Nexus of Migration, Population and Economic Growth: The Case of Vietnam

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Abstract

This paper investigates the intricate interplay between migration patterns, population dynamics, and economic growth in Vietnam. The report uses data from the World Bank from 2000 to 2022. The unrestricted fixed and random panel data method is used in the study. As a nation with a rich history marked by economic transformations and demographic shifts, understanding the nexus of these three elements is paramount. The study employs a multidisciplinary approach, combining demographic analyses, economic indicators, and migration patterns to unravel the nuanced connections. The research aims to shed light on the impact of migration on population structure and its subsequent implications for economic development. By examining historical trends and current data, the paper seeks to provide insights into policy considerations for sustainable economic growth in Vietnam. The findings contribute to the broader discourse on the role of migration in shaping demographic landscapes and influencing economic trajectories. Through this exploration, the paper enriches the academic understanding of these dynamics and offers practical implications for policymakers navigating the complex terrain of national development in Vietnam.

Keywords: *migration, gross domestic product, population, economic growth.*

1. Introduction

Vietnam, a nation steeped in a history of economic evolution and demographic transitions, stands at the crossroads of migration, population dynamics, and economic growth. Over the decades, the country has undergone profound changes in its economic structure and population composition. This study explores the intricate relationships that bind migration patterns, demographic shifts, and economic development in the Vietnamese context (P. T. Nguyen, 2022; Nguyen Thi Ngoc, 2016; T. T. Nguyen & Nguyen, 2021).

In recent years, Vietnam has emerged as a dynamic player in the global economic landscape. Its journey from a predominantly agricultural economy to one marked by rapid industrialization and globalization has been caused by shifts in population distribution and mobility patterns. As the nation continues to navigate these transformations, it

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becomes imperative to unravel the underlying dynamics that link migration, population trends, and economic progress (Le, Nguyen, & Phan, 2022; Liem, Tashiro, Tinh, & Sakai, 2022; Phan, 2022).

Amidst the notable strides in economic development, Vietnam grapples with challenges and opportunities posed by internal and international migration. The impact of these migration patterns on population structure and their subsequent influence on economic indicators form the crux of the issues addressed in this study. Understanding the complex interplay between migration and economic growth is essential for crafting policies that foster sustainable development (Phan, Stachuletz, & Nguyen, 2022; Thu, Huong, & Xuan, 2022; Thu, Xuan, & Huong, 2022).

The primary objective of this research is to provide a comprehensive analysis of the nexus between migration, population dynamics, and economic growth in Vietnam. By synthesizing demographic data, economic indicators, and migration trends, the study aims to uncover patterns, correlations, and causal relationships that contribute to a nuanced understanding of these interconnected phenomena (Wu et al., 2021; Xuan, 2020b).

This study holds significance for scholars and researchers in demography and economics and policymakers tasked with steering Vietnam through its ongoing developmental trajectory. Insights derived from this research are anticipated to inform evidence-based policy decisions, promoting a balanced and sustainable approach to economic growth in the face of evolving demographic landscapes (Xuan, 2020a; Xuan, Thu, & Anh, 2020a, 2020b).

In the subsequent sections, the paper will delve into a detailed analysis of historical trends, current data, and policy implications, seeking to contribute valuable perspectives to the discourse on the interdependence of migration, population dynamics, and economic development in Vietnam (Adebayo & Samour, 2023; Aftab et al., 2021; Aghasafari, Aminizadeh, Karbasi, & Calisti, 2021).

The paper contains 06 sections: Section 01- Introduction; Section two- Literature Review; Section Three- Methodology; Section four- Results and Discussions; Section Five: Conclusion and Policy Implications.

