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Education and sustainable development in Vietnam
How education plays a pivotal role in fostering sustainable economic growth in Vietnam?

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Abstract

Vietnam faces persistent challenges related to poverty and underdevelopment, with limited access to quality education being a crucial contributing factor. Despite recognizing education as a potential driver for poverty alleviation and sustainable economic growth, there is a significant knowledge gap regarding how education can effectively break the cycle of poverty and promote sustainable development. This research addresses this gap by investigating the multifaceted role of education in Vietnam, aiming to uncover barriers to access and evaluate the effectiveness of existing educational initiatives.

The research examines the current state of education in Vietnam and its impact on poverty alleviation and sustainable development, identifies key barriers hindering access to quality education, and critically assesses the effectiveness of existing initiatives. The findings reveal that while Vietnam has made substantial progress in educational attainment and economic growth, significant challenges remain, particularly in ensuring educational equity and quality. Despite impressive reductions in poverty rates and GDP growth, disparities in educational opportunities persist, especially for rural and ethnic minority populations.

The pivotal role of education in reducing poverty and promoting sustainable economic development in Vietnam is also a highlight. Investments in education have significantly lifted millions out of poverty and contributed to economic growth by enhancing human capital, productivity, and innovation. However, addressing ongoing challenges such as quality disparities, rural-urban divides, and the need for continuous curriculum reforms and teacher training is essential for maximizing education's role as a catalyst for sustainable development. Future research should focus on enhancing educational quality, addressing equity gaps, integrating technological advancements, and aligning educational outcomes with economic and environmental sustainability goals to ensure Vietnam's continued progress in a globalized economy.

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List of abbreviations

AR	Action Research
CIPP	Context, Input, Process, and Product
Covid-19	Corona virus Disease of 2019
ECE	Early Childhood Education
ESD	Education for Sustainable Development
EU	European Union
GDP	Gross Domestic Product
HEIs	Higher Education Institutions
IT	Information Technology
NGO	Non-governmental Organization
PD	Professional Development
R&D	Research & Development
SDGs	Sustainable Development Goals
SEC	Social and Emotional Competence
SEL	Social and Emotional Learning
ToT	Training-of-Trainers
TPACK	Technological Pedagogical Content Knowledge
UNICEF	United Nations Children's Fund
USD	U.S. Dollars
VND	Vietnam Dong
WTO	World Trade Organization

1. Introduction

Vietnam confronts persistent challenges characterized by poverty and underdevelopment, and a crucial factor contributing to these issues is the limited access to quality education. Despite the acknowledgment of education as a potential catalyst for poverty alleviation and sustainable economic growth in the country, a substantial knowledge gap exists concerning the specific mechanisms through which education can effectively break the cycle of poverty and foster sustainable economic development. This research seeks to bridge this gap by investigating the multifaceted role of education in Vietnam, aiming to uncover the barriers to access and assess the effectiveness of existing education initiatives. The ultimate goal is to provide evidence-based recommendations for policy and program improvements that can pave the way for more equitable and sustainable development outcomes in the country.

The central research question guiding this study is: “What is the role of education in breaking the cycle of poverty and promoting sustainable economic development in Vietnam?” To address this question comprehensively, the research will pursue several key objectives. Firstly, the study will analyze the current state of education of Vietnam and assess its impact on poverty alleviation and sustainable development. Secondly, it will identify the key barriers and challenges that hinder access to quality education in the country. Lastly, the research will critically analyze existing education initiatives in addressing these identified challenges.

The structure of this thesis reflects a logical progression to systematically address the research question and objectives. Beginning with this introduction, the subsequent sections will delve into a comprehensive literature review, providing a theoretical framework and detailing the chosen research methodology. Following this, the thesis will concentrate on exploring the role of education in poverty alleviation and sustainable development in Vietnam. A dedicated section will be allocated for policy analysis, assessing the government initiatives. The conclusion will encapsulate the key insights derived from the research, emphasizing their implications and potential contributions to the broader discourse on education, poverty alleviation, and sustainable development in Vietnam.

2. Theoretical framework & research methodology

2.1. Theoretical framework of economic growth and development

2.1.1. The Solow model

The Solow model, introduced by Solow in 1956, serves as a foundational framework for comprehending economic growth dynamics. At its core, the model revolves around the interplay of production functions and capital accumulation.

Solow's original work emphasized the significance of the production function, which delineates how inputs such as labor and capital contribute to the production of goods and services. Furthermore, it delves into the relationship between capital accumulation and economic growth, elucidating how savings and investment impact the growth rate of capital. The concept of a steady state, where the economy experiences constant growth, is also central to Solow's analysis, as he explores the conditions under which such a state is attained.

Mankiw et al. (1992) expanded upon Solow's model by incorporating additional factors into the production function, such as human capital and technology. They highlighted the pivotal role of technological progress in driving long-term economic growth, alongside capital accumulation. Their contribution underscored the multifaceted nature of the production function and its influence on national output.

