

# SETARA: Jurnal Studi Gender dan Anak

Vol. 6, No. 2, Desember 2024.  
ISSN: 2720-9059; E-ISSN: 2716-2230

## MANIFESTING GENDER EQUALITY ON INDONESIAN FEMALE LABOR PARTICIPATION IN MANAGERIAL POSITIONS

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### Abstract

Recently, there has been a growing concern for gender equality, especially in women's participation in the labor market, as an effort toward achieving the SDGs. This study aims to explore gender equality regarding women's participation in managerial positions in Indonesia. It uses provincial-level data covering 2018 to 2023. Cluster analysis is applied to assess gender equality through women's representation in managerial roles across different provinces. Additionally, Panel Corrected Standard Error (PCSE) regression is used to analyze provincial-level data, focusing on the socio-economic determinants influencing women's managerial participation. This study found that most provinces in Indonesia are still in the 'low' cluster in terms of women's participation in managerial positions. The panel data analysis reveals that female educational attainment and women's participation in politics significantly enhance women's representation in managerial positions across Indonesian provinces, while the female labor force participation rate also has a positive but less pronounced effect. Economic factors such as GRDP per capita and average labor wage do not show significant impacts, suggesting that non-economic barriers might be more influential in determining women's managerial roles. Overall, the findings highlight the importance of education, political empowerment, and broader female workforce participation in promoting gender equality.

**Keywords:** Gender Equality, Female Labor Participation, Managerial Position

### Abstrak

Baru-baru ini, terdapat kepedulian yang semakin meningkat terhadap kesetaraan gender, terutama dalam partisipasi perempuan di pasar tenaga kerja, sebagai upaya untuk mencapai SDGs. Penelitian ini bertujuan untuk mengeksplorasi kesetaraan gender terkait partisipasi perempuan dalam posisi manajerial di Indonesia. Data tingkat provinsi yang digunakan mencakup tahun 2018 hingga 2023. Analisis kluster diterapkan untuk mengukur kesetaraan gender melalui representasi perempuan dalam peran manajerial di berbagai provinsi. Selain itu, digunakan regresi Panel Corrected Standard Error (PCSE) untuk menganalisis data tingkat provinsi, dengan fokus pada determinan sosial-ekonomi yang mempengaruhi partisipasi perempuan dalam posisi manajerial. Penelitian ini menemukan bahwa sebagian besar provinsi di Indonesia masih berada pada cluster 'rendah' dalam partisipasi wanita pada posisi manajerial. Analisis data panel menunjukkan bahwa pencapaian pendidikan perempuan dan partisipasi perempuan dalam politik secara signifikan meningkatkan representasi perempuan dalam posisi manajerial di seluruh provinsi di Indonesia, sementara tingkat partisipasi angkatan kerja perempuan juga memiliki dampak positif tetapi tidak terlalu besar. Faktor ekonomi seperti PDRB per kapita dan upah tenaga kerja rata-rata tidak menunjukkan dampak yang signifikan, yang menunjukkan bahwa hambatan nonekonomi lebih berpengaruh dalam menentukan peran manajerial perempuan. Secara keseluruhan, temuan tersebut menyoroti pentingnya pendidikan, pemberdayaan politik, dan partisipasi angkatan kerja perempuan

yang lebih luas dalam mempromosikan kesetaraan gender.