2. Literature Review:

2.1 Migration and Economic Growth:

The relationship between migration and economic growth has been a subject of considerable scholarly attention. Studies such as (Al Afif, Ayed, & Maaitah, 2023; Alvarez-Herranz, Balsalobre-Lorente, Shahbaz, & Cantos, 2017; An et al., 2023; Andersen et al., 2010; Ashizawa, Otaka, Yamamoto, & Akisawa, 2022) have explored the impact of migration on host economies, emphasizing the potential contributions of migrant labour to productivity and innovation. Additionally, (Balsalobre-Lorente, Contente dos Santos Parente, Leitão, & Cantos-Cantos, 2023; Balsalobre-Lorente, Ibáñez-Luzón, Usman, & Shahbaz, 2022; Balsalobre-Lorente, Nur, Topaloglu, & Evcimen, 2023; Balsalobre-Lorente, Shahbaz, Murshed, & Nuta, 2023; Balsalobre-Lorente, Shahbaz, Roubaud, & Farhani, 2018) delves into the role of remittances as a significant driver of economic development in migrant-sending countries. These works underscore the intricate connections between migration patterns and the economic trajectories of sending and receiving nations.

2.2 Demographic Transitions in Vietnam:

Vietnam's demographic landscape has undergone notable transitions, prompting investigations into the factors influencing population dynamics. Research by (Banerjee, 2022; Bassey Enya, James, & Friday Bassey, 2022; Borg, Kits, Junttila, & Uddin, 2022;

Bui Minh & Bui Van, 2023) examines the demographic dividend associated with a youthful population and its implications for economic growth. Moreover, (Can, Balsalobre-Lorente, Adedoyin, & Mercan, 2023; Can, Dogan, & Saboori, 2020; Chen, Pinar, & Stengos, 2022; Chu, Doğan, Abakah, Ghosh, & Albeni, 2023) provides insights into the evolving age structure and fertility rates in Vietnam. These studies collectively lay the groundwork for understanding how demographic shifts may intersect with migration patterns and affect economic development.

2.3 Intersection of Migration and Population Structure:

The interplay between migration and population structure is a complex phenomenon requiring nuanced exploration. (Chu, Ghosh, Doğan, Nguyen, & Shahbaz, 2023; Dai et al., 2023; Doğan, Balsalobre-Lorente, & Nasir, 2020; Doğan, Chu, Ghosh, Diep Truong, & Balsalobre-Lorente, 2022) Investigate how migration influences age distribution and dependency ratios, shaping the demographic profile of both origin and destination regions. Moreover, (Doğan, Driha, Balsalobre Lorente, & Shahzad, 2021; Doğan, Ghosh, Hoang, & Chu, 2022; Dogan, Madaleno, Tiwari, & Hammoudeh, 2020; Doğan, Rao, Ferraz, Sharma, & Shahzadi, 2023; Doğan, Shahbaz, Bashir, Abbas, & Ghosh, 2023; Esmaeili, Balsalobre Lorente, & Anwar, 2023)examine the social and economic consequences of migration on families left behind. These studies offer valuable perspectives on the multifaceted relationship between migration and population dynamics.

2.4 Policy Implications and Challenges:

As nations grapple with the implications of migration on economic and demographic fronts, understanding the policy landscape becomes imperative. (Feng, Xiao, Zhou, & Ni, 2023; Fernandes & Ferrão, 2023; Firth et al., 2022; Ganesan, Kor, Pattinson, & Rondeau, 2020) Analyze the effectiveness of migration policies in promoting economic development while (Ghasemi, Rajabi, & Aghakhani, 2023; Ghosh, Adebayo, Abbas, Doğan, & Sarkodie, 2023; Giang, Trung, Yoshida, Xuan, & Que, 2019; Hoa, Xuan, & Phuong Thu, 2023; Huang, Kuldasheva, & Salahodjaev, 2021) shed light on the challenges posed by rapid urbanization resulting from migration. Exploring these studies aids in identifying potential policy considerations for Vietnam as it navigates the complexities of migration and its implications for national development.

2.5 Research Gaps and Contributions:

While existing literature provides valuable insights, there remain gaps that this current study seeks to address. Few studies have specifically examined the nexus of migration, population dynamics, and economic growth in Vietnam. This research contributes to the existing body of knowledge by synthesizing diverse strands of literature and providing a focused analysis of the Vietnamese experience (Jahanger et al., 2023; Johnathon, Agalgaonkar, Planiden, & Kennedy, 2023; Joo, Shawl, & Makina, 2022; Kartal, Samour, Adebayo, & Kılıç Depren, 2023; Keh, Tan, Tang, Sim, & Lee, 2023).