RA (1956) further elaborated on the Solow model, emphasizing the dynamic interaction between capital, labor, and technology in generating economic output. The model takes into account consumption and population behaviors while operating under certain assumptions, such as constant returns to scale in capital and effective labor. Ramanayake also addressed the model's limitations, including its treatment of technological progress as exogenous and its omission of factors like human capital and international trade, which are accounted for in other growth models.

Gundlach (2007) provided insights into the dynamics of steady-state growth within the Solow framework. Contrary to earlier models like the Harrod-Domar model, which emphasized exogenous factor accumulation, Solow's model posits that long-term growth is primarily driven by technological advancements rather than factor accumulation. Gundlach also discussed the empirical relevance of the Solow model in understanding cross-country differences in

development levels, highlighting the misconception of focusing solely on capital-output ratios rather than technology differences when analyzing empirical growth data.

All in all, the Solow model offers a comprehensive framework for understanding economic growth dynamics, incorporating elements such as production functions, capital accumulation, technological progress, and steady-state analysis. While it provides valuable insights, the model is not without limitations, and its empirical relevance necessitates a nuanced understanding of factors influencing economic development.

2.1.2. Endogenous growth theory

The Endogenous Growth Theory represents a significant shift in economic thought, emphasizing internal factors such as technological advancements, innovation, and human capital accumulation as drivers of long-term economic growth. Originating from critiques of standard economic models for their inability to explain systematic differences in growth rates among nations, this theory has been developed and expanded upon by various scholars.

Jones & Manuelli (1997) shed light on the renewed attention to income dynamics that prompted the emergence of endogenous growth theory. The theory suggests that policy choices, particularly in areas such as monetary, fiscal, and patent policies, can significantly impact long-term growth. Furthermore, it underscores the importance of models allowing for endogenous determination of growth rates, highlighting education's pivotal role in human capital accumulation and economic growth.

Manicas (2007) focuses on the internal mechanisms of growth, particularly technological change driven by market incentives. He emphasizes the non-rival nature of knowledge and designs, which allows for increasing returns to scale and challenges the equilibrium-focused view of markets. While acknowledging the importance of human capital and education, Manicas simplifies their treatment as fixed assets, which is a limitation compared to the complexities of their roles in economic growth.

Helpman (1992) delves into the role of innovation as the primary driver of economic growth within the endogenous growth framework. He highlights the accumulation of knowledge capital through research and development (R&D) activities, suggesting that innovations reduce future innovation

costs, thereby sustaining a positive growth rate. Helpman also discusses the nuanced impact of population growth and resource allocation on innovation and economic growth.

Chukwuemeka (2015) emphasizes the internal determinants of growth, particularly technological advancements, and innovations. The theory stresses the significance of technology and knowledge spillovers, highlighting the role of incentives such as patents and property rights in fostering innovation. Chukwuemeka also underscores the importance of education in enhancing productivity and human capital accumulation, contributing to long-term growth.

Bardhan (1995) focuses on the introduction of new goods and technologies as drivers of economic growth within the endogenous growth framework. He explores the role of strategic complementarities and increasing returns, emphasizing the importance of coordination across sectors for industrialization and overcoming underdevelopment traps.

In conclusion, the Endogenous Growth Theory represents a comprehensive approach to understanding economic growth, emphasizing the internal drivers of growth such as technological progress, innovation, and human capital accumulation. While offering valuable insights, it also poses challenges and complexities in modeling and understanding the intricate dynamics of growth processes.

2.2. Research methodology

The qualitative research study will be conducted through a comprehensive examination of existing literature and policy documents, focusing on the interplay between education, poverty alleviation, and sustainable development in Vietnam. The primary objectives include analyzing the current state of education in Vietnam, identifying barriers to access, and assessing the effectiveness of current initiatives.

To achieve these objectives, the study will rely on two main sources of data. First, an extensive literature review will be conducted, utilizing academic databases such as Google Scholar and JSTOR. Relevant articles and studies related to education in Vietnam, poverty alleviation, and sustainable development will be identified using keywords such as “education in Vietnam,” “poverty alleviation,” and “sustainable development.” The collected literature will then be organized based on themes, and key findings will be summarized to establish a comprehensive understanding of the role of education in sustainable development in Vietnam.

Secondly, a thorough analysis of policy documents will be undertaken. Government policies, strategic plans, and educational reform initiatives related to education and poverty reduction in Vietnam will be gathered and scrutinized. This analysis aims to provide insights into the existing policy landscape, goals, and strategies in place for promoting education and sustainable development in Vietnam. The identified gaps and areas requiring improvement will be highlighted. Data analysis will involve thematic analysis of the literature and policy documents. Thematic coding will be applied to identify recurring themes, patterns, and key issues related to education, poverty, and sustainable development. Additionally, a policy gap analysis will assess the strengths and weaknesses of existing policies against the identified challenges.

