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# Women as Drivers of Philippine Rural Development: Analyzing the Role of Women's Employment in Shaping Regional Poverty Dynamics and Human Development Using Seemingly Unrelated Regression

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## ABSTRACT

This research examines the impact of women's employment on poverty dynamics and human development in the rural regions of the Philippines. Despite progress in gender equality legislation, women's participation in the labor force remains constrained by traditional gender roles, cultural expectations, and institutional barriers. Anchored in Social Role Theory and Gender Schema Theory, the study examines how these frameworks influence women's labor market outcomes and socioeconomic contributions. Using panel data from 16 rural regions between 2018 and 2023, the research employs Pearson Correlation and Seemingly Unrelated Regression (SUR) to examine the relationships among women's labor force participation rate (WLFPR), number of employed women (NEW), poverty incidence (PVI), and the regional human development index (RHDI). Findings indicate that higher female employment and labor force participation are significantly correlated with reduced poverty incidence and improvements in human development. However, results also highlight the limitations of relying solely on employment indicators, pointing to the need for broader measures of gender equality, such as the gender wage gap, sectoral employment distribution, and legal frameworks as identified in the Philippine Commission on Women's (PCW) Compendium of Indicators for Gender Equality and Women's Empowerment (GEWE). The study concludes that empowering women through employment is essential to rural development, but the scope of analysis is limited to 16 regions and PSA census-based data, which requires cautious interpretation. Policy recommendations include childcare support, skills development programs, and reforms aimed at dismantling restrictive gender norms. By addressing both socio-cultural and institutional barriers, this study provides insights for policymakers to promote inclusive and sustainable rural development.

**Keywords:** *poverty incidence, women employment, women labor force participation, rural development, economics of women employment*

## **INTRODUCTION**

The Philippines in the 21st century has made significant progress in promoting gender equality, particularly through legal and institutional reforms. Landmark laws such as the Magna Carta of Women (2009) and the Anti-Violence Against Women and Their Children Act (2004) have strengthened women's rights, while literacy rates remain high among both men and women, reflecting relatively equal access to education. As of 2022, women constitute nearly half (49.6%) of the national workforce, and many occupy leadership positions in government, corporations, and civil society. Nevertheless, persistent barriers—ranging from cultural norms to structural inequalities—continue to restrict women's full participation in the labor market, creating a bottleneck toward their recognition as vital drivers of economic growth and development.

In a predominantly Roman Catholic country (78.8% of the population), religious and cultural traditions have historically shaped expectations regarding women's roles. While Catholic conservatism remains influential, other factors—including entrenched patriarchal values, machismo culture, and socio-economic inequalities—also contribute to limiting women's employment opportunities. For example, in Philippine politics, women held only 16% of elected positions in 1998 and 21% in 2016, reflecting both cultural and institutional barriers to gender parity.

Against this backdrop, this study explores how women's employment affects poverty reduction and human development in rural regions of the Philippines. Specifically, it seeks to answer the following questions: (1) What is the relationship between female employment and labor force participation, and (a) poverty incidence and (b) regional human development in rural regions of the Philippines? (2) What policies can effectively enhance female employment and labor participation to further reduce poverty and improve human development outcomes?

By focusing on the intersection of gender, employment, and rural development, this study aims to provide evidence-based insights for policymakers. Moreover, it acknowledges its limitations, covering only 16 rural regions and relying heavily on PSA census-based data, while highlighting the need for complementary indicators such as wage disparities, sectoral participation, and supportive legal frameworks to capture the broader dynamics of women's empowerment.

## **Theoretical Framework**

To analyze how women's employment and labor participation affect poverty incidence and the Human Development Index (HDI) in the rural regions of the Philippines, this study applies Social Role Theory and Gender Schema Theory. These theories provide

complementary frameworks for understanding how societal norms and cognitive processes shape women's labor market participation and, consequently, broader socio-economic outcomes.

Social Role Theory, developed by Alice Eagly and colleagues in the late 1980s, posits that gender differences in attitudes and behavior are largely the result of societal expectations tied to traditional roles. In the Philippine context, women are often socialized into caregiving and domestic roles, which constrain their participation in formal employment and leadership positions. This limited participation reduces household incomes and community development contributions, thereby perpetuating cycles of poverty and hindering HDI progress. From this perspective, policies that challenge traditional gender roles, such as childcare support, flexible work arrangements, and affirmative employment policies, are essential to improving women's labor market outcomes.

Gender Schema Theory, introduced by Sandra Bem in 1981, emphasizes how individuals internalize gender norms through cognitive frameworks. These schemas influence self-concept, career aspirations, and decision-making. In the Philippines, gender schemas often encourage women to self-select into lower-paying or care-related jobs, reinforcing stereotypes and limiting their presence in high-impact economic sectors. This internalization process constrains women's potential contributions to poverty reduction and regional development. Interventions, therefore, must not only challenge external barriers but also reshape internalized gender expectations through education, awareness campaigns, and diverse female role models.

Finally, to situate this analysis within a policy framework, this study also references the Philippine Commission on Women's (PCW) Compendium of Indicators for Gender Equality and Women's Empowerment (GEWE). These indicators include labor force participation, gender wage gaps, employment-to-population ratios, and sectoral distribution of women's employment. By considering both cultural-theoretical frameworks and institutional measures such as GEWE, the study provides a more comprehensive understanding of how women's employment shapes rural development outcomes.

## **Review of Related Literature and Studies**

### ***A. Factors of Women's Unemployment and Its Economic Impact***

Significant legislation and policies in the Philippines aim to address various gender-related issues, such as destabilizing traditional gender roles, combating gender stereotypes, preventing violence, increasing women's representation, challenging machismo culture, and countering conservative beliefs rooted in religion. Consequently, these factors affect

the quality and experience of women's employment and its potential contribution to rural development. In fact, gender differences in laws and policies impact both developed and developing countries, such as the Philippines. Globally, over 2.7 billion women are legally restricted from having the same job choices as men (World Bank, 2024), which can be attributed to traditional gender roles and other socio-cultural norms. Moreover, the same study revealed that approximately 69 economies worldwide have laws restricting women's decisions to work. As a result, women are less likely to participate in the labor market than men, with a labor participation rate of 60% for women compared to 90% for men in 2022 (Albert & Vizmanos, 2017; ILOSTAT, 2023). Thus, women are more likely to be unemployed than men (ILO, 2023).

Various factors influence global female unemployment. In studies conducted by Viljoen (2013), Mihret (2019), , and the World Bank (2024), several factors identified in the cases of South African, Ethiopian, and Filipino women include education level, household size, age, marital status, access to social grants, and poverty status. Furthermore, experiences from the Arab Spring reveal that institutional barriers and gender discrimination are key factors contributing to higher unemployment rates among young women compared to men (Fakih, 2020). In the local context, educational disparities, cultural norms, and limited access to employment opportunities are significant contributors to women's unemployment. Additionally, women are often expected to prioritize family responsibilities over their careers, which also leads to higher unemployment rates (ADB, 2013; World Bank, 2022). Given that many domestic duties are unpaid, women face significant challenges that hinder their access to training and resources (ADB, 2013).

Supported by another World Bank report, key barriers to women's unemployment in the Philippines include traditional gender roles, discrimination in the hiring process, and limited access to education and training (World Bank, 2022). Moreover, a UN report revealed that the higher unemployment rate of women compared to men can be attributed to barriers to employment and gender inequalities in job opportunities and access to social protection (UN Women, 2019).

Moreover, Mihret (2019) established a correlation between higher education levels and lower unemployment rates. Specifically, improving access to education is likely to reduce unemployment rates while enhancing overall economic development. Conversely, high unemployment rates among women can negatively impact economic development in countries such as Nigeria (Ewubare & Ogbuagu, 2017).

### ***B. Traditional and Conservative Beliefs about the Role of Women***

Considering that less than 80% of the Philippine population is Roman Catholics, it is a contributory factor that helps shape political discourse, public policy, societal values, and social norms, which impact economic development (World Bank, 2022; Garcia, De Venecia, & Aliposa 2024). Likhaan Center for Women's Health (2020) asserts that conservative religious beliefs limit women's rights to make choices about their bodies. The role of traditional family structures and religious beliefs also reflects social norms and values (Umali, 2020). Additionally, societal expectations usually limit women to their domestic duties and limit their economic participation and traditional views on gender roles significantly restrict women in their access to education and employment opportunities (Choi, 2018).

