Economic Development and Role of Vietnamese Women in the Agriculture Sector

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Abstract

The agricultural sector stands as a pivotal driver of economic progress. The heightened agricultural output of a nation serves as a robust indicator of economic expansion, given the substantial demographic reliance on food production and employment opportunities. Contributions from

Vietnamese women play a crucial role in steering the country's economic trajectory, constituting a considerable portion of the labour force. Nonetheless, previous scholarly inquiries have neglected to delve into the intricate mechanisms underpinning the correlation between economic growth and the involvement of Vietnamese women in agriculture. This dearth of research has hindered comprehensive analyses aimed at elucidating the impact of women's participation in agriculture on Vietnam's economic advancement. Moreover, the deficiency in research is posited as a plausible obstacle to the full engagement of women in the agricultural sector, which in turn serves as an economic barometer. To empirically examine this relationship, a non-linear Autoregressive Distributed Lag (ARDL) approach is adopted, utilizing data spanning from 2000 to 2022. The empirical findings reveal significant associations between female employment in agriculture, agricultural value added, arable land, agriculture exports, population, and economic development in Vietnam. Finally, the analysis underscores the crucial implications, offers policy recommendations, and outlines future research directions aimed at discerning the substantive contribution of women in the agricultural sector.

Keywords: Agriculture, Women, Economic Development, NARDL, Vietnam.

Introduction

Due to the swift advancements in food production and efficiency after the implementation of the Doi Moi reforms, Vietnam now satisfies the majority of its basic food requirements through domestic means. This rapid escalation in food production and efficiency underscores the sector's evolution towards productivity, quality enhancement, and operational efficiency over the past three decades. The restructuring of Vietnam's agricultural sector during this period, as delineated by Luong (2017), has positioned increased agricultural endeavours as a robust predictor of favourable economic growth within the region.

Statistical data from Statista (2023) corroborates the substantial contribution of the agricultural sector, alongside the service and industrial sectors, to Vietnam's Gross Domestic Product (GDP), as depicted in Figure 1. Indeed, the agricultural sector is widely acknowledged as the linchpin of the nation's economic advancement, not only fostering economic progress but also serving as a significant source of employment and livelihood for a substantial portion of the populace. Within Vietnam, women, particularly in rural areas, assume pivotal roles in various sectors of the workforce, including agriculture, as highlighted by Ngan and Ngoc (2022). Despite their crucial contributions at the grassroots level, these efforts often go unrecognized officially.

The Socialist Republic of Vietnam's Party has demonstrated a growing interest in promoting women's roles within society, endeavouring to create conducive environments that facilitate their participation across all domains. The socio-economic reforms initiated since 1986 have engendered notable transformations concerning gender dynamics, economic structures, and familial relations. With women constituting over 50 percent of the nation's population, concerted efforts are being made to ensure their active involvement across cultural, societal, economic, defence, and security spheres, as elucidated by Ngan and Ngoc (2022). Consequently, Vietnamese women significantly bolster the agricultural workforce, engaging in diverse activities ranging from cultivation to post-harvest operations, thereby not only contributing to the country's economic growth but also substantially augmenting rural household incomes.

Figure 1: GDP Distribution Across Different Economic Sectors from 2012 to 2022

Source: (Statista, 2023).

In the annals of Vietnam's history, characterized by periods of construction and struggle, women have emerged as significant contributors. Lam Dong, the principal district of the Dalat province, boasts a female population comprising 50.5%, as documented by Ngan and Ngoc (2022). This demographic composition underscores the substantial role women play in Vietnam's socio-economic fabric. Regrettably, their

contributions often go unnoticed and fail to align with their pivotal role and status within the economy. Despite extensive research on economic development and the role of women in Vietnam's agricultural sector by scholars such as Anh, Anh and Chandio (2023), Van Dung et al. (2023), Dell, Lane and Querubin (2018), Schulte, Mumber and Nguyen (2023), and Simelton et al. (2021), scant attention has been devoted to a comprehensive examination of both aspects simultaneously.

To address this scholarly gap, this study aims to evaluate the economic development and the role of Vietnamese women in the agricultural sector, thereby scrutinizing the nexus between economic growth, women's contributions, and agricultural sector advancement. Not only does this research endeavour fill a critical void in existing literature, but it also offers manifold theoretical and practical implications, thereby enriching the field with original and novel insights. By shedding light on the inadequately acknowledged role of women in Vietnam's agricultural sector, this study seeks to amplify awareness and appreciation for their significant contributions to the nation's economic development.