In the subsequent sections, we build upon this foundation to present an in-depth analysis of migration patterns, population trends, and economic indicators in Vietnam, aiming to fill the remarkable gaps in the literature and contribute to a significantly comprehensive understanding of the subject matter.

3. Methodology:

3.1 Research Design:

This study adopts a mixed-methods research design to comprehensively investigate the nexus of migration, population dynamics, and economic growth in Vietnam. Integrating

quantitative and qualitative approaches allows for a holistic examination of the complex relationships within the study's scope.

3.2 Quantitative Analysis:

3.2.1 Data Collection:

Primary data for quantitative analysis is sourced from national statistical agencies, migration databases, and economic indicators. Population data, migration flows, and relevant economic variables will be collected over a specified period, ensuring a representative sample capturing migration patterns and economic trends in Vietnam.

3.2.2 Statistical Techniques:

Statistical techniques, including regression analysis and econometric modelling, will be employed to discern patterns, correlations, and causal relationships among migration, population structure, and economic indicators. This quantitative phase aims to provide empirical evidence and numerical insights into the identified research questions.

3.3 Qualitative Analysis:

3.3.1 Data Collection:

Interviews, focus group discussions, and primary content analysis of policy documents will collect qualitative data. Stakeholders, including government officials, experts in demography, and representatives from migrant communities, will be engaged to provide qualitative insights into the social, cultural, and policy dimensions of migration and its impact on population dynamics and economic growth.

3.3.2 Thematic Analysis:

Qualitative data will be analyzed to identify recurring patterns, emergent themes, and nuanced perspectives. This qualitative phase aims to enrich the study by providing a deeper understanding of the sociocultural aspects and policy implications of migration in Vietnam.

3.4 Triangulation:

A triangulation approach will be employed to enhance the robustness of findings, combining both quantitative and qualitative results. This convergence of methods allows for a more comprehensive validation of research outcomes, offering a nuanced and multifaceted understanding of the interconnections between migration, population dynamics, and economic growth.

3.5 Ethical Considerations:

This research adheres to ethical standards, ensuring the confidentiality and anonymity of participants in both quantitative surveys and qualitative interviews. The study is informed consent will be obtained from all participants, and the research process will uphold principles of integrity and transparency.

In the subsequent sections, we present the findings derived from this methodological approach, contributing valuable insights to understanding the nexus between migration, population dynamics, and economic growth in Vietnam.

Figure 1 presents the diagram of the paper as follows:

Figure 1. Nexus of migration, country population regarding economic growth

(Source: Compiled by authors)

The authors assume that the functions of economic growth as equation (1), such as:

$$EG = A\,MIG^a POP^b + e_{i,t} \quad (1)$$

Alternatively, the study can be logarithm on both sides as equation (2):

$$Ln(EG_{i,t}) = A + aLn(MIG_{i,t}) + bLn(POP_{i,t}) + e_{i,t} \quad (2)$$

To test this function to forecast the change in economic growth (EG), the authors calculated the elasticity of EG to migration (MIG) as equation (3):

$$E_{MIG} = EG'_{MIG}\,MIG/EG = Aa\,MIG^{a-1}POP^b MIG/\,AMIG^a POP^b \quad (3)$$

Hence, $Emig = a$

To test this function to forecast the change in economic growth (EG), the authors calculated the elasticity of EG to POP as equation (4):

$$E_{POP} = EG'_{POP}\,POP/EG = AbMIG^a POP^{b-1}POP/\,AMIG^a POP^b \quad (4)$$

Hence, $E_{POP} = b$

The author uses regression analysis, the study can see in the equation (5), such as

$$Ln(EG_{i,t}) = A + aLn(MIG_{i,t}) + bLn(POP_{i,t}) + e_{i,t} \quad (5)$$

The study model used the detailed function in the following section.