A few studies have also shown that women are expected to prioritize family or domestic responsibilities over their careers, which contributes to higher unemployment among women (ADB, 2013; World Bank, 2022). Given the number of unpaid domestic duties, this lack of a direct income source is a key challenge to women in the Philippines, making them incapable and far from access to training and resources (ADB, 2013). Meanwhile, another World Bank report shows that key barriers to women's unemployment in the Philippines include traditional gender roles, discrimination in the hiring process, and limited access of women to education and training (World Bank, 2022), and traditional beliefs continue to influence perceptions of women's capabilities and roles (Baleda, 2024). Traditional social norms on gender roles significantly limit women's participation in the labor force and reveal that about 80% of Filipinos believe that a man's job is to earn money while a woman's job is to take care of their family and do the domestic responsibilities (Belhaj-Hassine & Fernandez, 2021).

### ***C. Women's Limited Representation***

The established conservative cultural and societal norms contribute to the limited representation of women in government (ADB, 2013; Likhaan Center for Women's Health, 2020). Despite vital steps toward progress, female representation and participation in global politics remain below parity (UN Women, 2019). The Organization of Economic Co-operation and Development (OECD) revealed that women across various countries including the Philippines hold approximately 30% of parliamentary seats which can be attributed to low women representation in the government across countries (OECD, 2022) and that same report emphasizes that increasing women's political representation and participation can lead to more inclusive governance and policies that will benefit women and their children. (OECD, 2022). While electoral policies for women inclusion and empowerment are in place, socio-cultural norms and economic constraints limit them to run for office or engage politically in the Philippines (Franco & Laguna, 2023) making the country ranks relatively low in the

Global Gender Gap Reports 2021 across various domains and aspects due to the limited female representation in leadership roles (World Economic Forum, 2021). The United Nations Development Programme (UNDP) emphasizes that achieving gender equality requires targeted interventions to increase women's representation at all levels of decision-making (UNDP, 2019).

Despite the recognition of women's employment as a critical factor influencing economic growth and social development, much of the existing literature fails to comprehensively analyze the direct relationship between women's labor force participation, the Human Development Index (HDI), and poverty incidence in the Philippines. Current studies often emphasize findings without adequately examining how variations in women's employment across different sectors and regions contribute to overall human development outcomes. A 2022 World Bank report emphasized the economic potential of increasing women's employment rates and labor participation (World Bank, 2022). A study published by the Philippine Institute for Development Studies (PIDS) revealed that gender inequality in labor force participation is linked to poverty rates and considered an economic implication of gender inequality (PIDS, 2020).

#### ***D. Women's Employment and Rural Development***

Globally, studies have shown that women's employment significantly contributes to poverty alleviation, food security, and social development (FAO, 2023). In the Philippine context, Sobritchea (2004) highlighted how women's participation in rural development, particularly in agriculture and small enterprises, has historically been undervalued despite being essential for community resilience. More recent reports (PCW, 2022; FAO, 2023) stress that women's participation in rural economies improves household welfare, children's education, and community health. However, women continue to face systemic barriers such as unequal access to land, limited training opportunities, and gender-based discrimination.

In the absence of a regional analysis on the impact of women's employment on development, this study fills the gap on the regional variations in the Philippines to consider and settle regional differences. A panel data analysis helps investigate how women's employment improves regional human development and reduces poverty incidence.

## **METHODOLOGY**

This study investigates the relationship between women's employment, poverty incidence, and the regional Human Development Index (RHDI) in the rural regions of the Philippines. A panel data design was adopted, incorporating observations from 16 regions over six years (2018–2023). Panel data, also known as longitudinal or cross-sectional time-series

data, combines information across both time and entities. This approach allows researchers to control for unobserved heterogeneity, observe dynamic changes over time, and improve the robustness of causal inference (Wooldridge, 2010).

## **Research Design**

The dependent variables are Poverty Incidence (PVI)—the proportion of the population living below the national poverty threshold—and Regional Human Development Index (RHDI), which captures outcomes in health, education, and living standards. The independent variables are the Women's Labor Force Participation Rate (WLFPR) and the Number of Employed Women (NEW). It is hypothesized that higher female labor force participation and employment levels are associated with lower poverty incidence and higher human development in rural regions.

## **Target Population, Sampling Strategy, and Data Collection**

The study focuses on 16 provinces, one from each region except the National Capital Region (NCR). NCR was excluded because its population is classified as 100% urban, which falls outside the study's rural focus. Within each region, the province with the highest poverty incidence was purposively selected. This approach ensured that the study concentrated on areas most affected by poverty, where women's employment could have the most visible impact.

Data were primarily drawn from the Philippine Statistics Authority (PSA). While the 2020 Census provided a key baseline for population and employment data, supplementary statistics (2018–2019 and 2021–2023) were obtained from PSA's annual labor force surveys and poverty incidence reports. Where discrepancies existed between census and survey data, adjustments were made by applying PSA's published estimation methods to ensure consistency across the six years.

## **Methodology**

A quantitative research design employing descriptive, inferential, and correlational analyses was used in this study, which sought to answer how female employment and labor force participation affect poverty incidence and regional human development. This study employs a panel data design, incorporating observations from 16 rural regions in the Philippines over a six-year period (2018-2023), identified based on the 2020 Census Report of the Philippine Statistics Authority, which classifies regions by rural population. Thus, excluding the National Capital Region (NCR), as it has 100% population classified as urban population. Moreover, this study includes only 16 out of 17 Regions, comprising 1, 2, 3, 4A,

4B, 5, 6, 7, 8, 9, 10, 11, 12, 13, CAR, and BARMM. First, Pearson correlation coefficients are computed to assess relationships between female employment and labor force participation, poverty incidence and regional HDI. This correlation analysis provides preliminary insights into how these variables interact with one another before conducting more complex regression analyses.

Second, the Seemingly Unrelated Regression Equation (SURE) used multidimensional data that contain observations of multiple phenomena obtained over various periods for the same firms, country, entity, or individuals. The Seemingly Unrelated Regression (SUR) model is widely utilized in the Econometric literature (Greene, 1993); its benefits have been explored by several authors, and more recently, the SUR model.

Zellner (1962) reported that the SUR estimation procedures enable an efficient joint estimation of all the regression parameters, which involve the application of Aitken's Generalized Least Squares (AGLS), to the entire system of equations. Zellner (1962 & 1963) affirmed that the joint estimation procedure of SUR is more efficient than the equation-by-equation estimation procedure of the Ordinary Least Squares (OLS), and the gain in efficiency would be magnified if the contemporaneous correlation between each pair of the disturbances in the SUR system of equations is very high and explanatory variables in different equations are uncorrelated. The efficiency in the SUR formulation increases the correlation between the error vector and zero, and the closer the explanatory variables for each response are to being uncorrelated. When the efficiency of the SUR formulation increases, the more the correlations between the error vectors are from zero, and the closer the explanatory variables for each subject's response are not correlated. This discussion is on how to select variables and parameter estimators for the Seemingly Unrelated Regression model. This study needs to utilize the seemingly unrelated regression estimation since there have been several dependent variables utilized. Due to numerous dependent variables, the regression outcome may have a distinct correlation. The contemporaneous correlation is the regression model when the model residuals of the units observed are correlated at each period in time.

The standard errors for the set of regression parameter estimates in the SUR formulation are given by the diagonal elements of  $(X'\Sigma^{-1}X)^{-1}$ , while for the unrelated formulation, they are the appropriate diagonal elements of  $(\Sigma^{-1})^{-1}$  for  $j=1,2,\dots,p$ . (Greene, 1993). The initial econometric model is as follows:

$$RHDI_{it} = \beta_0 + \beta_1 WLFPR_{it} + \varepsilon_{it} \tag{Eq. 1}$$

$$RHDI_{it} = \beta_0 + \beta_2 NEW_{it} + \varepsilon_{it} \tag{Eq. 2}$$

$$PVI_{it} = \beta_0 + \beta_3 WLFPR_{it} + \varepsilon_{it} \tag{Eq. 3}$$

$$PVI_{it} = \beta_0 + \beta_4 NEW_{it} + \varepsilon_{it} \tag{Eq. 4}$$

Whereas  $i$  denotes the province,  $t$  denotes time (year),  $\beta_0$  is the intercept,  $\beta_1$  and  $\beta_2$  are coefficients representing the impact of Women Labor Force Participation Rate (WLFPR) and Number of Employed Women (NEW) on Regional Human Development Index (RHDI) and Poverty Incidence (PVI), and  $\epsilon$  is the error term.