**Kata Kunci:** Kesetaraan Gender, Partisipasi Tenaga Kerja Wanita, Posisi Manajerial

Received 2024-08-01

Revised 2024-09-17

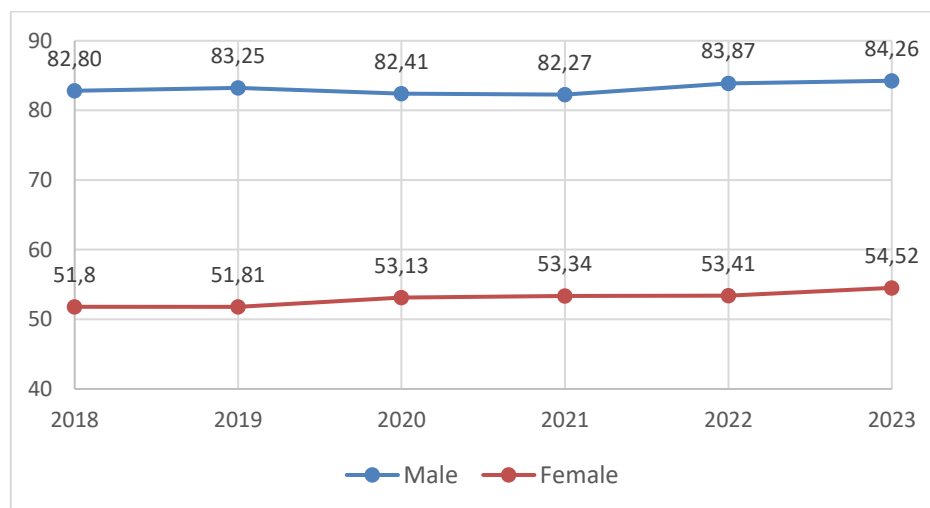
Accepted 2024-11-06

## INTRODUCTION

Gender equality stands as a pillar of the Sustainable Development Goals (SDGs), particularly encapsulated in Goal 5, which aims to eliminate all forms of discrimination against women and girls worldwide. This objective includes ensuring equal access for women to education, healthcare, and employment opportunities, as well as enhancing their participation in decision-making processes at all levels (United Nations, 2024). A critical aspect of achieving gender equality is the enhancement of women's participation in the labor market (Ortiz-Rodrigues & Pillai, 2019; Kabeer, 2021). Ensuring equal opportunities in employment is not merely a matter of social justice but also plays a pivotal role in economic growth and sustainable development (Ortiz-Rodrigues & Pillai, 2019; Carlsen & Bruggemann, 2021; Meshram, 2022). Increased participation of women in the workforce contributes to national productivity, fosters diversity in business decision-making, and informs public policy, collectively advancing a more inclusive and equitable society (Kossek & Buzzanell, 2018; Salazar & Moline, 2023).

In Indonesia, there has been a noticeable trend of increasing women's participation in the labor market in recent years, although the participation rates are still significantly lower than men's (Figure 1).

Figure 1. Labor Participation Rate in Indonesia



Source: BPS - Statistics Indonesia (2023)

The male labor force participation rate (LFPR) reached 84.26 percent in 2023, marking an increase of 0.39 percentage points from the previous year. Similarly, the female LFPR increased by 1.11 percentage points, rising from 53.41 percent

in 2022 to 54.52 percent in 2023. The greater increase in female LFPR compared to males indicates a narrowing gender gap in labor market participation opportunities. Furthermore, female LFPR shows a relatively moderate trend compared to male LFPR, which has exhibited more fluctuation during the period from 2018 to 2023.

Traditionally, societal norms often restricted women to domestic roles (Singh & Pattanaik, 2020; Karim et al., 2023), but economic development and changing attitudes have gradually expanded opportunities for women in various sectors (Kabeer, 2021). Government policies promoting gender equality and women's empowerment have played a crucial role in this shift (Eden & Wagstaff, 2021; Saari et al., 2021). Programs aimed at improving access to education and vocational training for women have helped equip them with the skills necessary to enter and succeed in the workforce (Akuffo, 2024). Additionally, initiatives to enhance work-life balance, such as flexible working arrangements and parental leave policies, have supported greater female labor force participation (White & Maniam, 2020). Despite these advancements, challenges such as persistent gender stereotypes and cultural expectations continue to hinder women's full integration into the labor market. However, the upward trajectory of women's participation in Indonesia's labor force reflects a promising trend toward greater inclusivity and economic empowerment, paving the way for continued progress in gender equality and sustainable development.

Despite the progressive strides toward gender equality, pervasive gender stereotypes and traditional domestic roles remain significant barriers to women's full participation in the labor market, particularly in accessing managerial positions. Globally, women accounted for nearly 40 percent of total employment but held only 28.2 percent of management positions in 2021. Progress on increasing women's representation in management has been slow, with only a 1.0-percentage-point increase since 2015 (United Nations, 2023). Stereotypes about women often assign women to roles primarily associated with caregiving and domestic responsibilities, limiting their career aspirations and professional advancement (Epstein, 2022). As a result, women encounter barriers such as reduced access to career development opportunities, disparities in pay compared to their male counterparts, and underrepresentation in leadership roles. Addressing these stereotypes and restructuring workplace norms are essential to enabling women to compete equitably in the labor market, fostering an environment where both men and women can thrive professionally and personally.