Literature Review

Feminist economics encompasses both compensated and uncompensated care labour, highlighting the tendency of conventional economic analyses to overlook the significance of unpaid domestic work (Mohajan, 2022). Feminist economists argue that metrics of economic prosperity should duly account for the value of unpaid domestic labour, which holds comparable importance to paid employment. Their findings reveal a disproportionate burden of caregiving tasks falling upon women (Kabeer, Razavi, & van der Meulen Rodgers, 2021). Despite the potential for increased production through remittance usage for labour and farm inputs, such funds are seldom directed towards these ends. This theoretical framework underscores the gendered dimensions of economic structures, postulating the implications of women's involvement in agriculture, which in turn poses distinct challenges.

Issues such as unequal resource access, the potential transformative impact of gender-inclusive policies, and disparities in the labour market are deemed crucial considerations affecting economic growth. Research exploring the role of women in

agriculture offers valuable insights into the nuanced dynamics of Vietnamese women's contributions to both agriculture and the country's economic development. However, a persistent research gap is identified, characterized by insufficient exploration of the specific mechanisms clarifying the relationship between economic development and the role of Vietnamese women in the agricultural sector.

To address this gap comprehensively, it is imperative to conduct an in-depth analysis to elucidate the linkage between economic development and women's participation in agriculture. This study aims to investigate this relationship by evaluating women's participation and its impact on economic development. Vietnam's economic progress owes much to significant advancements in its agricultural sector. Moving forward, Vietnam's agricultural sector must leverage its strengths to achieve ambitious targets over the next decade. These strengths include the development of highly skilled human resources, effective implementation of agricultural land policies, promotion of reputable, safe, high-quality, organic agriculture, and the preservation of the environment to ensure sustainable agricultural development (Duong, 2020).

Female Employment in Agriculture and Economic Development (GDP Growth)

While studies suggest that investing in female farmers could yield substantial returns across various scenarios, there remains a scarcity of estimates regarding the financial gains linked to empowering women in agriculture (Anderson et al., 2021). Research underscores the profound impact of women's participation on global economies, revealing that women engaged in entrepreneurial pursuits not only augment household incomes but also significantly contribute to societal and economic progress (Sajjad et al., 2020). However, it's important to note that empowerment and feminization are not inherently positively correlated, especially within the context of paid employment. Recognizing the importance of empowering women in agriculture, the Department of Agriculture and Farmers Welfare (DA & FW) and the Ministry of Agriculture & Farmers Welfare advocate for a 30% investment in women through state and other institutions, offering various strategies tailored for female farmers (Shukla, Lal, & Baruah, 2022). Women's economic empowerment has emerged as a focal point in

international development policy discussions, driven by evidence highlighting its substantial benefits not only for women themselves but also for broader societal facets, including prosperity, well-being, early childhood development, social protection, and civil liberties (Donkor, 2020).

H1: *Female employment in agriculture significantly impacts the economic development.*

Agricultural Value Added and Economic Development

Economic growth is positively influenced by agricultural value added, suggesting a robust and direct correlation between the two. Specifically, within the CEMAC sub region, higher levels of agronomic transformation improvement correspond to increased economic growth in a country (Mbotiji, Oumar, & Egwu, 2023). Empirical findings indicate that the augmentation of agricultural value-added stems from the utilization of natural resources, advancements in financial development, and the integration of economies globally. In turn, the increase in agricultural value added contributes to the overall economic growth of the nation.

Policies aimed at enhancing agricultural production should be implemented over an extended timeframe to realize their full impact (Wang & Wang, 2020). Prioritizing strategies to boost domestic demand and reduce reliance on exports constitutes essential areas requiring governmental support. Given that Small and Medium Enterprises (SMEs) constitute a significant portion of the Agri-Food System (AFS), the AFS possesses the potential to serve as a primary driver of employment and broader economic growth (Zhang et al., 2020).