Using the methodologies above, this study sought to establish a significant negative relationship between WLFPR and NEW with PVI and RHDI, indicating that increased female labor force participation and the number of employed women contribute to reduced poverty levels and increased human development.

While the panel data approach provides a useful framework, several limitations must be acknowledged. In terms of its scope, only one province per region was analyzed, which may oversimplify intra-regional variations. Meanwhile, rural conditions in Luzon, Visayas, and Mindanao differ significantly, and these differences may not be fully captured. Secondly, regarding data constraints, the reliance on 2020 PSA census and survey data restricts the availability of disaggregated indicators such as wage gaps, sectoral employment patterns, and informal work prevalence. Lastly, the generality of findings, with only 16 provinces included, should be interpreted cautiously and not generalized to all rural communities. Furthermore, the word "rural" was taken from the technical notes of the Philippine Statistics Authority (PSA) in the context of the employment rate, while "regional" was used based on the availability and limitation of data for the regional human development index (RHDI) from the PSA.

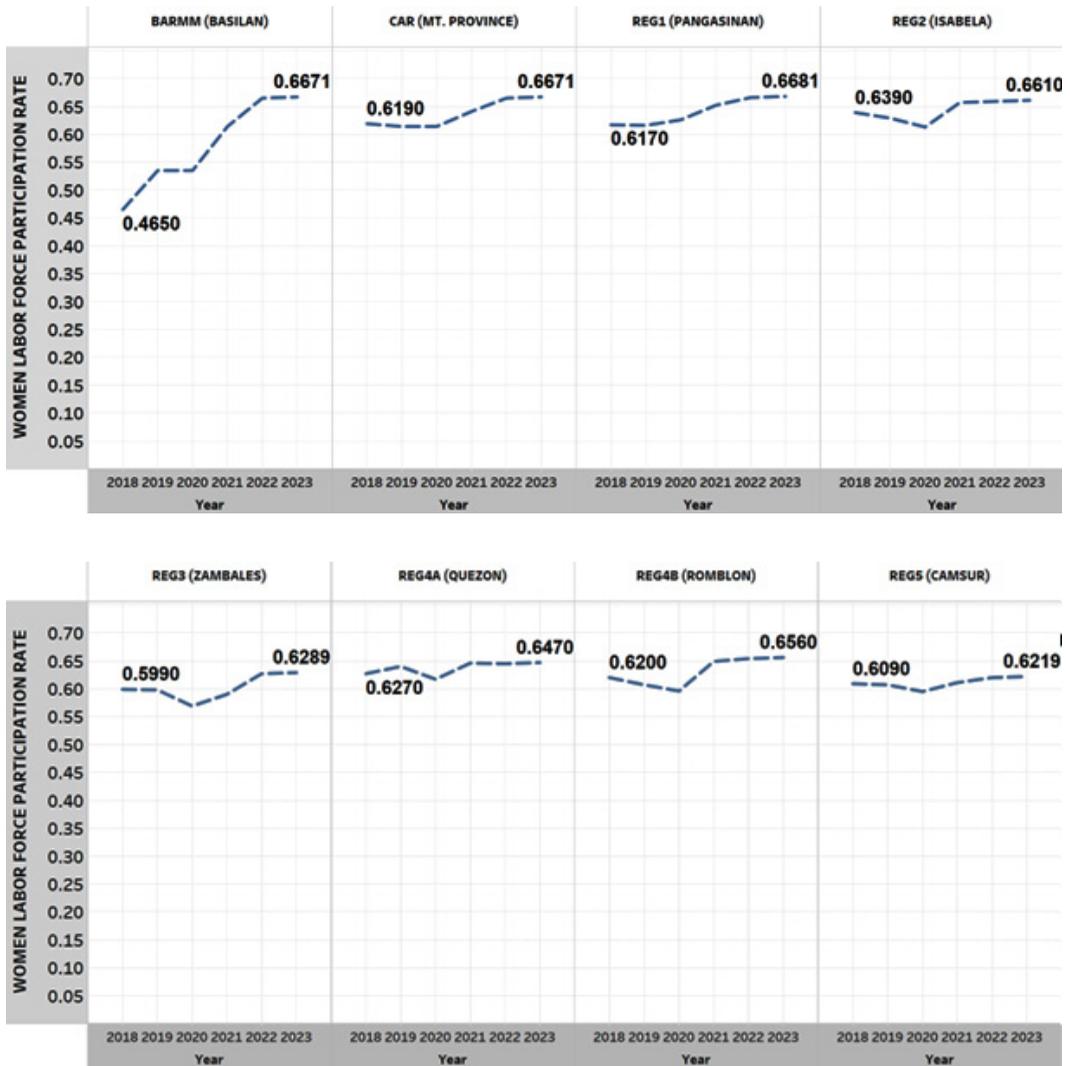
## RESULTS AND DISCUSSION

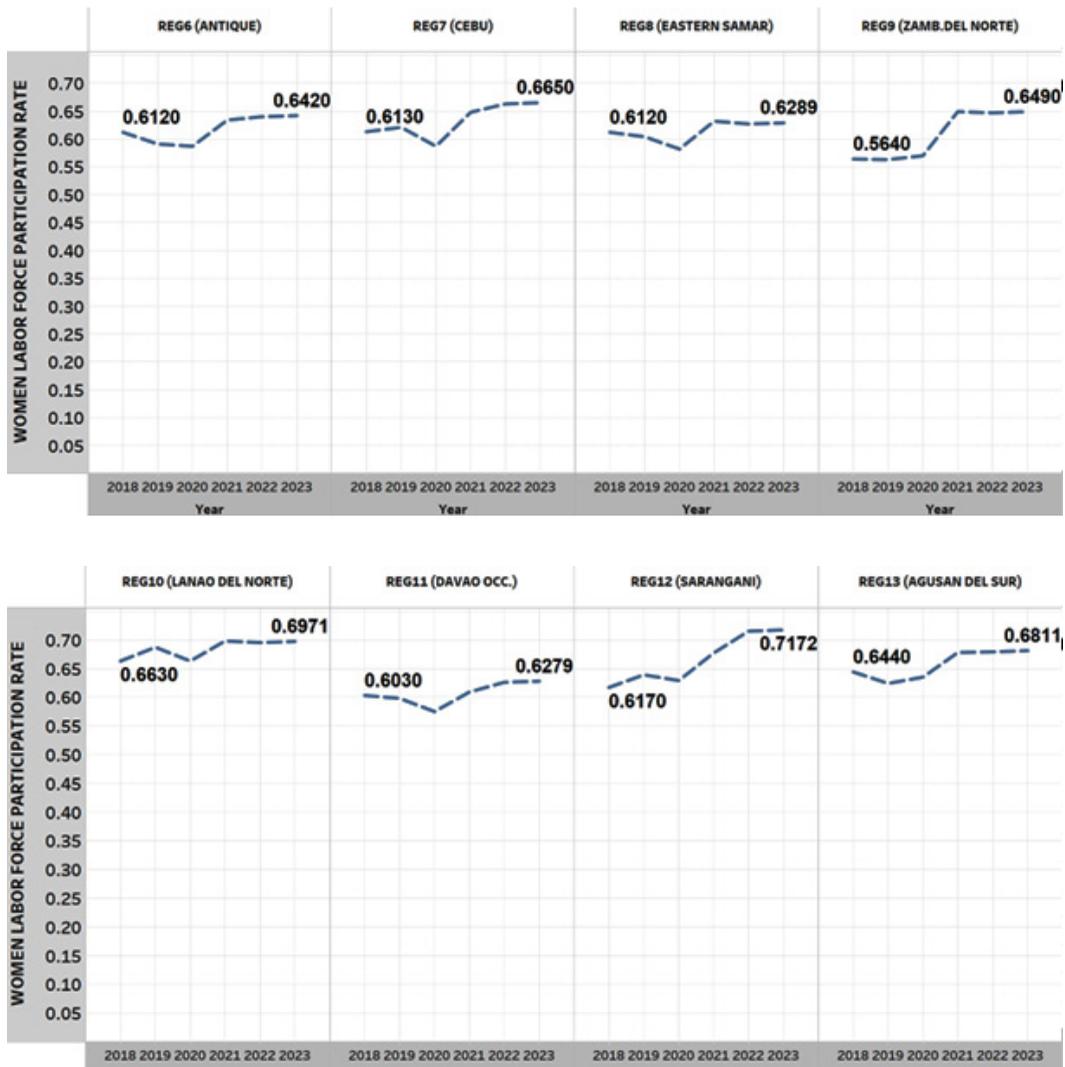
### 1. Behavior of the Independent Variable: Women Labor Force Participation Rate (WLFPR)