Numerous studies have documented the positive impact of women in managerial positions on company performance. A study by Catalyst (2020) found that companies with higher representation of women in top management roles experienced better financial outcomes, including a 34% higher total return to shareholders compared to firms with lower female representation. Similarly, research conducted by Dixon-Fyle et al. (2020) revealed that firms in the top

quartile for gender diversity on executive teams were 25% more likely to have above-average profitability than those in the bottom quartile. The International Labour Organization (ILO) (2019) reported that the presence of women in management positions contributes to enhanced organizational performance through improved team dynamics, higher employee engagement, and greater ability to attract top talent. Additionally, Lorenzo & Reeves. (2018) analysis highlighted that gender-diverse leadership teams are better at mitigating risk and driving innovation due to the varied perspectives women bring to strategic decision-making. These findings underscore the business case for gender diversity, illustrating how women in managerial roles not only foster a more inclusive corporate culture but also directly contribute to a company's competitive edge and long-term success.

This research aims to investigate gender equality in the context of women's participation in managerial positions in Indonesia by clustering provinces into groups based on their level of gender equality. It will then analyze socio-economic determinants that influence women's ascent to managerial roles. With the combination of quantitative data and qualitative insights from the literature, the study addresses gaps in the existing literature by providing localized insights and actionable recommendations for policymakers and corporate leaders, ultimately fostering inclusive labor markets and sustainable development across the country. By clustering provinces based on gender equality levels, the study contributes to providing an understanding of regional disparities in women's access to managerial roles. This localized analysis will help policymakers and stakeholders identify regions that require targeted interventions and enable the tailoring of strategies that account for regional socio-economic characteristics.

## **LITERATURE REVIEW**

The theory of gender stereotypes in the labor market underscores their profound impact on women's experiences and opportunities. These societal beliefs dictate perceived roles, behaviors, and capabilities deemed suitable for men and women, shaping career trajectories significantly (Breda et al., 2020; Tabassum & Nayak, 2021). As in Heilman & Manzi (2022) study, women often confront stereotypes that position them more favorably in caregiving and domestic roles rather than in leadership and decision-making positions, a phenomenon known as the "think manager-think male" stereotype. This stereotype suggests that leadership attributes such as assertiveness, decisiveness, and ambition are inherently associated with masculinity, contrasting with communal and empathetic traits typically attributed to femininity. Consequently, women encounter a dual challenge: they must demonstrate competence in roles traditionally dominated by men while navigating societal expectations that prioritize family care responsibilities over career advancement (Gadzali & Ausat, 2023; Yanti et al., 2023).

These entrenched stereotypes manifest in organizational practices and policies that perpetuate gender disparities. Performance evaluations, for instance, may unconsciously favor behaviors aligned with traditional male leadership styles, disadvantaging women who exhibit collaborative or participative leadership approaches (Offermann & Foley, 2022). Similarly, recruitment and promotion processes influenced by gender stereotypes may overlook highly qualified female candidates or subject them to more rigorous evaluation criteria compared to their male counterparts (Tabassum & Nayak, 2021). Consequently, these dynamics contribute to the continued underrepresentation of women in managerial and executive roles, reinforcing organizational hierarchies dominated by men and perpetuating a cycle where gender stereotypes impede women's career progression.

Gender equality in the labor market remains a critical global issue, impacting economic growth and social development. Achieving parity involves addressing systemic barriers that hinder women's full participation in employment opportunities, including discriminatory practices in hiring, wage disparities, and limited access to leadership roles (World Bank, 2023; ILO, 2015). The research underscores that closing the gender gap in labor force participation could significantly boost GDP and foster more inclusive societies (OECD, 2017). Efforts to promote gender equality include implementing policies that support work-life balance, enhancing access to education and vocational training for women, and challenging traditional gender norms that perpetuate inequality (UN Women, 2023). By creating environments where women have equal access to employment, leadership positions, and economic opportunities, societies can unlock the full potential of their workforce and accelerate progress toward sustainable development goals.

Managerial positions within organizations are pivotal for driving strategic initiatives, managing teams, and achieving business goals. These roles involve overseeing operations, setting objectives, and optimizing resource allocation to ensure organizational success and growth (Popoola et al., 2024). For women, managerial positions offer opportunities to contribute diverse perspectives and skills essential for effective leadership and decision-making (Babic & Hansez, 2021). Traits such as empathy, collaboration, and inclusive leadership style are increasingly valued in modern workplaces. Women leaders can also serve as role models and mentors, inspiring others and promoting gender diversity in corporate settings. Their presence in managerial roles contributes to fostering inclusive cultures and enhancing organizational performance (Dashper, 2020, Fine et al., 2020).