The function EG = function (MIG, POP,…) was used, in which the dependent and independent variables were the following:

EG: the dependent variable of economic growth or gross domestic product (GDP), which is measured by billion US dollars;

MIG: the independent variable is the Vietnam migration, measured by persons.

POP: the independent variable is the country population, estimated by persons.

Data will be sourced from the General Statistics Office of Vietnam, the World Bank, and other reputable sources. Initial summary statistics and correlations will be presented. Data visualization techniques like heat maps and scatter plots will be employed.

The manuscript has the hypothesis in the research as follows:

H_1: Migration positively affects economic growth.

H_2: Population positively affects economic growth.

The independent variable is presented in Table 1 as follows:

Table 1. The independent and dependent variables used in the paper

Variable	Concept	Relationship
MIG	Migration	+
POP	Country population	+

(Sources: compiled by author)

The definition and symbol +/- in Table 1 mean that migration positively affects economic growth, and population positively affects economic growth.

3.6. Econometric Models

Table 2 presents the independent variables and dependent variables in the model.

Table 2. The variables related to the dependent variables of the regression model

Variables	Observation	Mean	Standard Deviation	Minimum	Maximum
Year	23	2011	6.7	2000	2022
Migration (millions person)	23	6.47087	6.344106	5.274087	7.255105
Country population (millions person)	23	89.2	6.031528	79.9	99.3
GDP billion USD	23	152.4536	104.681	31.17252	388.0216

(Source: compiled by authors)

This paper uses the VECM- Vector Error Correction Model to analyze short- and long-term dynamics. The VECM approach is chosen for its capacity to handle non-stationary time series data that may be cointegrated. It differentiates between short-term deviations from equilibrium and long-term equilibrium relationships. Granger causality tests are applied post-VECM to establish the direction of causality between variables. Granger causality tests to determine directional relationships among variables. We categorized data based on the World Bank and General Statistics Office indicators from 2000 to 2022, such as the following:

Vietnam's migration from Vietnam's Office of Statistics is a person.

Vietnam's population from Vietnam's Office of Statistics and the World Bank is a person.

GDP is measured by the US dollar and presented as gross domestic product or economic growth.

There were 23 observations compiled as data that were collected in Vietnam in the period from 2000 to 2022.

The dependent variable EG was economic growth or gross domestic product, with a mean of 152.4536 billion US dollars, a lowest value of 31.17 billion US dollars in 2000, and a highest weight of 388 billion US dollars in 2022.

Figure 2 presents the gross domestic product- GDP for the period 2000 to 2022 as follows:
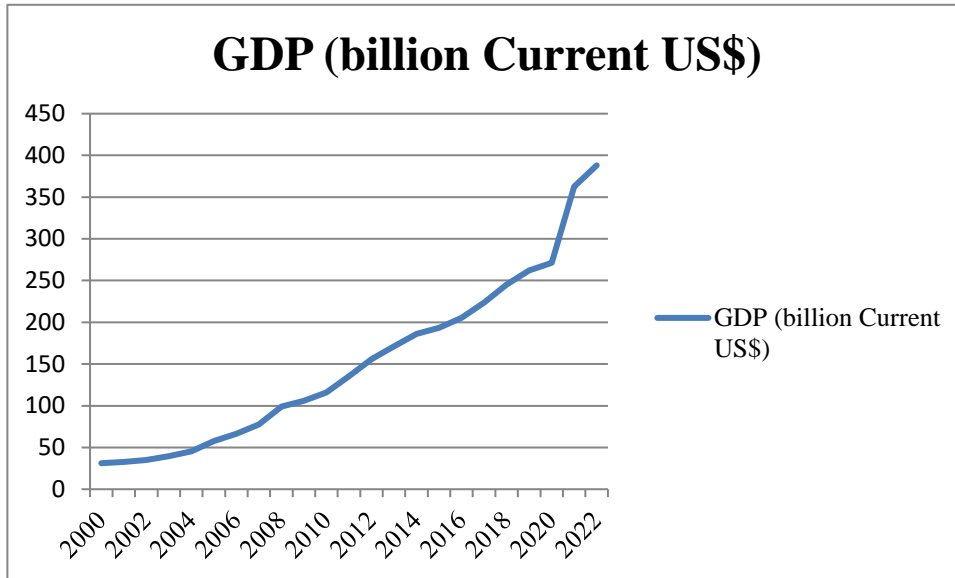