The Women's Labor Force Participation Rate (WLFPR) increased gradually between 2018 and 2023, with a sharp decline during the COVID-19 pandemic (2020–2021). Recovery was observed after 2021, particularly in BARMM, which recorded a rise from 0.4650 in 2018 to 0.6671 in 2023. In 2018, Region 10 posted the highest WLFPR, while by 2023, Region 12 had the highest.

**Figure 1**

*Behavior of the Regional Women Labor Force Participation Rate (WLFPR) from 2018 to 2023*



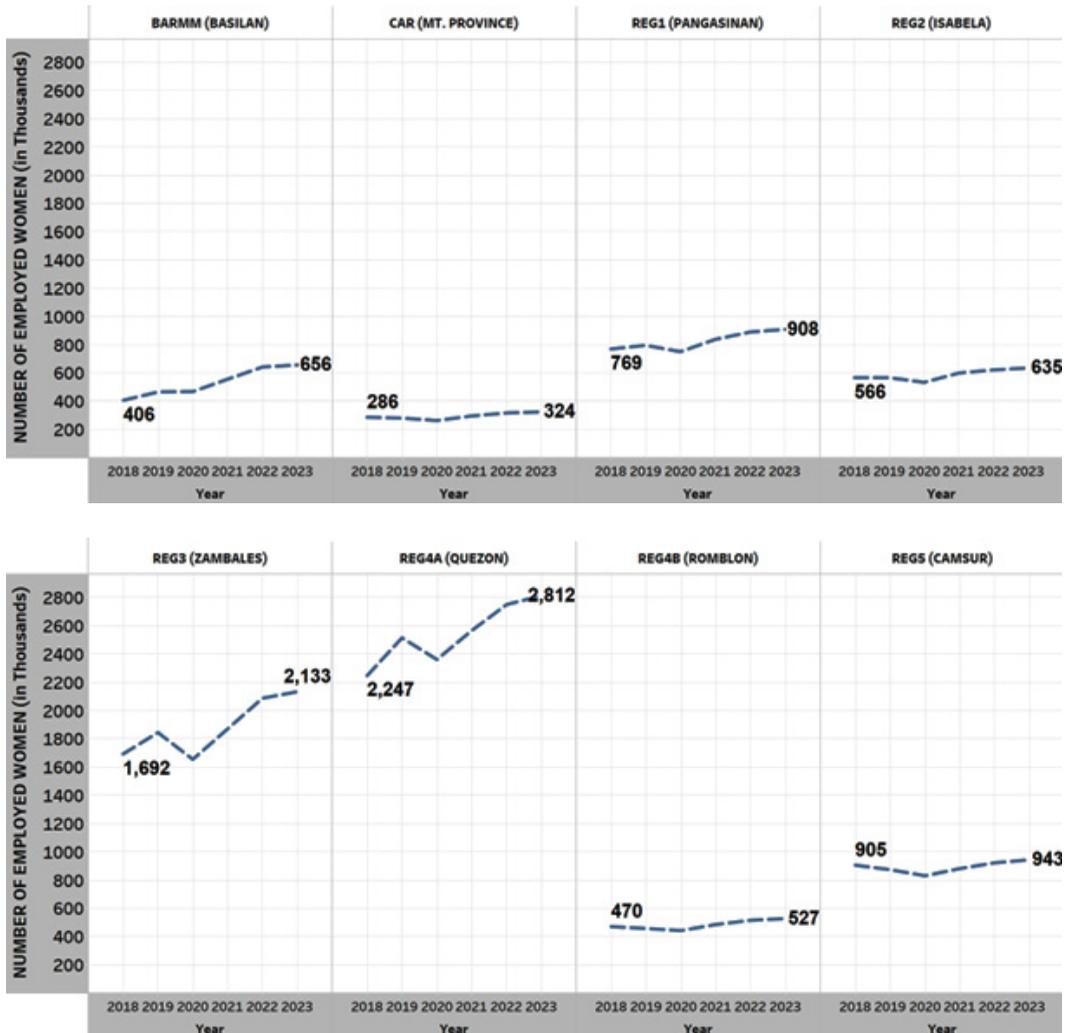


**2. Behavior of the Independent Variable: Number of Employed Women (NEW)**

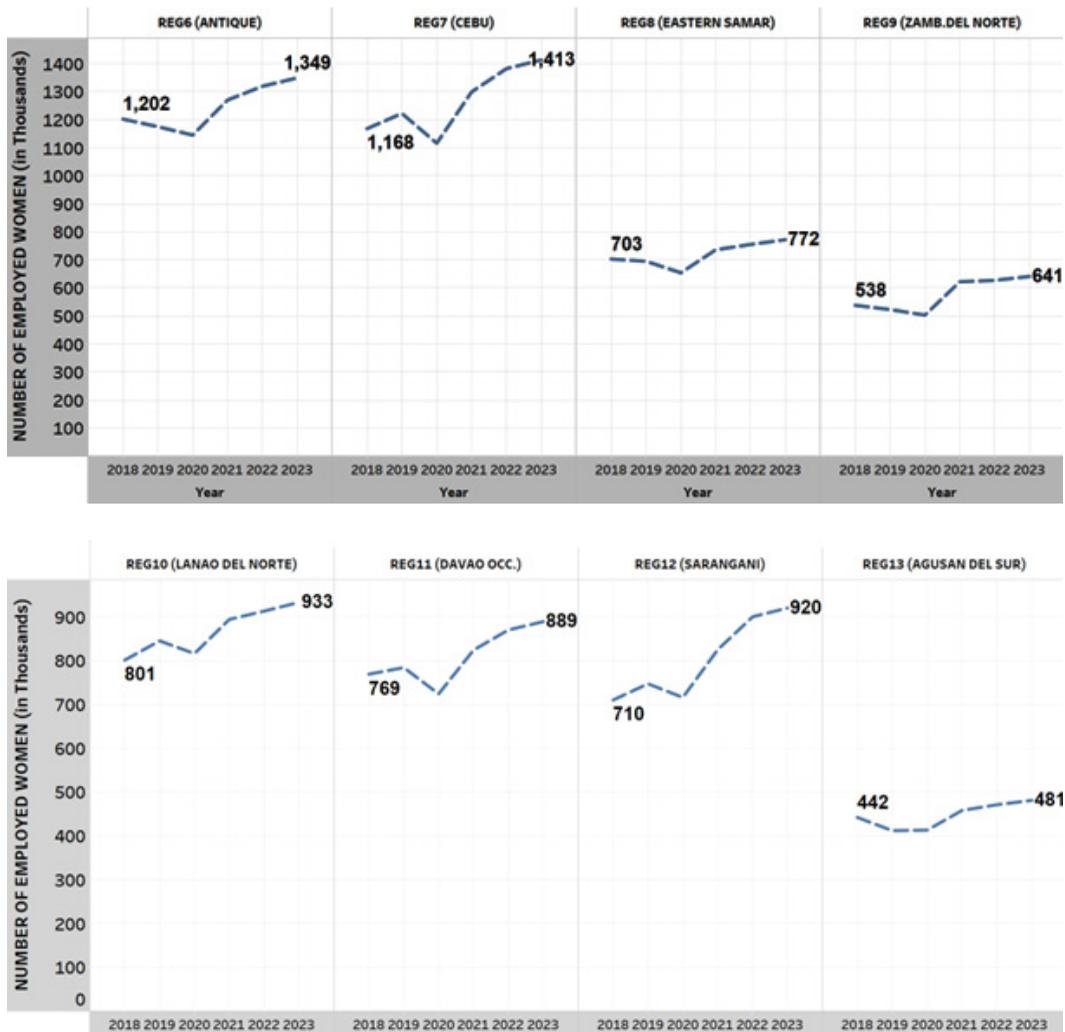
Similarly, the Number of Employed Women (NEW) displayed the same disruption, dropping during the pandemic before rebounding in subsequent years. Region IV-A consistently reported the highest numbers of employed women from 2018 to 2023.