The representation of women in managerial positions has been a focal point of research across various disciplines, emphasizing the multifaceted barriers and facilitators influencing their ascent to leadership roles. Human capital theory posits that education significantly contributes to women's career advancement, equipping them with the skills and qualifications necessary for managerial roles

(Becker, 1993). Empirical studies support this, showing a strong correlation between higher educational attainment and an increased likelihood of women attaining leadership positions (Hurley & Choudhary, 2016). The critical mass theory suggests that higher female labor force participation can help overcome gender biases and promote women's leadership by creating a pipeline of potential female managers (Cook & Glass, 2018).

However, structural and societal factors often impede women's progress, with economic growth alone insufficient to ensure gender equality in leadership (Bayeh, 2016). Furthermore, the political representation of women serves as a significant determinant, as female political leaders can inspire and advocate for greater gender equality across sectors, fostering an environment conducive to women's managerial advancement (Rhode, 2017). Despite these insights, wage disparities and organizational cultures continue to pose challenges, indicating the need for comprehensive strategies that address both economic and non-economic barriers to women's leadership (Krawiec, 2016; Babafemi, 2023).

## METHODS

This research utilizes secondary data sourced from Badan Pusat Statistik (BPS-Statistics Indonesia) spanning the years 2018 to 2023 at the provincial level in Indonesia. The dataset includes information on various socio-economic indicators relevant to gender equality, particularly focusing on women's participation in managerial positions. By leveraging this comprehensive dataset, the study aims to analyze trends, patterns, and disparities across provinces over the specified period, providing a robust foundation for understanding the dynamics of gender equality in managerial roles within Indonesia's diverse regional contexts.

To analyze the data, first, this research employs cluster analysis to examine gender equality in Indonesia through the lens of women's participation in managerial positions across its provinces. Cluster analysis is a statistical method used to classify objects or cases (clusters) based on similarity measures derived from data attributes. The goal is to group data points such that objects within the same cluster are more similar to each other than to those in other clusters. Cluster analysis has been employed in earlier studies, such as by Zhu & Liu (2021) for early warning of financial risk and by Wu et al., (2020) for segmenting customer purchase behavior. This study uses the approach of K-means clustering, which partitions data into  $k$  clusters by minimizing the sum of squares of distances between data points and cluster centroids, expressed as:

$$\text{minimize } \sum_{i=1}^k \sum_{x \in C_i} \|x - \mu_i\|^2 \quad (1)$$

Where  $\mu_i$  denotes the centroid (mean) of the cluster  $C_i$ . Cluster analysis requires careful consideration of distance metrics (e.g., Euclidean distance, cosine similarity) to quantify similarities between data points accurately. Validation

techniques such as silhouette analysis and the elbow method assist in determining the optimal number of clusters by evaluating within-cluster cohesion and between-cluster separation.

In addition to analyzing provincial-level data on gender equality in managerial positions, this research employs the Panel Corrected Standard Error (PCSE) method to examine socio-economic determinants influencing women's participation in managerial roles across Indonesia. The PCSE method adjusts for the correlation structure inherent in panel data by providing robust standard errors. This is particularly important when errors exhibit patterns of correlation within the same panel (i.e., across provinces over time) or across panels (i.e., correlations between different provinces). By correcting for these correlations, PCSE improves the efficiency and reliability of the regression parameter estimates compared to ordinary least squares (OLS) regression, which assumes that errors are independent and identically distributed. The PCSE method is particularly suitable for this research because it addresses potential issues of heteroscedasticity and serial correlation that may be present in panel data, which is common in socio-economic studies across different regions and periods like Indonesia's provinces. The equation is formulated as:

$$MAN_{it} = \alpha + \beta_1 GRDP_{it} + \beta_2 EDU_{it} + \beta_3 FLFPR_{it} + \beta_4 WAGE_{it} + \beta_5 POL_{it} + \epsilon_{it} \quad (2)$$

The PCSE model incorporates variables presented in Table 1. These variables are derived from comprehensive datasets compiled by Badan Pusat Statistik (BPS - Statistics Indonesia). By applying PCSE regression, the study aims to identify significant factors that contribute to variations in women's access to managerial positions, offering insights into how broader socio-economic conditions impact gender equality outcomes at the managerial level within Indonesia's provinces.