3. Education's role in poverty alleviation and sustainable development in Vietnam

3.1. Literature review

In recent years, the role of social capital in poverty reduction in Vietnam has garnered significant attention. Doan et al. (2018) underscored the impact of social capital at both the community and household levels. At the community level, it was found to have substantial effects in diminishing poverty across multiple dimensions, including monetary, education, housing, and basic services for ethnic minorities. Meanwhile, at the household level, social capital demonstrated significant influence on monetary well-being, basic services, and durable assets Doan et al. (2018). This highlights the importance of considering social capital when formulating poverty alleviation strategies for rural Vietnam, a crucial point for policymakers to bear in mind Doan et al. (2018).

Turning the focus to the realm of education, Ryu & Nguyen (2021) identified several pressing challenges and gaps in Vietnamese higher education. These encompassed areas such as governance, finance, quality assurance, data availability, and human resources. To address these issues and advance towards the attainment of Sustainable Development Goals (SDGs), the authors also put forth policy directions and strategic plans. Tri (2021) presented a mixed picture of Vietnam's education system, highlighting both achievements and challenges. On the positive side, there have been significant accomplishments, including the expansion of educational institutions, improvements in quality and effectiveness, diversification of educational modes, and integration with global education. However, there are still obstacles to overcome, such as low educational quality, outdated facilities, unequal access, staffing imbalances, and ineffective state management.

Tien et al. (2021) provided valuable insights into Vietnam's overall progress and remaining disparities. They acknowledged the remarkable strides made in poverty reduction and human development, largely attributable to the economic reforms initiated in the late 1980s. Yet, they emphasized persistent educational challenges, particularly disparities among ethnic groups and geographical regions, with ethnic minorities facing educational disadvantages. Education, they argued, plays a pivotal role in driving economic growth and fostering social inclusion. It enhances labor productivity, innovation, and competitiveness while contributing significantly to SDGs' achievement by reducing poverty, inequality, improving health, promoting gender equality, and environmental protection.

To enhance the quality and accessibility of education in Vietnam, Tien et al. (2021) put forth several policy recommendations. These encompassed increasing public expenditure on education, strengthening governance and accountability, enhancing teacher training and professional development, expanding early childhood education and lifelong learning opportunities, promoting bilingual education and cultural diversity, and fostering partnerships with the private sector and civil society. Moreover, they highlighted that investments in education can have positive spillover effects on other sectors, such as health, water, and electricity, ultimately contributing to the efficiency and sustainability of these services.

In the context of inclusive education, Linh & Azar (2019) proposed a set of solutions for sustainable development in Vietnam. These included improvements in the legal framework, the establishment of a dedicated management agency, collaboration in identifying children with special needs, enhancement of teacher training, expansion of the inclusive education support network, information dissemination, and tailored programs for children with disabilities. These recommendations underscore the need for a holistic approach to address the diverse challenges and opportunities within Vietnam's education landscape.

3.2. Overview of the economic development of Vietnam and a cross-country perspective

3.2.1. Overview of the economic development of Vietnam

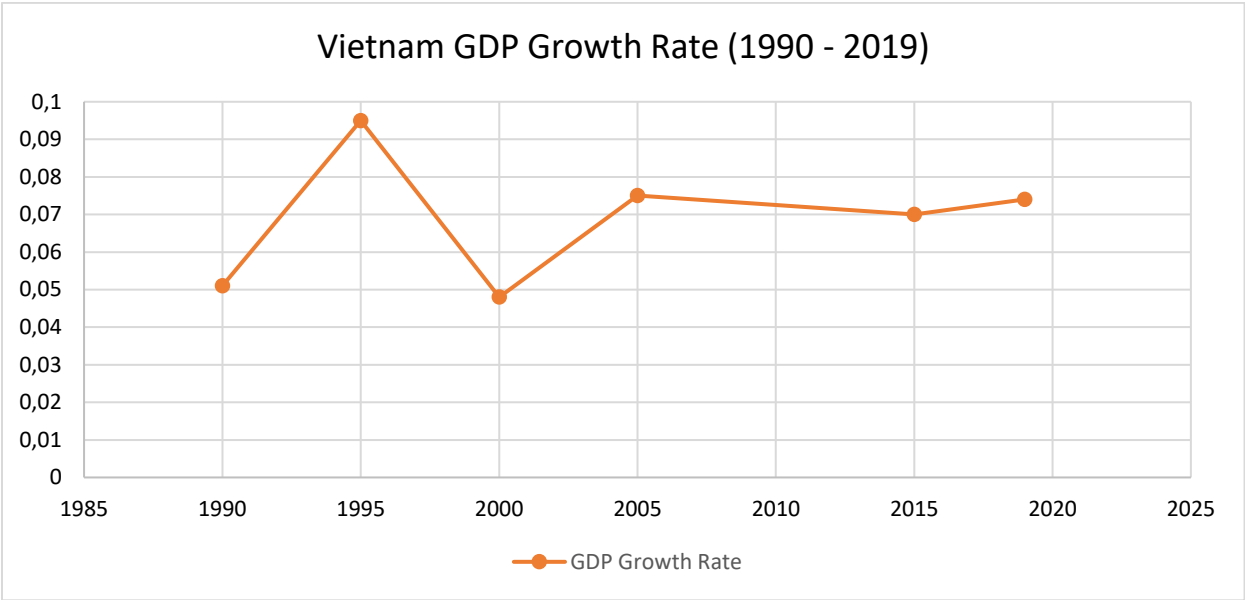
Vietnam's economic development has been a remarkable success story, characterized by rapid progress and resilience amidst various challenges, as noted by the Federal Ministry for Economic Cooperation and Development of Germany (2024), Asian Development Bank (2024), World Bank (2024c), and Leung (2024).