**Figure 2**

*Behavior of the Regional Number of Employed Women (NEW) from 2018 to 2023*



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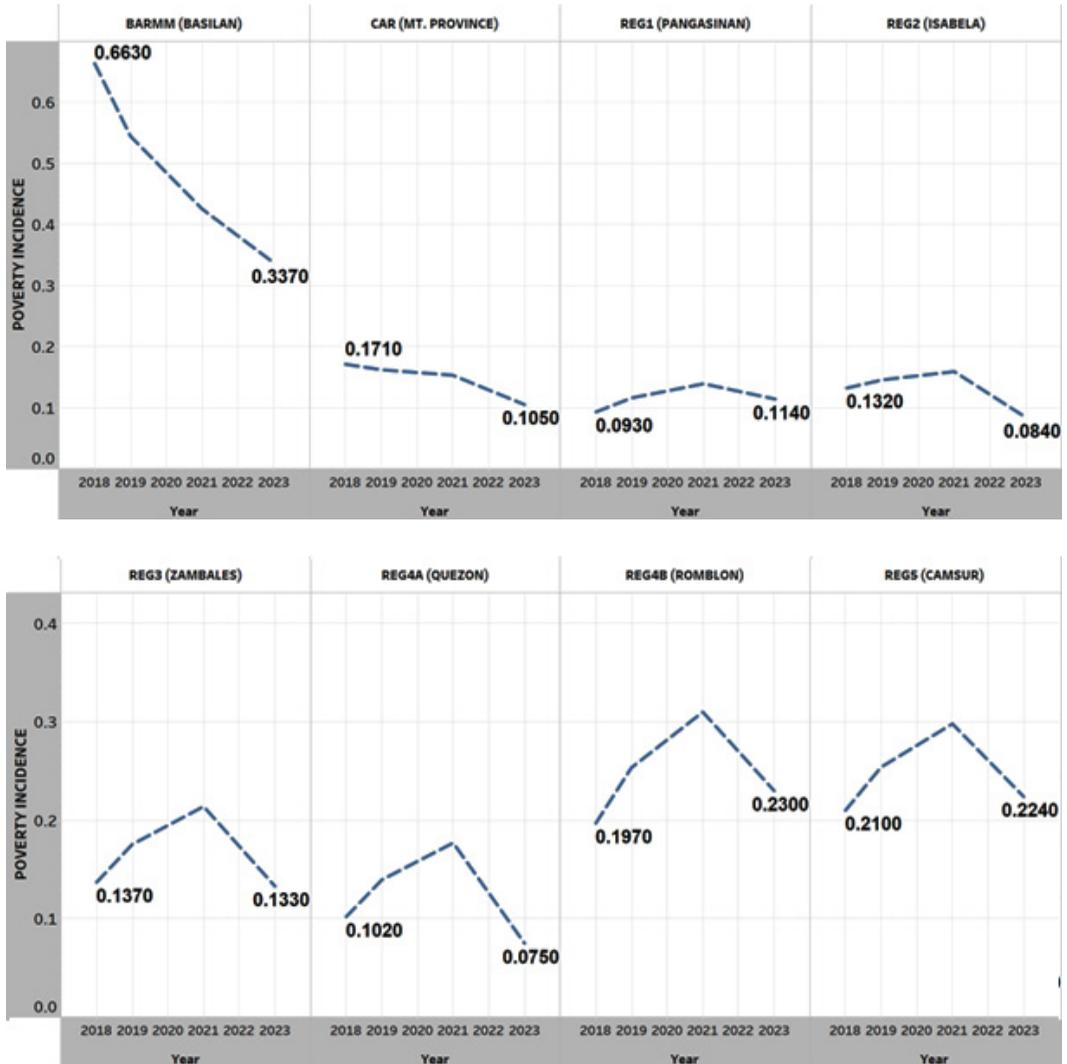


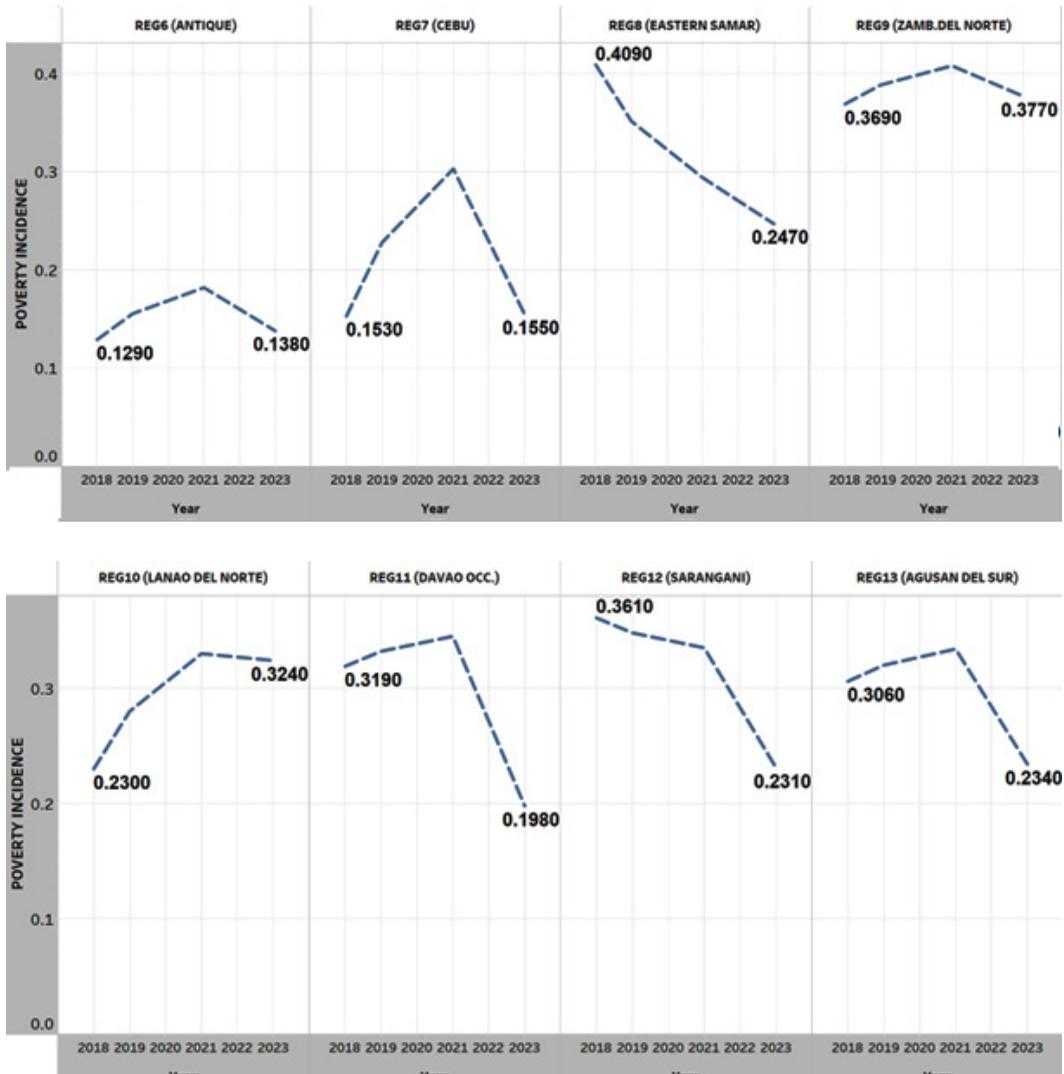
3. Behavior of Dependent Variables: Poverty Incidence (PVI)

The Poverty Incidence (PVI) varied across regions. BARMM, CAR, Region 2, Region 3, Region 4A, Region 8, Region 11, Region 12, and Region 13 reported decreases in poverty between 2018 and 2023, while Regions 1, 4B, 5, 6, 7, and 10 reported increases.