Table 1. Research Variables

Variable	Definition	Source
Women's participation in managerial positions (MAN)	The involvement and representation of women in roles that require leading, managing, and making strategic decisions within an organization (percent).	BPS - Statistics Indonesia
GRDP percapita (GRDP)	GRDP is divided by the population of the region, expressed in millions of Rupiah. GRDP per capita at constant prices eliminates the effects of inflation, enabling more accurate comparisons across years regarding economic growth and welfare.	BPS - Statistics Indonesia

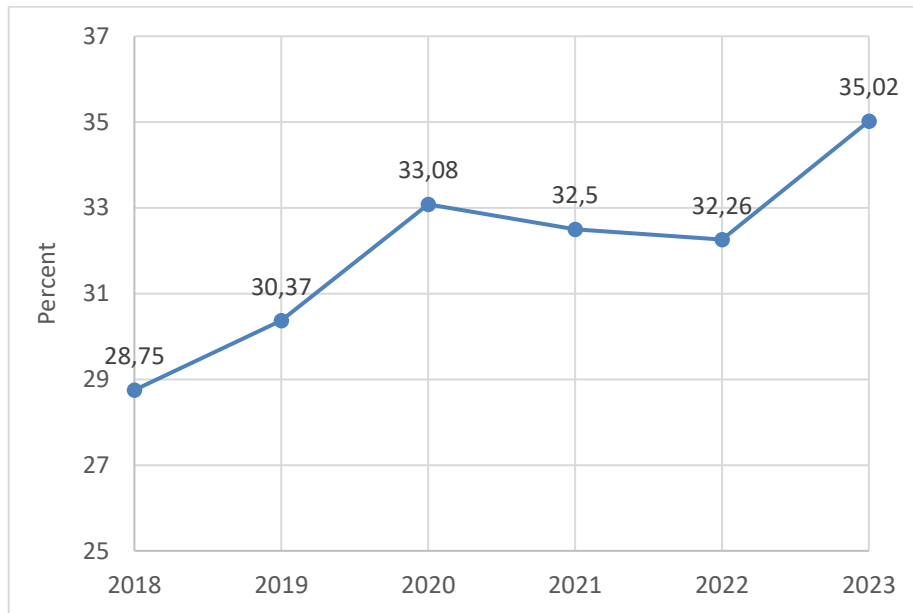
<b>Variable</b>	<b>Definition</b>	<b>Source</b>
Female educational attainment (EDU)	Percentage of women aged 25 years and above with high school education or higher (percent).	BPS - Statistics Indonesia
Female labor force participation rate (FLFPR)	Percentage of women who are part of the labor force compared to the total population of women within the working-age group, typically those aged 15 and above. The FLFPR measures the extent to which women participate in economic activities, whether as workers, entrepreneurs, or job seekers.	BPS - Statistics Indonesia
Labor wage (WAGE)	The average amount of money earned by workers for each hour worked. It reflects the monetary compensation given to workers based on the hours they have completed over a certain period and is calculated in thousand Rupiah.	BPS - Statistics Indonesia
Political representation (POL)	A measure indicating the percentage of seats in parliament occupied by women. It reflects the level of women's involvement and representation in the legislative body, demonstrating their role in policy-making and governance.	BPS - Statistics Indonesia

## **RESULTS**

Women's participation in managerial positions has become a crucial indicator of gender equality and organizational success in today's workforce. Over the past few decades, significant strides have been made in recognizing the value that diverse leadership brings to the corporate environment. Despite the progress, women still face numerous challenges, including gender biases, unequal access to opportunities, and work-life balance issues, which hinder their advancement to top managerial roles.