From 1990 to 2019, Vietnam experienced significant fluctuations in its GDP growth rate, reflecting the country's evolving economic landscape. In 1990, Vietnam's GDP growth rate was at 5.1%, marking the early stages of its transition from a centrally planned economy to a more market-oriented one. This period was characterized by substantial reforms under the *Đổi Mới* policy, which aimed to improve economic efficiency and promote private sector development (Glewwe et al. (2004)).

By 1995, these reforms had begun to bear fruit, and Vietnam's GDP growth rate surged to an impressive 9.5%. This peak highlighted the rapid industrialization and expansion of the manufacturing sector, as well as increased foreign direct investment. The robust economic performance during this period set a strong foundation for sustained growth in the following decades (Glewwe et al. (2004)).

However, the turn of the millennium saw a dip in the growth rate, with GDP growth falling to 4.8% in 2000. This decline can be attributed to the lingering effects of the Asian Financial Crisis of 1997-1998, which disrupted regional economies and led to slower growth rates across Southeast Asia (Glewwe et al. (2004)). Despite this setback, Vietnam managed to stabilize its economy and continued to implement reforms aimed at enhancing competitiveness and integration into the global economy.

Figure 1: Vietnam GDP Growth Rate (1990 – 2019)



(Source: World Bank (2024a))

By 2005, the GDP growth rate had recovered to 7.5%, indicating a return to robust economic health. This period was marked by significant improvements in infrastructure, education, and healthcare, alongside a steady increase in export activities. The country's accession to the World Trade Organization (WTO) in 2007 further accelerated economic growth by opening up new markets and attracting more foreign investment (Le (2016)).

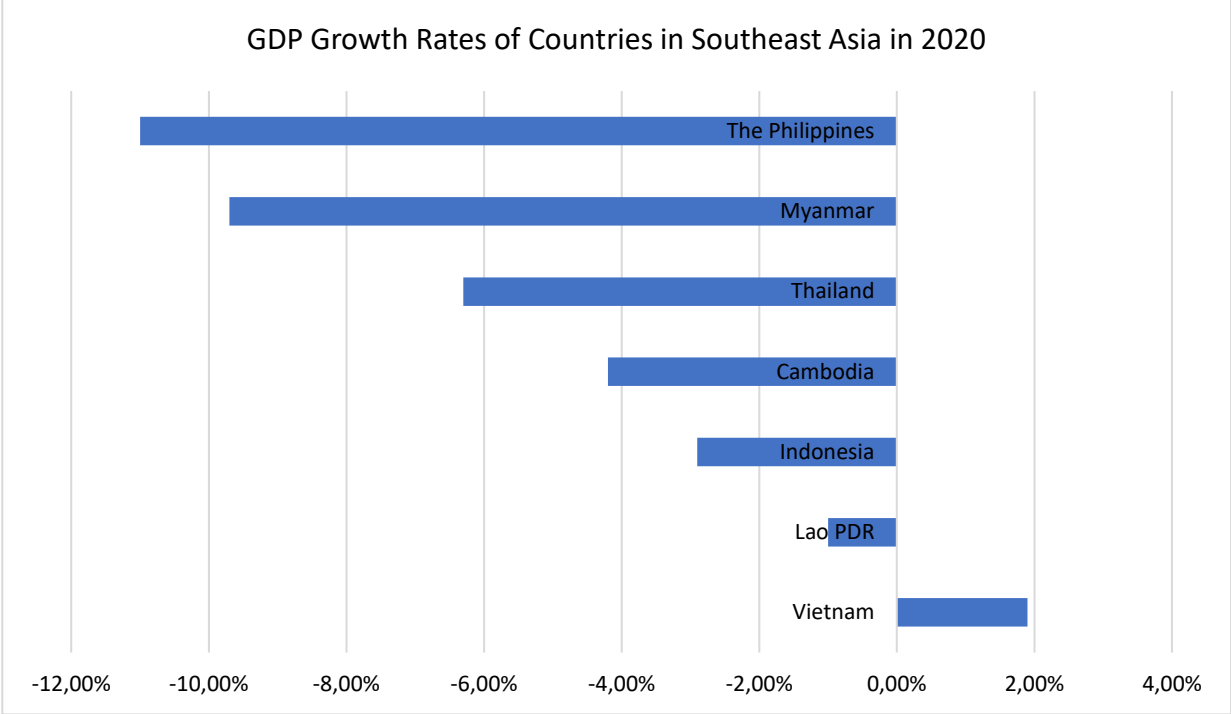
In 2015, Vietnam maintained a strong growth trajectory with a GDP growth rate of 7%. This consistent performance underscored the effectiveness of its ongoing economic reforms and efforts to diversify the economy. The rise of the technology and service sectors, along with continued investment in manufacturing, helped sustain high growth rates (Nguyen (2020)).