**Figure 3**

*Behavior of the Regional Poverty Incidence (PVI) from 2018 to 2023*



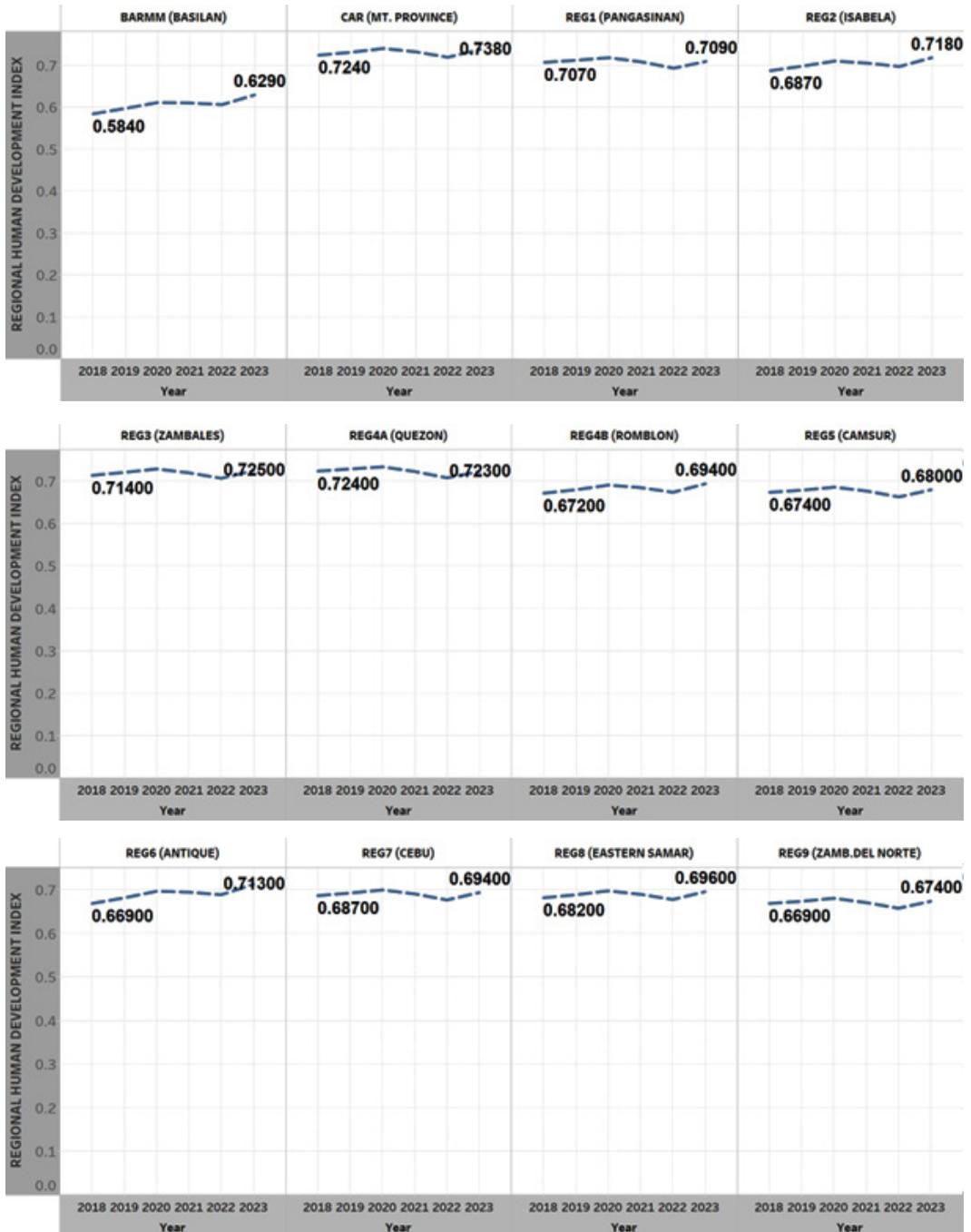


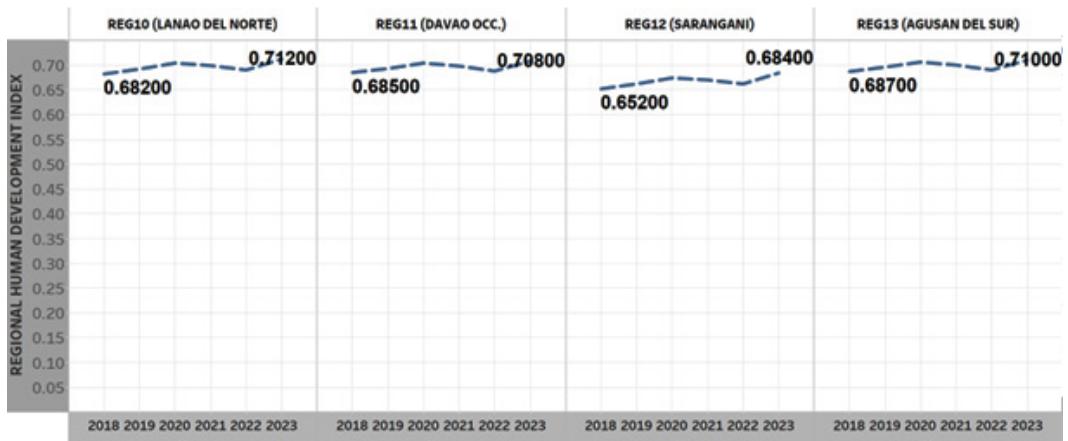
#### 4. Behavior of Dependent Variables: Regional Human Development Index (RHDI)

The Regional Human Development Index (RHDI) also fluctuated, with declines in 2020 attributable to the pandemic. Nevertheless, all regions reported improvements from 2018 to 2023. CAR consistently showed the highest RHDI levels, while Region 4A also performed strongly in earlier years.

**Figure 4**

*Behavior of the Regional Human Development Index (HDI) from 2018 to 2023*





### 5. Pearson Correlation

The table below shows the significance of the correlation between dependent and independent variables in this study. The poverty incidence (PVI) to number of employed women (NEW) has a statistical value of -0.4130 and a p-value of 0.0000 at 1% confidence level; thus, it can be concluded that there is a significant moderate negative correlation between poverty incidence and the number of employed women. Therefore, as the number of women employed increases, the poverty incidence rate declines.

Meanwhile, the poverty incidence (PVI) and women labor force participation rate (WLFPR) have a statistical value of -.03343 with a p-value of 0.0000, which is significant at 1% confidence level; thus, there is a weak negative correlation between the two variables. Therefore, it can be concluded that as the women’s labor force participation rate (WLFPR) increases, the poverty incidence declines.

**Table 1**

*Pearson Correlation Test Result*

Dependent Variables	Independent Variables	P-value	Statistical Value	Interpretation (At 1% level of Significance)
Poverty Incidence	Number of Employed Women	0.0000	-0.4130	<b>Significant</b> (Moderate Negative Correlation)
	Women Labor Force Participation Rate	0.0000	-0.3343	<b>Significant</b> (Weak Negative Correlation)

Dependent Variables	Independent Variables	P-value	Statistical Value	Interpretation (At 1% level of Significance)
Regional Human Development Index	Number of Employed Women	0.0000	0.3462	<b>Significant</b> (Weak Positive Correlation)
	Women Labor Force Participation Rate	0.0000	0.2733	<b>Significant</b> (Weak Positive Correlation)

*Interpretation: 0.00 – 0.19, Very Weak Correlation; 0.20 – 0.39, Weak Correlation; 0.40 – 0.59 Moderate Correlation; 0.60 – 0.79, Strong Correlation; 0.80 – 1.00, Very Strong Correlation*

In addition, the regional human development index (RHDI) and number of employed women (NEW) have a statistical value of 0.3462 with a p-value of 0.0000, which can be interpreted as a significant weak positive correlation. Thus, it can be concluded that there is a weak positive correlation between RHDI and NEW, as the number of employed women (NEW) increases, then the regional human development index (RHDI) declines.