Figure 2. Women Participation in Managerial Position in Indonesia 2018-2023

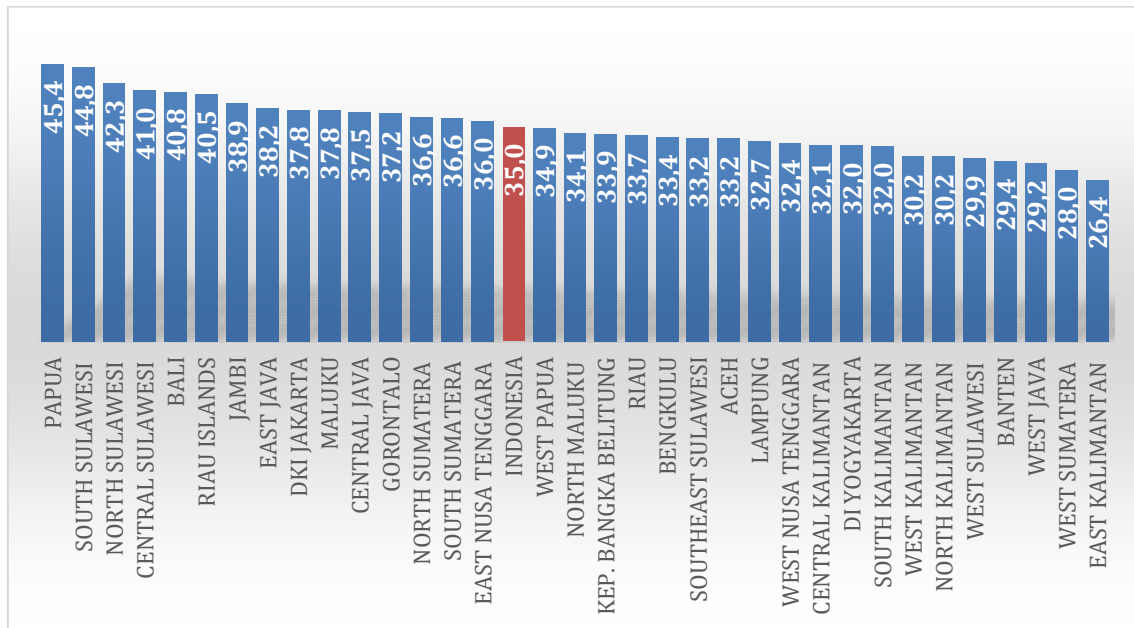


Source: BPS - Statistics Indonesia (2023)

The graph illustrates the trend of women's participation in managerial positions in Indonesia from 2018 to 2023. Starting at 28.75% in 2018, the proportion of women in these roles increased steadily to 30.37% by 2019 and further to 33.08% in 2020. Despite a slight decline to 32.5% in 2021 and 32.26% in 2022, the percentage rose significantly to 35.02% in 2023. Overall, the data indicates a positive trend in the representation of women in managerial roles over the six years.

This trend highlights a general improvement in gender diversity in management within Indonesia. The sharp increase observed in 2020 may reflect the impact of policies or initiatives aimed at promoting gender equality in the workplace. The minor declines in 2021 and 2022 might suggest challenges or adjustments following the rapid growth in 2020. However, the significant rise in 2023 to the highest percentage in the observed period suggests a strong recovery and continued progress towards greater inclusion of women in leadership positions. This upward trend underscores the importance and effectiveness of ongoing efforts to enhance women's representation in managerial roles.

Figure 3. Women Participation in Managerial Positions by Provinces 2023



Source: BPS - Statistics Indonesia (2023)

The graph presents the percentage of women's participation in managerial positions across various provinces in Indonesia for the year 2023. The data indicates significant regional disparities, with Papua leading at 45.4%, followed by Sulawesi Selatan at 44.8%, and Sulawesi Utara at 42.3%. Other provinces such as Bali and Kepulauan Riau also show relatively high percentages, with figures around 41.0% and 40.5%, respectively. The national average for Indonesia is marked at 35.0%, indicating that several provinces are either above or below this average. Nusa Tenggara Timur and Papua Barat have participation rates near the national average, at 36.0% and 34.9%, respectively.

In contrast, provinces like Kalimantan Timur (26.4%), Sumatera Barat (26.7%), and Jawa Barat (29.2%) exhibit the lowest rates of women in managerial roles. This variation suggests a potential influence of local policies, cultural factors, or economic conditions on women's access to leadership positions. The higher percentages in provinces like Papua and Sulawesi might be attributed to effective local initiatives or a greater cultural acceptance of women in managerial roles. Conversely, the lower percentages in provinces such as Kalimantan Timur may highlight areas where further efforts are needed to promote gender equality and support women's advancement in management. This graph underscores the importance of addressing regional disparities to foster inclusive growth and representation in leadership across all provinces.

