor market and provide empirical insights for more inclusive employment policies.

Method

This study is a descriptive-quantitative study based on secondary data analysis, utilizing official national labor and demographic statistics published by Statistics Indonesia (Badan Pusat Statistik/BPS). The primary data source is the National Labor Force Survey (Survei Angkatan Kerja Nasional/SAKERNAS), complemented by official labor-related statistical publications released by BPS. The analysis is conducted at the national aggregate level using data for the year 2024. All variables are expressed in percentage form to ensure comparability across indicators and to reduce bias related to population size differences. The analytical framework of this study is designed to describe and compare women's demographic potential and employment conditions in Indonesia without testing causal relationships. The study focuses on identifying gaps between women's educational attainment and their access to quality employment, particularly formal sector jobs. The procedure of this study consists of the following stages:

- Data Collection:** Collecting aggregated national-level demographic and employment data for women from SAKERNAS and official BPS publications for the year 2024.
- Variable Construction:** Constructing key demographic and labor market indicators, including the percentage of women aged 25 years and above with at least senior high school education, the employment rate, the labor force participation rate, and population age structure indicators (ages 15–24 years and 25–54 years).
- Model Specification:** Organizing the variables into two conceptual models. The first model focuses on women's educational attainment, while the second model examines women's participation in formal employment. Supporting indicators are used to contextualize demographic structure and labor market conditions.
- Descriptive Comparative Analysis:** Comparing demographic and employment indicators within the same observation period to identify disparities between women's demographic potential and the quality of employment opportunities available to them.
- Result Interpretation:** Interpreting the findings through structured, data-driven narratives supported by comparative graphical visualizations to highlight key patterns and gaps.

Initial data processing, including data cleaning and percentage-based calculations, is conducted using Microsoft Excel. Data visualization and descriptive analysis are subsequently performed using the R statistical software.

Results and Discussion

1. Demographic Structure and Employment Conditions of Women in Indonesia

Based on national data for 2024, the demographic structure of women in Indonesia is dominated by those in the prime working-age group (25–54 years), accounting for approximately 57.03%, while the younger age group (15–24 years) represents only 20.75%. This composition indicates that the female population in Indonesia is largely

concentrated in economically productive ages.

From the perspective of the labor market, women's employment conditions reflect a relatively high level of labor force absorption. The female labor force participation rate reaches approximately 59%, suggesting that a substantial proportion of women of working age are actively engaged in economic activities. This is further supported by a relatively high labor force participation rate of about 69.8%, indicating the broad involvement of women in the national labor market. However, these quantitative achievements are not yet fully matched by improvements in human capital quality and job quality. The proportion of women aged 25 years and above who have completed senior secondary education or higher is only 37.64%, while the share of women employed in formal

sector jobs is approximately 36.32%. These figures remain relatively low when compared to the dominance of women in productive age groups and their high labor participation rates, highlighting the existence of structural disparities between demographic potential and the realization of quality employment opportunities for women.

These findings suggest that, demographically, Indonesian women possess significant labor potential due to their concentration in productive age groups. Nevertheless, this potential has not been fully translated into enhanced human capital development and access to higher-quality employment, particularly in terms of secondary and tertiary education attainment and participation in formal sector employment.

2. Women's Education and Demographic Potential

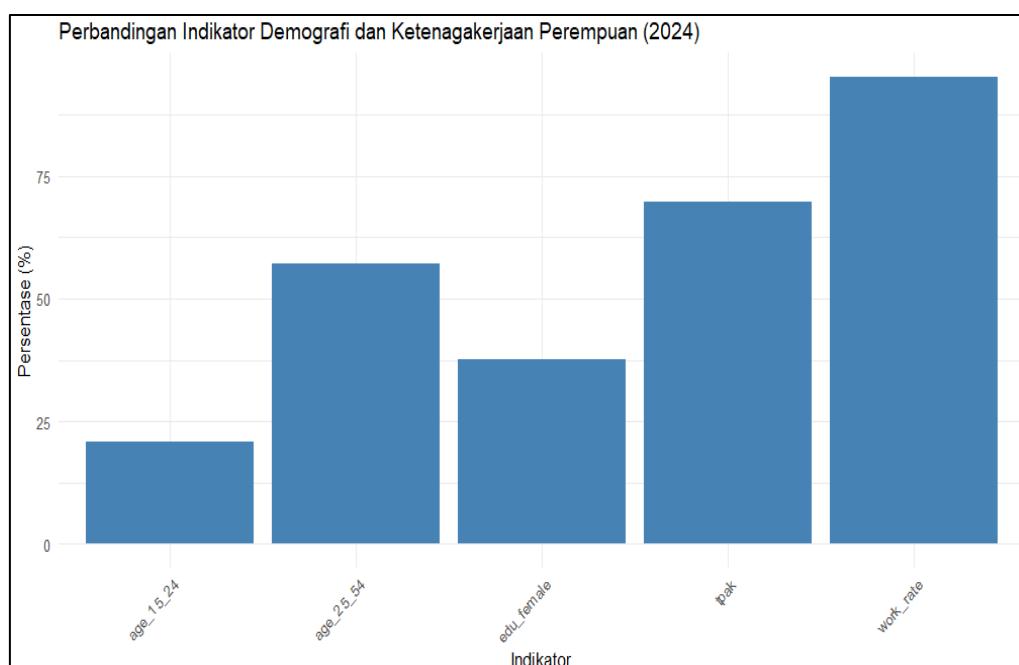


Fig 1: Comparison of Women's Demographic and Employment Indicators (2024)