Lastly, the regional human development index (RHDI) and the women labor force participation rate (WLFPR) have a statistical value of 0.2733 with a 0.0000 p-value, which is significant at 1% confidence level. Thus, there is a weak positive correlation between the two variables, and as the women’s labor force participation rate (WLFPR) increases, the regional human development index (RHDI) also increases.

These results suggest that higher women’s employment and participation reduce poverty incidence while contributing positively to human development. However, the correlations are generally weak to moderate, indicating that employment is an important but not the sole driver of rural development outcomes.

### 6. Panel Regression: Seemingly Unrelated Regression (SUR)

The result of the Seemingly Unrelated Regression is also significant at 1% confidence level with p-values of 0.005, 0.000, 0.000, and 0.000. This econometric model can explain how the independent variables affect the dependent variables, the regional human development index (RHDI) and poverty incidence (PVI).

**Table 2**

*Seemingly Unrelated Regression (SUR) Result*

Dependent Variable	Constant	Independent Variable	Error Term	P-value
RHDI	0.55477	+ 0.19030 WLFPR	+ 0.06844	0.005
		+ 0.00001 NEF	+ 4.75000	0.000
PVI	0.86339	- 0.86431 WLFPR	+ 0.24028	0.000
		- 0.00007 NEF	+ 0.00001	0.000

The first equation model (Eq. 5) shows a positive relationship between RHDI and WLFPR, and a one-unit increase in the women’s labor force participation rate (WLFPR) will cause a 0.1903 increase in the regional human development index (RHDI). In addition, as a one-unit increase in time (years) holding the WLFPR constant, the regional human development index will increase by 0.06844.

Meanwhile, the second equation model (Eq. 6) shows a positive relationship between the number of employed women (NEW) and the regional human development index (RHDI). As the NEW increases by one unit, the RHDI increases by 0.00001 units. Moreover, as the time increases by a unit, the RHDI increases by 0.4750.

$$RHDI_{it} = 0.55477 + 0.19030 WLFPR_{it} + 0.06844_{it} \quad (\text{Eq. 5})$$

$$RHDI_{it} = 0.55477 + 0.00001 NEW_{it} + 4.75000_{it} \quad (\text{Eq. 6})$$

$$PVI_{it} = 0.86339 - 0.86431 WLFPR_{it} + 0.24028_{it} \quad (\text{Eq. 7})$$

$$PVI_{it} = 0.86339 - 0.00007 NEW_{it} + 0.00001_{it} \quad (\text{Eq. 8})$$

The third equation (Eq. 7) shows a negative relationship between the women’s labor force participation rate (WLFPR) and poverty incidence (PVI). As the women’s labor force participation rate (WLFPR) increases by one unit, the poverty incidence reduces by 0.86431. As the year passes, the PVI increases 0.24028 while holding the WLFPR constant.

Moreover, the last equation (Eq. 8) shows a negative relationship between the number of employed women (NEW) and the poverty incidence (PVI). As the NEW increases by one unit, the poverty incidence (PVI) reduces by 0.00007. As time passes, the PVI increases by 0.00001, holding the NEW constant.

Furthermore, these results confirm that increasing women’s labor participation and employment are associated with both reduced poverty and improved human development.

Yet, the coefficients also highlight the relatively modest scale of these effects, underscoring the need to examine other gender equality indicators such as the gender wage gap, sectoral employment patterns, and legal frameworks (GEWE, PCW, 2022).

The findings align with existing literature emphasizing that women's economic empowerment contributes to poverty reduction and community development (Sobritchea, 2004; FAO, 2023; PCW, 2022). By participating in the labor force, women enhance household income, improve children's educational opportunities, and foster community resilience. However, results also illustrate the persistence of structural inequalities. For example, while WLFPR is increasing, women remain concentrated in sectors such as agriculture and care work—industries characterized by low wages and limited upward mobility (ADB, 2021; Belhaj-Hassine & Fernandez, 2021). Without addressing the gender wage gap, occupational segregation, and unequal access to resources, the benefits of women's employment may be limited in scope. Moreover, regional variations reveal that gains are not uniform. While CAR and Region 4A exhibit consistently high RHDI scores, regions such as BARMM remain vulnerable despite improvements in women's labor force participation. This suggests that local context—including governance quality, infrastructure, and cultural norms—plays a significant role in shaping outcomes. Finally, the limitations of this study—covering only one province per region and relying heavily on PSA census and survey data—mean that results should be interpreted with caution. The findings highlight trends, but more granular data (e.g., intra-regional differences, sectoral distribution of employment, wage disparities) are needed to fully understand women's role in rural development.

## **SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

This study examined the relationship between women's labor force participation (WLFPR), number of employed women (NEW), poverty incidence (PVI), and the regional human development index (RHDI) in 16 rural regions of the Philippines from 2018 to 2023. Key findings include:

### **Summary**

1. In terms of trend, WLFPR and NEW generally increased across regions, but both declined sharply during the COVID-19 pandemic before rebounding.
2. Poverty incidence varied regionally; some provinces experienced reductions while others recorded increases over the six-year period.
3. The RHDI improved in all regions despite temporary pandemic-related setbacks, with CAR consistently reporting the highest scores.

4. Women's employment and participation negatively correlates with poverty incidence and positively correlates with human development.
5. SUR models confirmed that increases in WLFPR and NEW are associated with lower poverty incidence and higher human development, though effect sizes were modest.
6. These results suggest that women's employment is a key driver of rural development but not the sole determinant, as broader structural and cultural barriers persist.

## Conclusion

The study sought to answer two research questions:

*a. What is the relationship between women's employment and poverty incidence, and human development in rural regions of the Philippines?*

Findings show that increases in women's employment and labor participation are associated with reductions in poverty incidence and improvements in human development. However, the strength of the correlations indicates that employment alone cannot fully explain variations in development outcomes. Other factors, such as wage disparities, sectoral concentration of women in low-paying industries, and cultural barriers, also shape these dynamics.

*b. What policies can effectively enhance women's employment to reduce poverty and improve development outcomes?*

The study highlights the need for multi-dimensional approaches: not only increasing employment opportunities but also addressing quality of work, wage equity, childcare access, and dismantling gender stereotypes.

Importantly, the study acknowledges its limitations. By focusing on only one province per region and relying primarily on PSA census and survey data, it risks oversimplifying intra-regional variations. Thus, findings should be interpreted as indicative rather than universally generalizable. Future research should employ more granular datasets, for example, disaggregated by sector, wage levels, and age cohorts, to capture the complex realities of women's work in rural contexts.

## **Recommendations**

To enhance women's role in rural development and address persistent barriers, the following are recommended:

### **1. *Broaden policy focus using GEWE indicators***

Policymakers should integrate measures such as gender wage gaps, sectoral distribution of women's employment, and employment-to-population ratios into program evaluations. This ensures that women's empowerment is assessed not only by participation levels but also by the quality and equity of employment.

### **2. *Impact assessment of existing programs***

Conduct rigorous evaluations of initiatives such as TESDA skills training and ECCD programs to assess their effectiveness in raising women's employability and income in rural areas.

### **3. *Needs assessment of rural women***

Implement region-specific surveys that consider age, education, household structure, and cultural background to design targeted interventions.

### **4. *Strengthen cultural and institutional reforms***

Expand media campaigns, community dialogues, and school-based programs to challenge persistent stereotypes about women's roles in work and society.

### **5. *Policy innovations***

Introduce childcare subsidies, flexible work arrangements, and entrepreneurship incentives tailored for rural women. Legal frameworks should be reviewed and updated to align with international commitments on gender equality.

### **6. *Monitoring and evaluation framework***

Establish key performance indicators (KPIs) based on GEWE indicators to monitor women's employment outcomes and their contribution to rural development. Regular reporting should inform evidence-based adjustments to policies and programs.

By adopting these measures, the Philippines can move toward more inclusive and sustainable rural development, recognizing women not merely as participants but as drivers of poverty reduction and human progress.