By 2019, Vietnam's GDP growth rate had slightly increased to 7.4%, demonstrating the resilience and dynamism of its economy. The country continued to benefit from a favorable demographic profile, strategic economic policies, and deepening integration into the global economy. This period also saw Vietnam emerging as a key player in global supply chains, particularly in electronics and textiles (Lee (2021)).

Starting as one of the poorest countries in the mid-1980s, Vietnam has made significant strides, achieving lower middle-income status in 2010. Key policies in the education sector have played

pivotal roles in this transformation, contributing to impressive progress towards the Sustainable Development Goals (SDGs) (Van (2022)). Even in the face of the COVID-19 pandemic, Vietnam's economy exhibited resilience, expanding by 1.9% in 2020, one of the highest growth rates in the region of Southeast Asia.

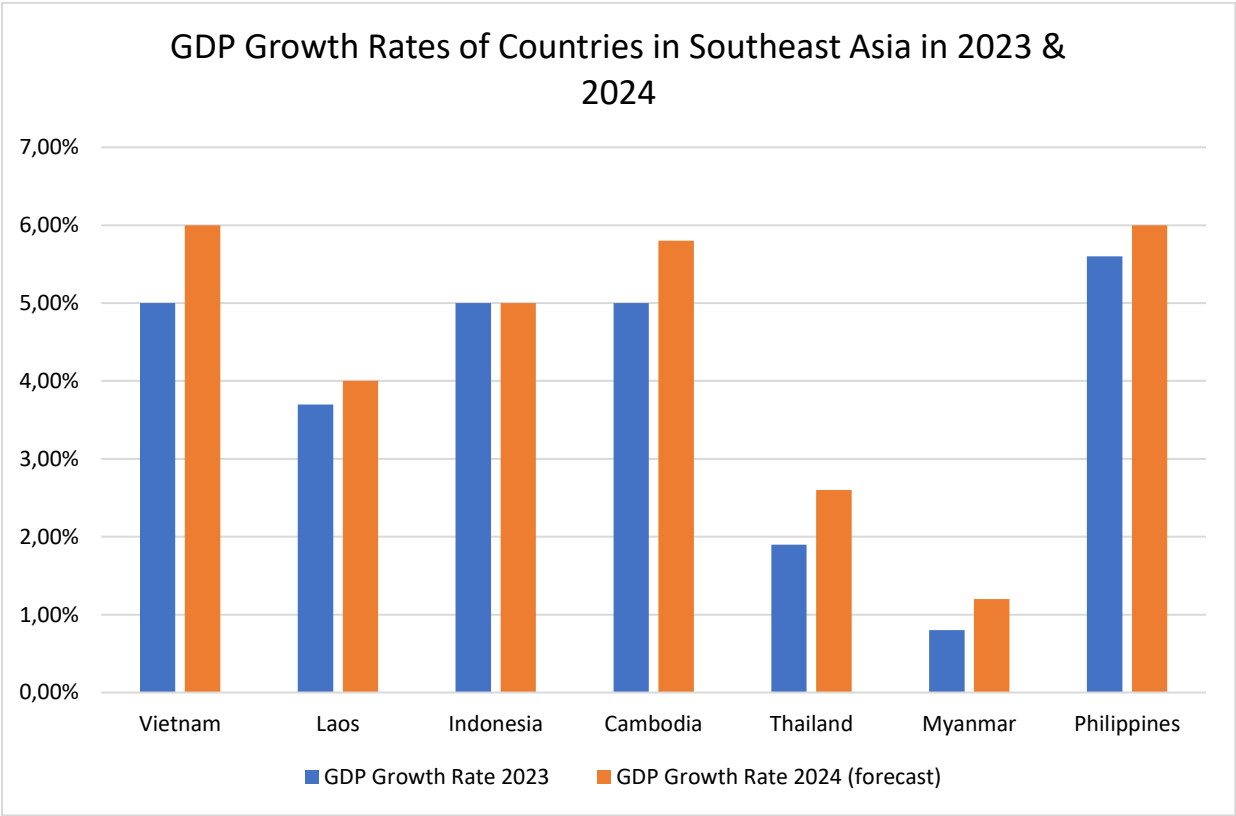
Figure 2: GDP Growth Rates of Countries in Southeast Asia in 2020



(Source: World Bank (2024b))

Strong economic fundamentals, decisive containment measures, and well-targeted government support contributed to this resilience. The Asian Development Bank's assistance program underscores Vietnam's transition to a green economy, emphasizing private sector engagement and promoting social equity. Economic growth projections indicate a GDP growth of 5% in 2023 and 6% in 2024.