The descriptive analysis in Model 1 indicates that the dominance of women in the prime working-age group has not yet been fully translated into higher educational attainment. Although more than half of the female population is aged 25–54 years, only about one-third of women aged 25 years and above have completed senior secondary education or higher. This finding suggests that the demographic dividend among women has not been optimally utilized to enhance the quality of human capital.

Moreover, a high employment rate does not necessarily correspond to a high level of educational attainment among women. Current labor market conditions indicate that the national economy is still able to absorb a large number of female workers with lower levels of education, particularly in the informal sector and in low-productivity occupations. This pattern implies that employment expansion alone is insufficient to drive improvements in women's educational outcomes.

From a theoretical perspective, human capital theory [2] emphasizes that investment in education tends to increase when labor market returns to schooling are sufficiently high. In this context, the relatively low proportion of women with upper secondary education or above, despite high labor force

participation, indicates that the economic incentives for pursuing higher education remain weak for many women. When employment opportunities are readily available for workers with limited educational qualifications, the perceived benefits of continued schooling may be reduced. This condition is also consistent with the theory of labor market segmentation, which argues that labor markets in developing economies are often divided into a formal sector that requires higher educational credentials and offers better wages and job security, and an informal sector that is more flexible but provides lower income and weaker social protection. The strong absorption of women into the informal sector may therefore limit their motivation and capacity to invest in education, thereby constraining the full realization of their demographic potential.

Overall, these findings indicate that Indonesia's female demographic advantage has not yet been effectively transformed into educational advancement and high-quality human capital. Without structural improvements in education access and stronger labor market incentives for skilled employment, the demographic bonus among women is likely to remain underutilized in contributing to long-term economic development.

3. Women's Formal Employment and Structural Labor Market Barriers

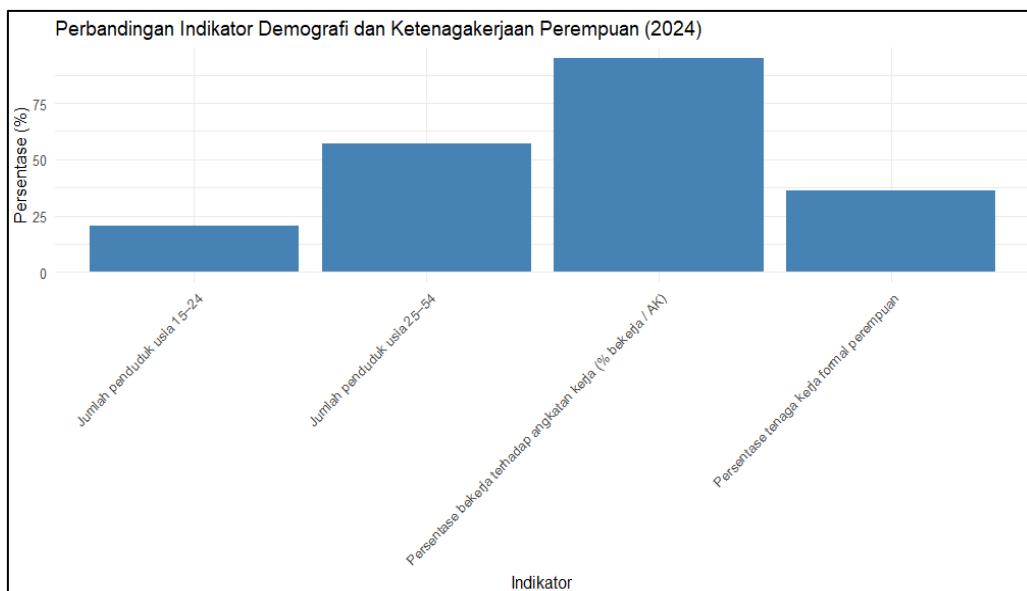


Fig 2: Comparison of Women's Demographic and Employment Indicators (2024)

Model 2 shows that although the female employment rate is relatively high, the proportion of women engaged in formal employment remains limited. With only about 36.32% of employed women working in the formal sector, a substantial gap exists between labor force participation and job quality. This indicates that high employment levels do not necessarily translate into secure and productive forms of work.