H2: *The extent of agricultural value-added postulates the significant influence on the economic development*

Arable Land and Economic Development

Concerning the urban economy's role in the global distribution of arable land within the framework of economic globalization, there has been significant benefit derived from, as well as reliance upon, foreign embodied arable land. However, there remains substantial potential for urban economies to optimize the allocation of both direct and embodied arable land under the influence of economic

globalization (Ji, Han, & Ulgiati, 2020). In Tanzania, variations in arable land availability are predominantly influenced by socioeconomic and demographic factors. Addressing this situation entails diversifying non-agricultural opportunities, reducing the population's land demand, and enhancing land tenure and ownership structures in peripheral rural and urban areas, thereby promoting the sustainable utilization of land resources (Uisso & Tanrıvermiş, 2021). Predicting the loss in productive capacity of arable land at the county level based on total arable land capacity and usage intensity remains challenging. This underscores the insufficient attention paid to preserving the productive potential of arable land and farmers' readiness to align with China's strategy of balancing land requisition and compensation (Ye et al., 2023).

H3: *Arable land and economic development examine the positive and significant influence.*

Agricultural Exports and Economic Development

The findings of a study reveal that agricultural exports and imports exert positive or negative effects on agricultural growth solely within the EU subsample. This suggests that access to global markets is imperative to substantiate the export-led development theory in the agricultural sector of developed nations (Seok & Moon, 2021). Conversely, another study concludes that there exists a modest yet favourable correlation between GDP growth and Pakistan's agricultural exports. However, this correlation is predominantly driven by the export of primary and raw agricultural products, which face challenges such as high costs, intense competition, and lower quality standards in global markets. Consequently, their contribution to national economic growth remains marginal, yielding only minimal export revenues (Mahmood & Munir, 2018). Although the export industry has made a modest but positive contribution to economic growth, particularly during the industrialization process, it has facilitated essential imports financing, enhanced resource allocation efficiency, and fostered intersectoral linkages. However, its impact on the economy's geographical distribution has been limited by the localized concentration of export-oriented enterprises (Ayuda & Pinilla, 2021). In light of adverse effects that have emerged throughout their collaboration, it is imperative for Vietnam and China to

strengthen their bilateral cooperation to ensure that agricultural product trade becomes a consistently positive contributor to each nation's economic growth (Nong, Simshauser, & Nguyen, 2021).

H4: *Agricultural exports significantly influence the economic development.*

Method

Variables and Data Sources

This research investigates the interrelationship among female employment, agricultural value, arable land, agricultural exports, population, and economic development within Vietnam's agricultural sector. Data for all variables were sourced from the World Bank (WB, 2024). Economic development was operationalized as GDP per capita, while agricultural exports were assessed as a percentage of total agricultural exports. Population density was measured as individuals per square kilometre, and arable land was quantified as hectares per person. Agricultural value added represented the total agricultural output. Female employment in the agricultural sector was gauged by the total number of female workers engaged in relevant agricultural activities. Data collection spanned the period from 2000 to 2022. All variables underwent transformation using specified algorithms in this study.

Model Specification

Previous research typically employs the ARDL time-series method, followed by cointegration analysis and Granger causality, to examine the association between economic development and agricultural value (Ceesay & Fanneh, 2022). However, within the context of econometric methods, long-run relationships often exhibit associations with short-run relationships, leading to a lack of asymmetries among the study constructs. Consequently, the current research extends the ARDL model to the non-linear ARDL cointegration process (NARDL) to assess both short-term and long-term asymmetries among the study variables (Ahmad et al., 2018). A study by Kashif et al. (2023) has also utilized NARDL to investigate the association between agricultural commodity prices and agricultural value added, further supporting the

suitability of this approach for the current study. Thus, prior to presenting the model associated with this study, the relationship between female employment, agricultural value, arable land, agricultural exports, population, and economic development within the context of asymmetric long-run regression is discussed.

$$GDP_t = \gamma_0 + \gamma_1 AREA_t + \gamma_2 AGRIVALUE_t + \gamma_t RAW_t + \gamma_t FEMEMP_t + \gamma_t PG_t + \varepsilon_t$$