Figure 3: GDP Growth Rates of Countries in Southeast Asia in 2023 & 2024

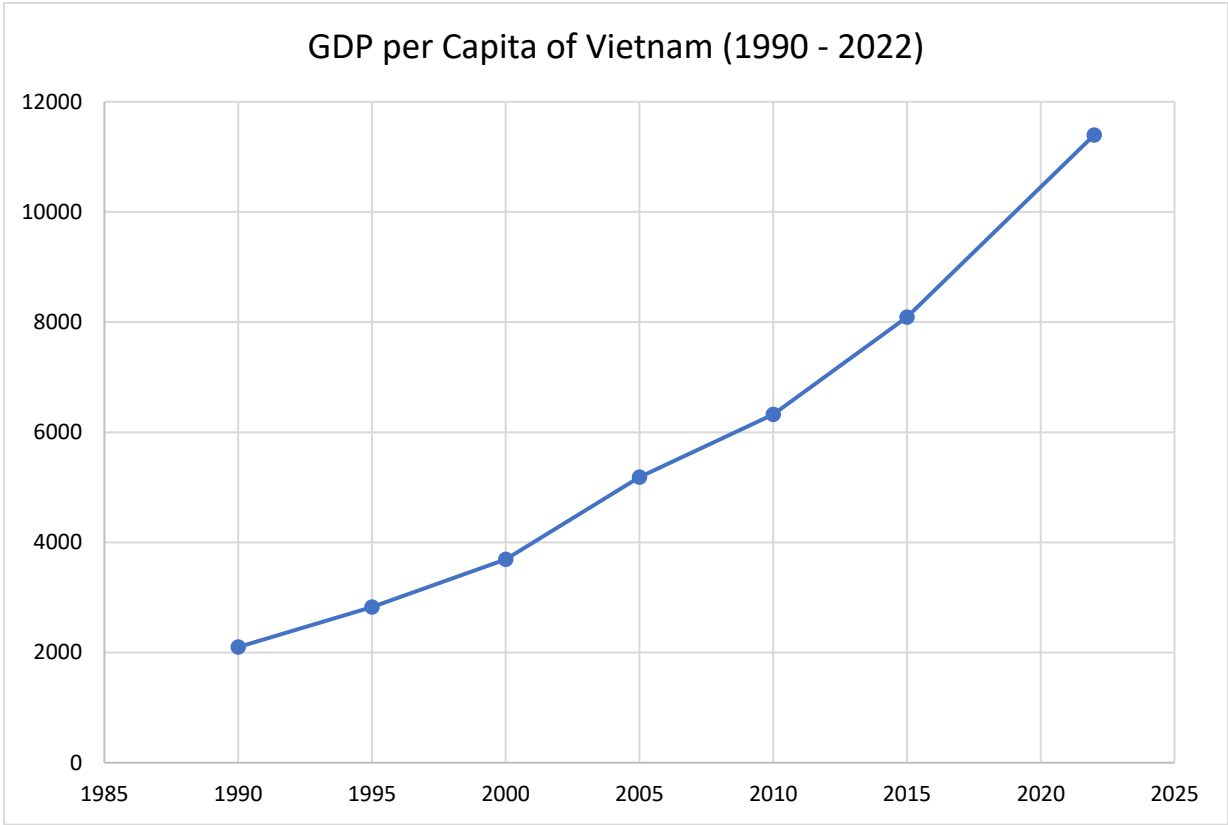


(Source: Asian Development Bank (2024))

Vietnam's GDP per capita has also undergone a remarkable transformation over the past three decades, reflecting the country's significant economic development. In 1990, the GDP per capita was approximately \$1,500. This figure reflects the initial economic conditions of Vietnam, characterized by relatively low per capita income. Despite this modest starting point, the next five years saw a gradual increase, with GDP per capita reaching around \$2,000 by 1995. This steady growth indicates the early phases of economic development.

By the year 2000, the GDP per capita had risen to about \$2,500, continuing the trend of gradual improvement. This period likely benefited from economic reforms and increased foreign investment, contributing to the rising income levels (Glewwe et al. (2004)). The following five years marked a more substantial increase, with GDP per capita climbing to around \$4,000 by 2005. This suggests that Vietnam's economy was gaining momentum, possibly due to further integration into the global economy and domestic economic policies promoting growth (Le (2016)).