## REFERENCES

- Albert, J. R., & Vizmanos, J. F. (2017). *Filipino women suffer gender gaps in labor participation: A policy note* (PIDS Policy Notes No. 2017-02). Philippine Institute for Development Studies.  
<https://www.pids.gov.ph/details/filipino-women-suffer-gender-gaps-in-labor-participation-pids-study>
- Asian Development Bank. (2013). Gender equality in the labor market in the Philippines. Asian Development Bank.  
<https://www.adb.org/sites/default/files/publication/31194/gender-equality-labor-market-philippines.pdf>
- Asian Development Bank. (2021). *Women's economic empowerment in Asia*. Asian Development Bank.  
<https://www.adb.org/publications/womens-economic-empowerment-asia>
- Baleda, A. E. (2024, September 26). *Take Five Philippines: Cultural stereotypes and beliefs still present significant challenges to achieving true gender equality in the Philippines*. UN Women.  
<https://asiapacific.unwomen.org/en/stories/take-five/2024/09/take-five-philippines-cultural-stereotypes-and-beliefs>
- Belhaj Hassine, N., & Fernandez, F. C. (2021). *Women, childcare, and social norms in the Philippines: Policy brief*. World Bank.  
<https://documents1.worldbank.org/curated/en/099830003012240232/pdf/P1730020c322d10d30a7e500df58cd6f3bd.pdf>
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4.  
<https://doi.org/10.11648/j.ajtas.20160501.11>
- Ewubare, D.B., & Ogbuagu, A.R. (2017). Unemployment rate, gender inequality and economic growth in Nigeria: A short-run impact analysis. *Global Journal of Human Resource Management*, 5(5), 12-41.  
<https://www.eajournals.org/wp-content/uploads/Unemployment-Rate-Gender-Inequality-and-Economic-Growth-in-Nigeria-A-Short-Run-Impact-Analysis.pdf>
- Fakih, A., Haimoun, N., & Kassem, M. (2020). Youth unemployment, gender and institutions during transition: Evidence from the Arab Spring. *Social Indicators Research*, 150(1), 311-336. <https://doi.org/10.1007/s11205-020-02300-3>
- Food and Agriculture Organization of the United Nations. (2018). *The gender gap in land rights*. Rome: FAO. <https://www.fao.org/3/I8796EN/i8796en.pdf>

- Food and Agriculture Organization of the United Nations. (2023). *The status of women in agrifood systems*. Rome: FAO. <https://www.fao.org/3/cc5343en/cc5343en.pdf>
- Franco, J. E. A., & Laguna, E. P. (2023). Barriers to Filipino women's political participation. University of the Philippines Center for Integrative and Development Studies.
- Global Entrepreneurship Monitor (2023). *GEM 2022/2023 Women's entrepreneurship: Challenging bias and stereotypes*. <https://www.gemconsortium.org/report/gem-20222023-womens-entrepreneurship-challenging-bias-and-stereotypes-2>
- Grimshaw, D. & Rubery, J. (2015). The motherhood pay gap: A review of the issues, theory and international evidence, (Conditions of Work and Employment Series No. 57). Geneva: International Labour Organization. [http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms\\_348041.pdf](http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_348041.pdf)
- International Labour Organization. (2023). *Statistics on women*. ILOSTAT. <https://ilostat.ilo.org/topics/women>
- International Labour Organization. (2018). *Women and men in the informal economy: A statistical picture* (3rd ed.). Geneva: International Labour Office. [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms\\_626831.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_626831.pdf)
- International Labour Organization. (2022). *Pay transparency legislation: Implications for employers' and workers' organizations*. [https://www.ilo.org/travail/info/publications/WCMS\\_849209/lang--en/index.htm](https://www.ilo.org/travail/info/publications/WCMS_849209/lang--en/index.htm)
- International Labour Organization. (2023). *World Employment and Social Outlook: Trends 2023*. [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms\\_865332.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_865332.pdf)
- International Labor Organization. (2023, March). *ILO Spotlight on Work Statistics No. 12* (March, 2023). [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms\\_870519.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_870519.pdf)
- Likhaan Center for Women's Health. (2016). Understanding Catholic fundamentalism in the Philippines: How conservative religious teachings on women, family, and contraception are wielded to impede the Reproductive Health Law and other reproductive health policies. Asian-Pacific Resource & Research Centre for Women (ARROW).

- Lu, J. L. (2010). Gender analysis of women in the Philippine agriculture and their occupational issues. *Journal of International Women's Studies*, 11(4), 73-82.  
<https://vc.bridgew.edu/jiws/vol11/iss4/5>
- Lu, J. L. (2011). Relations of feminization of agriculture and women's occupational health: The case of women farmers in the Philippines. *Journal of International Women's Studies*, 12(4), 108-118. <https://vc.bridgew.edu/jiws/vol12/iss4/7>
- Medenilla, V. (2022, March 8). *4 women farmers who are breaking gender stereotypes in agriculture*. Manila Bulletin.  
[https://mb.com.ph/2022/03/08/4-women-farmers-who-are-breaking-gender-stereotypes-in-agriculture/?fbclid=IwAR28O3fLAZPhEl74F0oBaRoYzd18qjGT-P4QMVF6yvBY9LYcSbhCpD0\\_lb0](https://mb.com.ph/2022/03/08/4-women-farmers-who-are-breaking-gender-stereotypes-in-agriculture/?fbclid=IwAR28O3fLAZPhEl74F0oBaRoYzd18qjGT-P4QMVF6yvBY9LYcSbhCpD0_lb0)
- Mendoza, R. U., & Fajardo, J. (2020). Women's employment and economic development: Evidence from Southeast Asia. *Journal of Southeast Asian Economies*, 37(1), 45-60.
- Mihret, Y. A. (2019). Factors associated with women unemployment in Ethiopia. *International Journal of Theoretical and Applied Mathematics*, 5(5), 68-73.  
<https://www.sciencepublishinggroup.com/journal/paperinfo?journalid=347&doi=10.11648/j.ijtam.20190505.11>
- OECD (2019). OECD Social Institutions and Gender Index 2019 Report: Transforming Challenges into opportunities.  
[https://www.oecd-ilibrary.org/development/sigi-2019-global-report\\_bc56d212-en](https://www.oecd-ilibrary.org/development/sigi-2019-global-report_bc56d212-en)
- Philippine Institute for Development Studies (PIDS). (2017). Gender roles hampering female career progress in Philippines.  
<https://www.pids.gov.ph/details/gender-roles-hampering-female-career-progress-in-philippines>
- Saenz, E. (2022, June 9). "Anti-life" [Essay]. Harvard Alumni for Global Women's Empowerment  
<https://www.globalwe-essays.org/winning-essays/2022/6/9/anti-life-by-elica-saenz>
- Sobritchea, C. I. (Ed.). (2004). *Gender, culture & society: Selected readings in women's studies in the Philippines*. Ewha Womans University Press.
- Umali, J. (2020, September 28). The social basis of Filipino conservatism. *Bulatlat*.  
<https://www.bulatlat.com/2020/09/28/the-social-basis-of-filipino-conservatism/>
- UN Women (2023). *Forecasting time spent in unpaid care and domestic work: Technical brief*.  
<https://www.unwomen.org/sites/default/files/2023-10/technical-brief-forecasting-time-spent-in-unpaid-care-and-domestic-work-en.pdf>

- UN Women. (2019). Progress of the World's Women 2019–2020: Families in a changing world. United Nations Entity for Gender Equality and the Empowerment of Women.  
<https://digitallibrary.un.org/record/3829917?ln=en>
- Viljoen, D. J., & Dunga, S. H. (2013). Determining the factors that influence female unemployment in a South African township. *International Journal of Social Sciences and Humanity Studies*, 5(1), 63-72.  
<https://dergipark.org.tr/en/download/article-file/257217>
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data* (2nd ed.). MIT Press.
- World Bank Group. (2024). Women, Business and the Law: Concept note and project document (Report No. P179153). World Bank.  
<https://documents1.worldbank.org/curated/en/099041025180527833/pdf/P179153-3cdd3243-a776-4f7d-98a6-6b9ce449c42b.pdf>
- World Bank. (2022). Overcoming barriers to women's economic empowerment in the Philippines. World Bank.  
<https://documents1.worldbank.org/curated/en/099830103012227161/pdf/P173002056f08e0a909afd0d7c9f381c4d3.pdf>

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