Thus, the model devised for this approach in the current study is presented as follows:

$$\begin{aligned}\Delta GDP_t = {} & \beta_0 + \beta_1 AREA_{2t-i} + \beta_2^+ AGRIVALUE_{t-1}^+ + \beta_3^+ RAW_{t-1}^+ + \beta_4^+ FEMEMP_{t-1}^+ \\ & + \beta_5^+ PG_{t-1}^+ + \sum_{i=0}^{q} \alpha_1 \Delta AREA_{2t-i} + \sum_{i=0}^{p} \alpha_2 \Delta AGRIVALUE_{t-i}^+ \\ & + \sum_{i=0}^{p} \alpha_3 \Delta RAW_{t-i}^+ + \sum_{i=0}^{p} \alpha_4 \Delta FEMEMP_{t-i}^+ + \sum_{i=0}^{p} \alpha_5 \Delta PG_{t-i}^+ + \mu_t\end{aligned}$$

To estimate the NARDL approach for this study, the validity of the ARDL approach was assessed, considering an integrated order of either 0 or 1 for all variables. This facilitated the application of unit root tests to ascertain the presence of stationarity. However, it is imperative to ensure that none of the study constructs exhibits an integrated order of 2, as this could potentially impact the subsequent cointegration analysis. Consequently, the Phillips-Perron test (Pesaran, Shin, & Smith, 2001) and the Augmented Dickey-Fuller (ADF) unit root tests (Dickey & Fuller, 1979) were employed to address this concern. Subsequently, cointegration analysis was conducted, accompanied by a bounds test that incorporated both short-run and long-run regression analyses. Finally, diagnostic tests were performed to validate the accuracy of the data. Specifically, tests for heteroskedasticity, serial correlation, and normality of residuals were conducted for this purpose.

Findings

Unit Root Test

The null hypothesis of the Augmented Dickey-Fuller test posits the existence of a unit root and non-stationarity, implying that $\rho = 1$. Conversely, the alternative hypothesis, where $\rho < 1$, indicates stationarity. In the ADF test, the inclusion of a

negative number signifies that a more negative value corresponds to a stronger rejection of the null hypothesis, indicating the presence of a unit root with a certain level of confidence. Table 1 illustrates that certain variables exhibit stationarity at the level, while others demonstrate stationarity at the first difference.

Table 1: Group Unit Root Summary.

Method	At Level		First Difference	
	Statistic	Prob.**	Statistic	Prob.**
Levin, Lin & Chu t*	-0.44	0.32	-2.37	0.01
Im, Pesaran and Shin W-stat	-1.51	0.06	-4.87	0.00
ADF - Fisher Chi-square	26.56	0.01	46.37	0.00
PP - Fisher Chi-square	9.21	0.68	52.76	0.00

Bounds Test

The bound test is employed to evaluate the co-integration among the variables. Co-integration is deemed present when the F-statistics value exceeds both the upper and lower critical bound values. Table 2 indicates that the F-statistics value of 10.235279 surpasses the upper and lower bound critical values at 10%, 5%, and 1% significance levels. Consequently, the bound test confirms the presence of a long-run relationship among the variables.

Table 2: Bound Test Results and Critical Values.

		Test Statistics	Value			
		F-statistics	10.23528			
			Test Statistic	Value		
			F-statistic	19.42		
		10%	5%		1%	
Sample Size	**I (0)**	**I (1)**	**I (0)**	**I (1)**	**I (0)**	**I (1)**
30	2.41	3.52	2.91	4.19	4.13	5.76
Asymptotic	2.08	3	2.39	3.38	3.06	4.15

Co-integration Analysis

Co-integration is an economic methodology employed to explore the relationship between non-stationary time series variables. Two or more series are considered co-integrated if each possesses a unit root I(1) and their linear combination results in a stationary value I(0). Co-integration among the variables utilized in the analysis ensures dependable long-term outcomes. Table 3 illustrates the long-run responsiveness of GDP growth to female employment in agriculture, agricultural value added, arable land, agricultural exports, and population in Vietnam.

Table 3: Cointegration Results.

Variable	Coefficient	Std. Error	T-Statistic	Prob.
AREA(-1)	0.67	0.92	0.73	0.47
AGRIVALUE	-2.64	0.82	-3.19	0.01
RAW(-1)	1.57	0.92	1.71	0.10
FEMEMP(-1)	1.65	0.51	3.23	0.00
PG(-1)	-126.68	44.57	-2.84	0.01
C	80.64	41.85	1.93	0.07

Long Run and Short Run Effects

The findings presented in Table 4 delineate the long and short-run effects of various factors. Female employment in agriculture, agricultural value added, arable land, agricultural exports, and population are all deemed significant contributors to economic development in Vietnam over the long term. Specifically, a 1% increase in female employment in agriculture corresponds to a 1.04 unit increase in economic development. Conversely, a 1% increase in agricultural value added is associated with a -1.64 unit decrease in economic development. Similarly, a 1% increase in agricultural exports leads to a 1.08 unit increase in economic development, while a 1% increase in population results in a -76.57 unit decrease in economic development. Moreover, the R-square value indicates that 96% of the variation in the dependent variable is accounted for by the independent variables. The F-statistic, with a value of 8.67, underscores the overall significance of the variables within the model, corroborating their collective impact on economic development.