Figure 4: GDP per Capita of Vietnam (1990 – 2022)



(Source: Our World in Data (2024d))

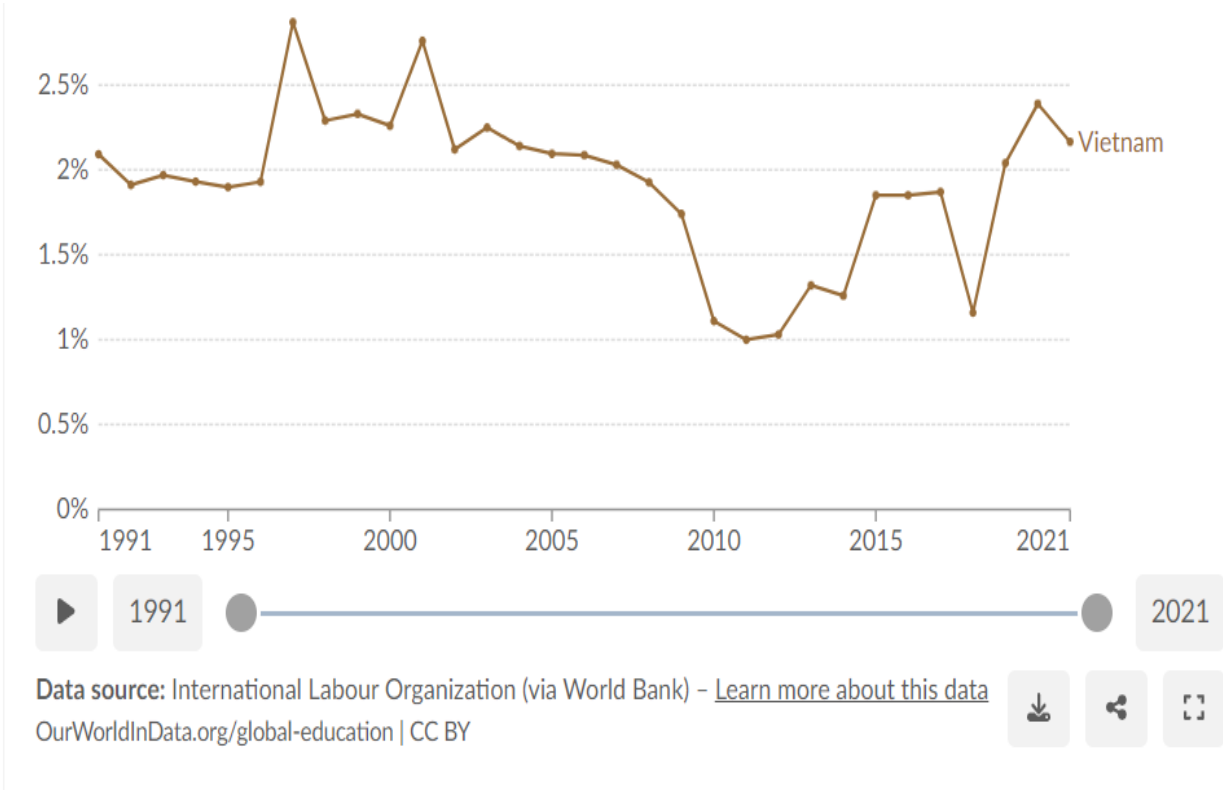
The upward trajectory continued into the next decade, with GDP per capita reaching approximately \$5,500 by 2010. This sustained growth reflects ongoing economic progress and development. By 2015, the GDP per capita had increased to about \$7,000, highlighting a decade of continuous improvement in the economic well-being of the population.

The most significant growth is observed in 2022, with GDP per capita surging to approximately \$11,000. This dramatic rise underscores the rapid economic development Vietnam experienced in the recent years covered by the chart. To sum it up, the data reflects a consistent and robust upward trend in Vietnam's GDP per capita from 1990 to 2022, showcasing the country's impressive economic progress and development over this period.

Unemployment rate is also a crucial factor that serves as a barometer of a country's economic development. In 1991, Vietnam boasted a relatively low unemployment rate of 2.1%, indicating a stable labor market amidst its transition towards a market-oriented economy. As the economy

continued to grow, albeit with some fluctuations, the unemployment rate rose slightly to 2.8% by the year 2000. This increase may have been influenced by factors such as shifts in industry composition and adjustments in labor demand (Glewwe et al. (2004)). However, Vietnam's economy demonstrated resilience and continued its upward trajectory, evident in the declining unemployment rate over the subsequent years.