Figure 4. The Map from Cluster Analysis of Women in Managerial Position



Note: Light blue (cluster 1): *very low*; Dark blue (cluster 2): *low*; Light green (cluster 3): *high*; Dark green (cluster 4): *very high*.

Source: Data Processed (2024)

The map illustrates the results of a cluster analysis of Indonesia's regions based on a specific metric, which appears to be a measure of performance or development status. The color-coding divides the regions into four clusters: light blue (cluster 1) indicating very low performance, dark blue (cluster 2) signifying low performance, light green (cluster 3) representing high performance, and dark green (cluster 4) denoting very high performance. From the map, it is apparent that the western part of Indonesia, particularly Sumatra, and parts of Java, along with some regions in Kalimantan, have a mix of light blue and dark blue, suggesting these areas are lagging in the measured criteria.

On the other hand, regions marked in light and dark green, which depict high and very high performance, are more dispersed, but there is a noticeable concentration in the eastern part of Indonesia, particularly in Maluku, West Papua, and Papua. Sulawesi and some islands in Nusa Tenggara also show a mix of high and very high performance. This distribution may reflect regional disparities, with eastern Indonesia showing relatively better performance in this specific analysis compared to some western areas. Understanding the underlying factors driving these disparities would be crucial for targeted policy interventions and resource allocation.

Table 2. Cluster Analysis Result Based on Provinces' Women in Managerial Position

Cluster	Total Province	Province
Cluster 1	7 provinces	Banten, West Java, West Kalimantan, East Kalimantan, North Kalimantan, West Sulawesi,

Cluster	Total Province	Province
( <i>very low</i> )		West Sumatra
Cluster 2 ( <i>low</i> )	12 provinces	Aceh, Bengkulu, DI Yogyakarta, South Kalimantan, Central Kalimantan, Kep. Bangka Belitung, Lampung, North Maluku, West Nusa Tenggara, West Papua, Riau, Southeast Sulawesi
Cluster 3 ( <i>high</i> )	9 provinces	DKI Jakarta, Gorontalo, Jambi, Central Java, East Java, Maluku, East Nusa Tenggara, South Sumatra, North Sumatra
Cluster 4 ( <i>very high</i> )	6 provinces	Bali, Riau Islands, Papua, South Sulawesi, Central Sulawesi, North Sulawesi

Source: Data Processed (2024)

The table outlines the cluster analysis results of Indonesian provinces based on the representation of women in managerial positions. Provinces are categorized into four clusters: Cluster 1 (*very low*) includes 7 provinces such as Aceh and Gorontalo, indicating very low representation. Cluster 2 (*low*) encompasses 19 provinces, including Bali and Banten, showing a slightly better but still inadequate representation. Cluster 3 (*high*) contains 7 provinces like East Kalimantan and Papua, reflecting a more favorable situation. Finally, Cluster 4 (*very high*) consists solely of DKI Jakarta, which stands out for its significant progress in women's managerial representation.

Table 3. Panel Data Estimation Results

Variables	Coef	Panel corrected Std err	z	P>  z
GRDP	-0.00002	0.00001	-1.86	0.062*
EDU	0.2653	0.0524	5.06	0.000***
FLFPR	0.1459	0.0526	2.77	0.006***
WAGE	-0.0001	0.0001	-0.89	0.373
POL	0.3078	0.0292	10.53	0.000***
Constant	11.3305	4.1997	2.70	0.007
Number of observations	204			

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Prob-F

0.0000

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Source: Data Processed (2024)

## DISCUSSION

The panel data analysis in Table 3 investigates various factors influencing women's participation in managerial positions across Indonesian provinces. The dependent variable in this study is the proportion of women in managerial roles, and the independent variables considered are GRDP per capita (GRDP), female educational attainment (EDU), female labor force participation rate (FLFPR), province's average labor wage (WAGE), and women's participation in politics (POL). The findings from this analysis provide insightful correlations between these factors and women's representation in managerial positions.

The coefficient for GRDP per capita (GRDP) is -0.00002 with a marginal significance level (p-value = 0.062). This suggests that as the GRDP per capita increases, women's participation in managerial positions slightly decreases. While this negative relationship is not highly significant, it can be interpreted through economic development theories which suggest that higher GRDP might be associated with a more competitive labor market, potentially limiting women's access to managerial roles (Belenzon & Tsoimon, 2016). The small magnitude of this effect indicates that other factors might play more significant roles in determining women's managerial participation. Additionally, studies have shown that economic growth does not automatically lead to gender equality in employment and leadership opportunities, indicating that structural and societal factors play a critical role (Cabeza-Garcia et al., 2018).