Table 4: Long Run Effects.

Variable	Coefficient	Std. Error	T-Statistic	Prob.*
GDP(-1)	0.37	0.19	1.97	0.09
AREA	1.08	0.45	2.39	0.05
AREA(-1)	0.42	0.45	0.94	0.38
AREA(-2)	-1.09	0.41	-2.67	0.03
AGRIVALUE	-1.64	0.31	-5.17	0.00
RAW	-1.75	0.52	-3.33	0.01
RAW(-1)	1.08	0.55	1.96	0.09
RAW(-2)	1.65	0.50	3.27	0.01
FEMEMP	1.04	0.13	7.79	0.00
FEMEMP(-1)	0.58	0.31	1.85	0.11
FEMEMP(-2)	-0.60	0.24	-2.44	0.05
PG	-76.57	11.80	-6.48	0.00
PG(-1)	30.70	13.36	2.29	0.06
PG(-2)	-32.76	9.37	-3.49	0.01
C	50.05	17.21	2.90	0.02
R-squared	0.96	**Mean dependent var**		6.32
Adjusted R-squared	0.84	**S.D. dependent var**		1.40
S.E. of regression	0.55	**Akaike info criterion**		1.84
Sum squared residual	1.85	**Schwarz criterion**		2.58
Log likelihood	-4.29	**Hannan-Quinn criter**		1.99
F-statistic	8.67	**Durbin-Watson stat**		2.76
Prob(F-statistic)	0.00			

Table 5 outlines the short-run effects, indicating that the impacts of the regressors in the short term are also statistically significant. An increase in female employment in agriculture is associated with a rise in economic development. Similarly, all other indicators—agricultural value added, arable land, agricultural exports, and population—contribute to the increment in economic development in Vietnam.

Table 5: Short Run Effects.

Variable	Coefficient	Std. Error	T-Statistic	Prob.
COINTEQ*	-0.62	0.05	-11.97	0.00
D(AREA)	1.08	0.21	4.92	0.00
D(AREA(-1))	1.09	0.17	6.27	0.00
D(RAW)	-1.75	0.24	-7.31	0.00
D(RAW(-1))	-1.65	0.22	-7.48	0.00
D(FEMEMP)	1.04	0.07	14.45	0.00
D(FEMEMP(-1))	0.60	0.10	5.85	0.00
D(PG)	-76.57	4.97	-15.39	0.00
D(PG(-1))	32.76	4.38	7.47	0.00
R-squared	0.97	Mean dependent var		0.08
Adjusted R-squared	0.94	S.D. dependent var		1.68
S.E. of regression	0.39	Akaike info criterion		1.26
Sum squared residual	1.85	Schwarz criterion		1.71
Log likelihood	-4.29	Hannan-Quinn criter.		1.36
F-statistic	44.41	Durbin-Watson stat		2.76
Prob(F-statistic)	0.00			

Normality, Heteroscedasticity, and Serial Correlation

Figure 2 evaluated the normality of the error terms, revealing that the error terms follow a normal distribution. This is evident as the p-value for the Jarque-Bera test exceeds the threshold value of 0.5. Specifically, the value of JB (0.63395) exceeds the threshold value of 0.5, confirming that the errors are normally distributed.