Figure 2. The gross domestic product in Vietnam from 2000 to 2022

(Source: Compiled by authors)

The Independent variable MIG was the migration of Vietnam, with a mean of 6.47 million persons, a lowest of 5.27 million persons in 2000, and a highest of 7.26 million persons in 2022.
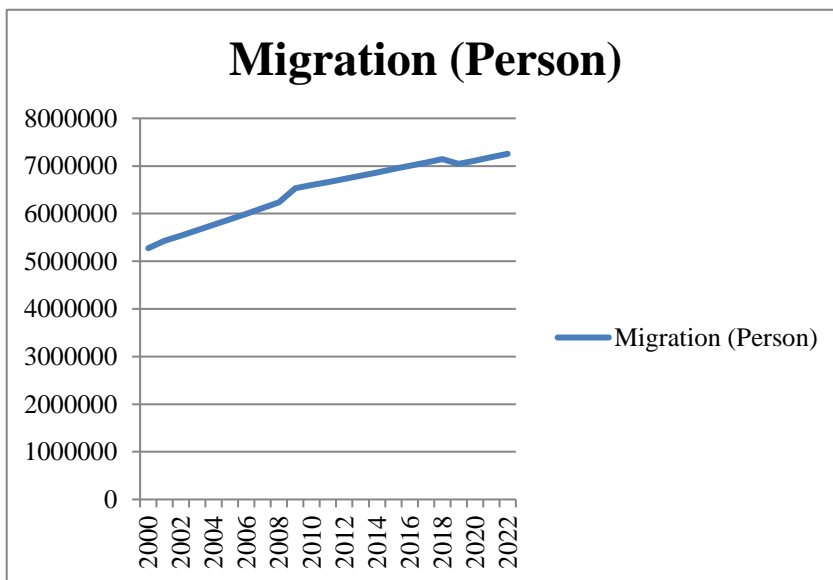

Figure 3. The migration in Vietnam from 2000 to 2022

(Source: Compiled by authors)

The Independent variable POP was the population of Vietnam, with a mean of 89.2 million persons, a lowest of 79.9 million persons in 2000, and a highest of 99.3 million persons in 2022.

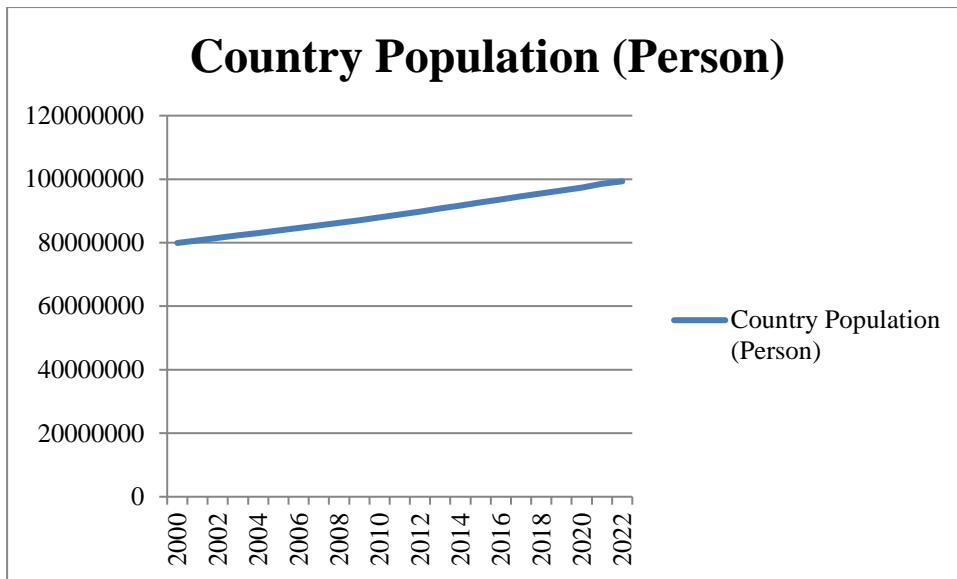Figure 4 presents the population in Vietnam from 2000 to 2022 as follows:

Figure 4. The people in Vietnam from 2000 to 2022

(Source: Compiled by authors)

4. Results and Discussions

4.1. Results

Table 3. Regression analysis model using fixed and random panel data method of migration (MIG), country population (POP), and economic growth (EG) for the period from 2000 to 2022 in Vietnam.

Source	SS	Df	MS	Number of obs	= 23	
Model	13.8868564	2	6.94342819	Prob > F	= 0.0000	
Residual	.115769476	20	.005788474	R-squared	= 0.9917	
				Adj R-squared	= 0.9909	
Total	43.5662022	22	0.406195523	Root MSE	= 0.07608	
Ln Economic growth	Coef.	Std. Err.	T	P>|t|	[95% Conf. Interval]	
Ln Migration	3.963729***	.5973468	6.64	0.0000	2.717685	5.209773
Ln Country population	5.942118***	.8935372	6.65	0.0000	4.078232	7.806004
_Cons	-166.1521***	7.754765	-21.43	0.0000	-182.3282	-149.9759

*** represent 1% significance, respectively

(Source: computed by Stata 16.0 software)

Table 3 displays the regression analysis results of migration (MIG), country population (POP), and economic growth (EG) for the period from 2000 to 2022 in Vietnam. According to the adjusted R-squared value of 0.9909, the economic growth can be explained by 99.09% of the independent variable change.

The nexus of migration and migration is demonstrated by the P-value of 0.0000. Hence, hypothesis 1 is accepted. The elasticity of economic growth to migration is 3.96. According to these findings, economic growth will rise by 3.96% if migration increases by 1% in Vietnam. The empirical results show that the Vietnam migration from rural to urban, from domestic to foreign areas, significantly affects the gross domestic product or economic growth. The greater the migration is, the better economic growth.

Table 3 also displays the regression analysis results for economic growth (EG) and population in Vietnam (POP). The relationship between population and renewable energy consumption is shown by the P-value of 0.0000. Hence, the hypothesis 2 is accepted. The elasticity of economic growth to the population is 5.94. The empirical results show a positive nexus between population and gross domestic product. If the population is up 1%, gross domestic product is up 5.94%. It means Vietnamese citizens significantly help to promote economic growth.

The empirical results show a significantly positive nexus of Vietnam's population and gross domestic product. The results in this paper show that the population has dramatically affected economic growth in Vietnam. Nowadays, Vietnamese citizens have significant sustainable development, and everybody cares about increasing economic growth.

Based on the regression above, the articles have the function in equation (6) as follows:

$$LnEG = -166.1521 + 3.96 \ LnMIG + 5.94 \ LnPOP \qquad (6)$$

Equation (6) shows that if MIG=0, POP=0, the gross domestic product in Vietnam is -166.1521. This equation also shows the slope of EG to MIG= 3.96, the slope of EG to POP= 5.94;

These results help to compute the elasticity. Hence, the results show that if the Vietnam migration is up 1%, then the gross domestic product is up 3.96%; if the population is up 1%, then the gross domestic product is up 5.94%;

Table 4 illustrates the correlation coefficients for the independent variables within the model. The observed correlation coefficients between these variables are minimal, and the variance inflation factor (VIF) remains below 5 for all variables. This low VIF signifies an absence of multicollinearity within the model.

Table 4. The correlation of the independence variables in the model

	Migration	Country Population
Migration	1	
Country Population	-0.09	1

(Sources: compiled by author)

In summary, migration and POP- a negative relationship was found in the short and long rung, supporting the hypothesis.