From a theoretical perspective, the dominance of women in the prime working-age group should increase their opportunities to enter the formal sector, which typically offers greater job stability, higher wages, and better social protection. However, empirical evidence suggests that the increase in women's labor participation has not been accompanied by a corresponding rise in formal employment. This condition points to the presence of structural barriers in the labor market, including limited availability of formal sector jobs, gender-based occupational segregation, and the concentration of women in informal sectors and paid domestic work.

These findings are consistent with reports by the International Labour Organization (ILO), which indicate that women in developing countries are disproportionately represented in informal employment due to constraints in educational attainment, household responsibilities, and discrimination in formal labor markets [4]. Similarly, the World Bank emphasizes that high employment rates in developing economies do not necessarily reflect good job quality, particularly when economic structures are dominated by the informal sector [16].

Overall, the persistence of low female representation in formal employment suggests that Indonesia's labor market has not yet provided sufficient institutional and structural support to facilitate women's transition into higher-quality jobs. Addressing these constraints is essential to ensure that women's demographic potential can be transformed into sustainable and inclusive economic contributions.

4. The Gap between Labor Force Participation and Job Quality

Overall, the results from both models indicate that the main challenge in women's employment in Indonesia does not lie in low labor force participation, but rather in the quality of employment opportunities available. The dominance of women in the prime working-age group and their high employment rates demonstrate that women have made substantial contributions to economic activity. However, low levels of upper secondary and tertiary educational attainment, combined with the limited proportion of women in formal employment, suggest that these contributions are largely concentrated in jobs characterized by low productivity and weak social protection.

This gap reflects interrelated structural problems within the education system and the labor market. When labor markets provide adequate returns to low levels of education, individuals tend to enter employment earlier rather than continue schooling, which in turn reinforces the dominance of informal employment. This condition creates a persistent cycle in which limited educational attainment leads to informal employment, and informal employment reduces incentives and opportunities for further education, thereby constraining women's labor mobility.

From a theoretical perspective, these findings reinforce the relevance of human capital theory and labor market segmentation in explaining women's employment outcomes in Indonesia. In terms of policy implications, the results suggest that increasing women's labor force participation alone is insufficient. It must be accompanied by policies that strengthen access to quality education and expand inclusive formal sector employment opportunities. Without such structural interventions, the demographic dividend among women is unlikely to translate into sustained improvements in welfare and long-term economic growth.

In conclusion, this study emphasizes that the core issue in women's employment in Indonesia is not the quantity of participation, but the limited quality of available job opportunities. This is reflected in low educational attainment and restricted access to formal sector employment, despite women being predominantly of productive working age.

Limitations:

The accuracy of this descriptive method depends heavily on the quality and completeness of labor force and education statistics, particularly in capturing informal employment, underemployment, and job quality dimensions, which remain prone to underreporting and classification inconsistencies in developing countries [5, 17]. Aggregated national indicators mask substantial individual-level heterogeneity in wages, job security, and working conditions, thereby limiting the precision of job quality assessment [7].

Moreover, the descriptive nature of the method restricts its ability to establish causal relationships between demographic structure, educational attainment, and employment outcomes. Observed associations may be driven by unobserved factors such as household constraints, regional labor demand, childcare availability, and institutional barriers that are not explicitly captured in secondary macro-level data [10, 12].

Labor market segmentation dynamics are also insufficiently captured, particularly transitions between informal and formal employment and long-term skill accumulation. Cross-sectional indicators fail to reflect employment mobility, occupational upgrading, or persistence in low-productivity jobs over the life cycle [9].

Furthermore, important dimensions of job quality, including contract stability, social protection coverage, working hours, and income volatility are not fully incorporated into the model framework, potentially leading to an incomplete representation of women's labor market conditions [6].

Finally, national-level analysis conceals significant regional disparities across provinces, urban–rural areas, and economic sectors. Structural barriers faced by women may differ substantially depending on local labor market conditions and policy implementation capacity, which cannot be adequately addressed using aggregated indicators alone [18].

Conclusion

The study demonstrates that improvements in women's educational attainment in Indonesia have not been fully translated into equal access to formal employment. From a demographic perspective, the increasing share of women in productive working ages and the rising level of female education indicate substantial human capital potential. However, labor market outcomes suggest that this potential remains underutilized.

Higher educational attainment does not automatically guarantee women's entry into formal and secure employment sectors. Structural characteristics of the labor market, particularly labor market segmentation and the continued dominance of informal employment, constrain women's employment opportunities and limit the absorption of educated female workers into formal jobs.

Demographic advantages alone are insufficient to improve women's employment quality without supportive labor market conditions. Persistent gender norms, unequal employment practices, and limited availability of formal jobs contribute to the gap between educational achievement and labor market outcomes.

Overall, integrating demographic analysis with labor market perspectives provides a more comprehensive understanding of gender disparities in employment. While educational expansion remains essential, it must be accompanied by policies that promote formal job creation, reduce labor market segmentation, and enhance equal access to decent work. Such an integrated approach is crucial to ensuring that demographic and educational gains translate into sustainable and inclusive economic outcomes for women in Indonesia.

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