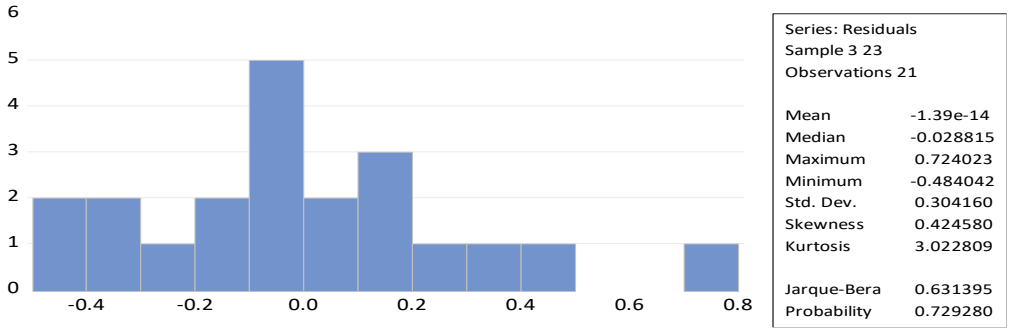

Figure 2: Normality of Error Terms.

Autocorrelation, a statistical measure, examines the relationship between lagged values and a time series over a specific period, assessing the association between current and past values. The Breusch-Godfrey test is utilized to evaluate

autocorrelation in the analysis. This test is employed when errors occur in a regression model to identify autocorrelation. The test statistic is computed using the residuals from the regression analysis model under investigation. The null hypothesis typically posits that there is no serial correlation at any lag.

Table 6: Autocorrelation Results.

F-statistic	**3.685**	**Prob. F (2,4)**	**0.12**
Obs*R-squared	13.61	**Prob. Chi-Square (2)**	0.001

Heteroskedasticity refers to the unequal variance of residuals across the range of measured values. The study employs the ARCH test to detect the presence of heteroskedasticity. A probability value greater than 0.05, specifically 0.39 in this case, indicates the absence of heteroskedasticity and the presence of homoscedasticity. Consequently, the null hypothesis, which suggests the presence of heteroskedasticity, is rejected.

Table 7: Heteroskedasticity Results.

F-statistic	**0.86**	**Prob. F (2,16)**	**0.44**
Obs*R-squared	1.85	**Prob. Chi-Square (2)**	0.39

Discussion

As Vietnam experiences economic growth and diversification of employment opportunities, the contribution of agriculture is witnessing a downward trajectory. Despite this trend, agriculture remains a vital source of income for many, particularly in rural areas where approximately two-thirds of the workforce is employed. However, the agricultural workforce is gradually shrinking.

In rural Vietnam, agriculture remains a dominant occupation, although significant restructuring and economic development have occurred. Only a quarter of rural households focus solely on farming, with the majority (75%) engaging in non-agricultural and wage-earning activities. Women in rural areas play a crucial role in enhancing both human welfare and agricultural productivity. This significance was underscored by the Food and Agriculture Organization's theme for its 53rd anniversary, "Women Feed the World." The impact of women on agricultural production is substantial, particularly in ensuring food security, especially in developing nations. As women become increasingly involved in agriculture, they are also playing a more prominent role in the broader

economic restructuring efforts. It is worth noting that most agricultural activities, including farming and livestock management, are carried out by women.

Female participation in agriculture is associated with a positive and significant contribution to economic development, reflecting differences in resource allocation influenced by social preferences among women (Arthur-Holmes & Busia, 2020; Chipuriro, 2021). The underlying assumptions regarding baseline, behavior change, and economic benefits elucidate these hypothesized pathways to economic development.

Conversely, agricultural value added demonstrates a negative and significant impact on economic development. While a country's economic growth tends to improve with advances in agronomic transformation, it may have negative implications due to dependence on external factors, economic distortions, and environmental concerns (Adejumo, 2020). Furthermore, arable land positively and significantly influences economic development by ensuring food supply and supporting livelihoods as a fundamental agricultural resource. Various nuanced factors, such as technological advancements and changing market dynamics, contribute significantly to this impact (Ahmad et al., 2020).

Additionally, agricultural exports make a positive and significant contribution to economic development, underscoring the importance of access to foreign markets in validating the export-led growth hypothesis in the agricultural sector through structural changes and value addition (Seok & Moon, 2021).

Urban Land Expansion (ULE) is more affected by economic development than population growth in nations with capable administration. The relationship between increasing urban population and ULE varies across countries and development stages, highlighting the importance of good governance for economic growth to influence ULE (Mahtta et al., 2022).

Progressive approaches to the industrial structures of nations worldwide positively impact the standard of living and long-term economic growth of their populations, serving as a potential guideline for international policymaking aimed at boosting economies and improving citizens' standards of living (Gryshova et al., 2020).