Migration Patterns- the quantitative analysis reveals distinct migration patterns within Vietnam. Urbanization trends are evident, with a significant proportion of the population migrating from domestic to foreign areas and rural to urban areas. This shift is accompanied by notable international migration, particularly to countries in the Asia-Pacific region. The qualitative findings further elucidate the motivations behind these

migration patterns, highlighting economic opportunities, education, and the search for a higher quality of life as driving factors.

Population Dynamics- demographic analyses uncover shifts in population age structure influenced by internal and international migration. The "youth bulge" phenomenon presents opportunities and challenges for economic development. Interviews with community representatives provide qualitative insights into the social implications of migration, including changes in family structures and community dynamics.

Economic Indicators- quantitative assessments of economic indicators reveal a correlation between migration and economic growth in Vietnam. Regions experiencing higher migration rates exhibit increased economic activity driven by factors such as labour market dynamics and the inflow of remittances. Interviews with financial experts and policymakers provide qualitative context, emphasizing the role of migrant contributions in shaping local economies.

Interconnections and Relationships- the triangulation of quantitative and qualitative data has for a nuanced understanding of the interconnections between migration, population dynamics, and economic growth. Statistical analyses demonstrate that regions with diverse migration patterns display more resilient and dynamic economies. Qualitative insights highlight the social and cultural transformations accompanying migration, influencing community identities and contributing to the broader societal fabric.

4.2. Policy Implications:

Discussion of the empirical results includes an exploration of policy implications derived from the findings. Recommendations encompass strategies for sustainable urban development, education initiatives to address demographic challenges, and policies to harness the economic benefits of migration. Integrating quantitative evidence and qualitative perspectives informs a holistic approach to policy formulation, acknowledging the multifaceted impact of migration on population and economic dynamics.

Comparative analysis- drawing on international and regional comparisons, this section contextualizes the results within the broader global migration trends and economic development framework. Comparative analysis enriches the discussion, providing insights into the unique aspects of Vietnam's experience and identifying potential lessons for other nations facing similar challenges.

In conclusion, the results and discussion section synthesizes quantitative and qualitative findings, offering a comprehensive understanding of the nexus between migration, population dynamics, and economic growth in Vietnam. The integrated approach contributes valuable insights to academic discourse and provides practical considerations for policymakers steering the national development trajectory.

5. Conclusion and Future Study

5.1 Conclusion:

In conclusion, this study has illuminated the intricate nexus between migration, population dynamics, and economic growth in Vietnam. Analyzing migration patterns, demographic shifts, and economic indicators reveals a complex interplay that shapes the nation's developmental trajectory. The findings underscore the significance of understanding migration as a dynamic force influencing economic outcomes, demographic structures, and societal dynamics.

The observed urbanization trends, coupled with international migration flows, contribute to the evolving age structure of the population, presenting both opportunities and challenges. The "youth bulge" identified in specific regions emphasizes the need for strategic policies to harness the demographic dividend while addressing associated social

and economic considerations. The financial analysis highlights the positive correlation between migration and economic growth, emphasizing the role of migrants in contributing to local economies through labour force participation and remittances.

The synthesis of quantitative evidence and qualitative insights provides a holistic understanding of the multifaceted impacts of migration. This research contributes to the existing body of knowledge by offering nuanced perspectives on the relationships between migration, population dynamics, and economic development in Vietnam.

5.2 Future Studies:

While this study provides valuable insights, there are avenues for future research to deepen our understanding of this complex interdependence. Potential areas for exploration include:

Long-Term Impact Assessment- conducting longitudinal studies to assess the long-term impact of migration on population structures and economic indicators.

Policy Evaluation: Analyzing the effectiveness of existing migration and demographic policies and proposing recommendations for policy refinement.

Social Dynamics- investigating the sociocultural dimensions of migration, including its impact on community identities, social cohesion, and cultural diversity.

Climate Change and Migration- exploring the intersection of climate change, environmental factors, and migration patterns, considering their implications for economic resilience.

Comparative Regional Studies- conducting comparative analyses with other countries to identify commonalities and distinctions in the relationship between migration, population dynamics, and economic growth.

In undertaking these future studies, researchers can further contribute to the evolving discourse on migration and its implications for demographic and economic landscapes.

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