Female educational attainment (EDU) shows a highly significant positive effect on women's participation in managerial roles, with a coefficient of 0.2653 and a p-value less than 0.001. This strong relationship underscores the importance of education in advancing women's careers. Human capital theory supports this finding, as higher educational levels equip women with the necessary skills and qualifications for managerial positions (Becker, 1993). Previous research consistently highlights that education is a crucial determinant for career advancement, enhancing women's competence and competitiveness in the job market, and thus promoting their participation in management (King et al., 2011). Educational attainment is also associated with increased aspirations and empowerment among women, further driving their participation in leadership roles (Hurley & Choudhary, 2016; Pick, 2024).

The female labor force participation rate (FLFPR) has a significant positive impact on the proportion of women in managerial positions, with a coefficient of 0.1459 and a p-value of 0.006. This finding indicates that higher participation of women in the labor force serves as a pipeline for potential female managers. Theories related to critical mass suggest that increased workforce participation by women can help overcome gender biases and promote women's leadership

(Cook & Glass, 2018). As more women enter and remain in the labor market, the likelihood of them ascending to managerial roles increases, highlighting the importance of broader female workforce participation. Previous studies have shown that female labor force participation is positively correlated with women's representation in leadership positions (Kinoshita & Guo, 2015), emphasizing the need for policies that support women's continuous employment and career progression.

Average labor wage (WAGE) has a coefficient of -0.0001 and a p-value of 0.373, indicating no significant effect on women's participation in managerial positions. This result could suggest that wage levels are not a primary determinant for women attaining managerial roles. It might also reflect that wage differences across provinces do not directly translate into opportunities for women in management, pointing to other barriers such as organizational culture or gender discrimination that are not captured by wage alone. The insignificance of this factor calls for a deeper investigation into non-economic barriers that may hinder women's career advancement. Research has shown that while wage equality is important, it must be complemented by other measures such as mentorship programs, leadership training, and organizational policies promoting gender diversity (Yen et al., 2019).

Women's participation in politics (POL) has a highly significant positive influence on their presence in managerial positions, with a coefficient of 0.3078 and a p-value less than 0.001. This strong relationship suggests that provinces with higher political representation of women also see more women in management. Role model and empowerment theories explain this finding, where visible female leaders in politics can inspire and advocate for greater gender equality in other sectors, including corporate management (Meena et al., 2017). Political representation thus plays a critical role in advancing gender parity, indicating that empowering women in politics can have a broader impact on societal gender norms and leadership opportunities. Studies have demonstrated that increased female political representation is associated with more inclusive policies and greater emphasis on gender equality across various domains (Hessami & da Fonseca, 2020; Reeves et al., 2022).

## CONCLUSIONS

In conclusion, the analysis highlights the significant positive impacts of educational attainment and political participation on women's managerial participation. While economic factors like GRDP per capita show a marginal negative effect, and labor force participation positively contributes, the study underscores the complex interplay of economic, social, and political factors. These findings implied the crucial role of education and political empowerment in advancing gender equality in leadership positions.

The findings of this research align with the broader literature on gender equality, particularly regarding the positive impact of education and political

participation on women's leadership roles. These results confirm established theories that higher educational attainment and active political engagement significantly enhance women's chances of ascending to managerial positions. While labor force participation positively contributes, economic factors like GRDP per capita show a marginal negative effect, suggesting that economic growth alone does not guarantee gender parity in leadership. This interplay of economic, social, and political factors supports the holistic approach advocated in gender studies, highlighting the need for integrated policies to promote women's leadership. These findings contribute to ongoing discussions by emphasizing the complexity of achieving gender equality in leadership and calling for further research into context-specific dynamics.

#### **AUTHOR CONTRIBUTION STATEMENT**

In this research, all authors made significant contributions. AM conceptualized the study, developed the theoretical framework, and contributed to the literature review also assisted in refining the research design. FF led the data collection and also conducted the data analysis process. MD contributed to data collection and statistical analysis, providing critical insights into the interpretation of results. RS oversaw the project administration, coordinated the collaboration among authors, and contributed to writing. All authors reviewed and approved the final manuscript.

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