However, several factors, including trends in migration, mortality, and fertility, may affect future population growth trajectories, potentially leading to legislative measures on population control driven by international agreements on climate change

and environmental preservation. The ongoing pandemic is anticipated to impact fertility, migration, and mortality rates (Gu, Andreev, & Dupre, 2021).

Moreover, population has a negative and significant impact on economic development, highlighting the need for increased job opportunities, heightened competition for resources and essential services, ultimately affecting the government's capacity to invest in crucial sectors and provide basic infrastructure (Khan et al., 2021).

The findings indicate that household farming remains prevalent, with minimal changes in family land allotment. Despite small farm sizes, mechanization and pesticide use have continued, suggesting factor substitution due to increased value-added products and higher agricultural exports. Notably, women's employment in agriculture has emerged as the primary driver of improvements in rural family well-being, reflecting the growing dependence of rural households on the labour market.

Conclusion

Vietnamese women play a crucial role in the agricultural sector, engaging in various tasks like planting and harvesting, contributing significantly to both Vietnam's economic advancement and rural families' livelihoods. Despite this, there is a scarcity of research specifically focusing on the role of women in Vietnam's agricultural sector and its impact on economic development. This study aims to fill this gap by evaluating the economic development and the contribution of Vietnamese women to the agricultural sector, employing non-linear ARDL analysis. The empirical findings demonstrate a strong association between female employment in agriculture, agricultural value added, arable land, agricultural exports, and population with Vietnam's economic development. This study enhances existing knowledge through comprehensive variables and contemporary econometric analysis, offering further insights into how female labour force participation can bolster economic growth.

Implications

Theoretical Contribution

Women's involvement in the agricultural sector is situated within the economic framework of feminism, emphasizing the significance of valuing women's unpaid

labour in agriculture. Empowering women in this sector contributes to broader economic and social development, thereby enhancing capabilities and opportunities within agriculture. The integration of gender perspectives into the role of women in agriculture underscores societal norms shaping gender roles within the sector. Agricultural feminization prioritizes the growing presence of women to maximize agricultural potential for economic growth, yet it may overlook gender-specific issues.

Practical Implications

The engagement of Vietnamese women in the agriculture sector spans diverse domains, yielding enhancements in household incomes to bolster economic well-being within families and communities, thus impacting the broader economic landscape of the nation. Through the diversification of agricultural activities, their involvement facilitates an augmented food supply for the country. Moreover, women's participation in agriculture signals positive transformations by facilitating the development of local infrastructure and generating employment opportunities, thereby stimulating economic activities. In ensuring the long-term sustainability of the agriculture sector, the inclusion of women in decision-making processes promotes the adoption of sustainable farming practices, thus contributing to environmental conservation within the sector.

Limitations

As the study focuses on Vietnam, its findings may not be directly applicable to other countries, thus limiting the generalizability of the results worldwide. However, it suggests that the agricultural workforce in Vietnam lacks proficiency in foreign languages, essential farming skills, legal knowledge, and physical health. Many individuals still engage in small-scale production methods and adhere to traditional approaches, with limited understanding of industrial discipline. The involvement of Vietnamese workers in global labour markets is hindered by joint ventures, foreign direct investment, and multinational corporations dominating local markets. Research indicates that women in rural areas require more job training compared to men for various reasons: they play a central role in farming and animal husbandry, while many men work outside their villages. Additionally, women are often confined to their rural homes, contributing to the trend of "rural feminization," and encounter

more obstacles than men. Although increased economic independence among women has not always translated into greater management responsibilities in agriculture, it challenges negative stereotypes associated with rural women.

Policy Recommendations and Future Research Directions

This paper advocates for a flexible approach to supporting rural women, highlighting challenges faced due to unclear obligations and insufficient initiatives within Agricultural Land Acquisition projects. We recommend that the ALA policy incorporate a flexible livelihood support plan aligned with its objectives and the responsibilities of investors and stakeholders to enhance the socioeconomic status of rural women. Investors should take responsibility for implementing the support model until its success, integrating these efforts with existing government and women's union aid initiatives for optimal outcomes. Additionally, local authorities should play an active role in ensuring sustainable agricultural expansion in the region, balancing the long-term financial success of farms with broader socioeconomic considerations. It is crucial to view farming as an evolving bridge between the past and future, considering Vietnam's advancements in land laws, family dynamics, work opportunities, infrastructure, and education closely intertwined with agriculture.

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