Figure 5: Unemployment rate of Vietnam (1991 to 2021)



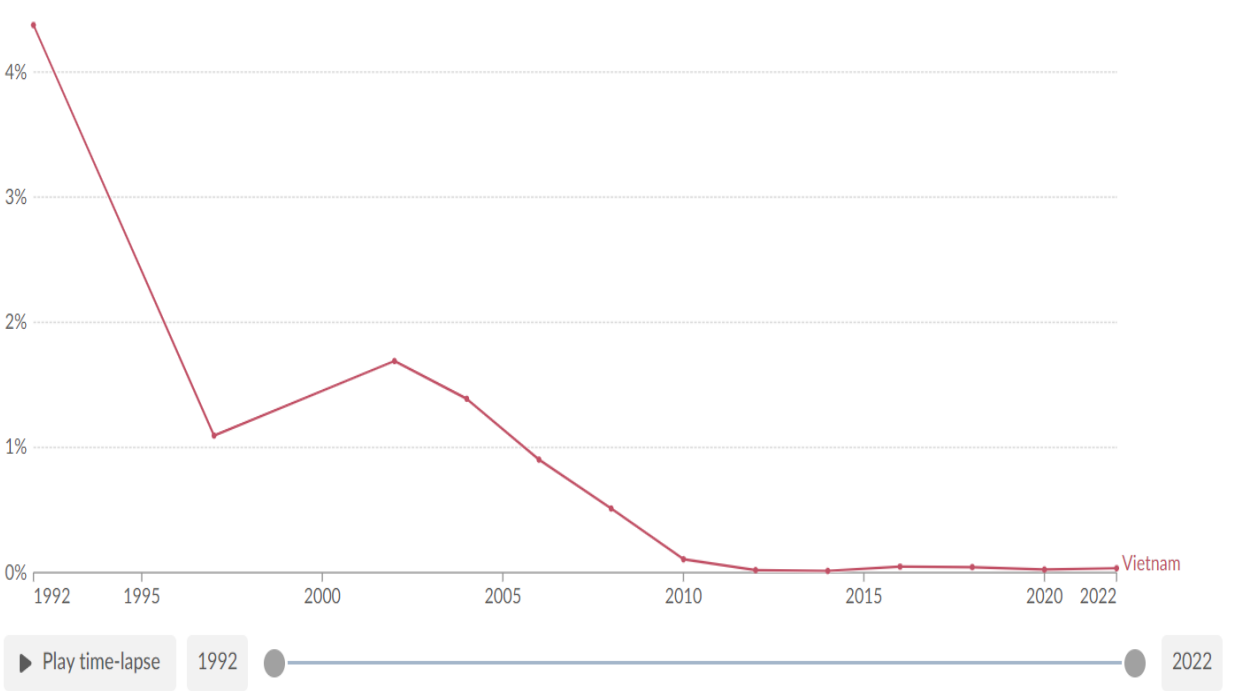
(Source: Our World in Data (2024f))

By 2010, the unemployment rate had dropped significantly to 1.1%, signaling robust economic growth and increased employment opportunities across various sectors. This period saw Vietnam's emergence as a key player in the global economy, with expanding trade networks and foreign investment driving job creation and economic prosperity (Cuong et al. (2007)). Despite global economic challenges, such as the 2008 financial crisis, Vietnam maintained its momentum towards development and sustained low unemployment rates. However, in 2021, the unemployment rate

rose to 2.2%, a testament to the country's ability to weather external shocks such as the global corona pandemic and maintain a resilient labor market.

Vietnam's economic growth is also marked by a significant decline in poverty rates. The share of the population living on less than \$1 a day, a widely used indicator of extreme poverty, provides a compelling narrative of this economic development journey. In 1992, Vietnam's poverty rate stood at 4.38%, reflecting the challenges the country faced in the aftermath of years of conflict and economic stagnation (DOANH (2015)). However, concerted efforts to reform and open up the economy led to substantial improvements. By 2002, the poverty rate had dropped to 1.69%, showcasing the early successes of Vietnam's economic reforms and development strategies.

Figure 6: Poverty rate of Vietnam (1992 to 2022)



(Source: Our World in Data (2024e))

The subsequent decade witnessed even more dramatic reductions in poverty. By 2012, the poverty rate had plummeted to a mere 0.02%, signaling a remarkable achievement in poverty alleviation. This unprecedented progress underscored Vietnam's commitment to inclusive growth and social development, as well as the effectiveness of targeted poverty reduction programs and policies. As of 2022, Vietnam's poverty rate remains relatively low, standing at just 0.04%. While the country

continues to face challenges related to income inequality, rural-urban disparities, and sustainable development, the trajectory of poverty reduction reflects Vietnam's emergence as one of the region's economic success stories (Cao & Akita (2008)).

Vietnam's economic transformation from a centrally planned to a market economy, driven by Đổi Mới economic reforms since 1986, has been pivotal in its rise to lower middle-income status. Despite various crises, including the COVID-19 pandemic, Vietnam's economy has remained resilient, with a commitment to reaching pre-pandemic levels by 2026. The country aspires to become a high-income nation by 2045, focusing on greener, more inclusive growth and committing to emission reduction and deforestation efforts World Bank (2024c).

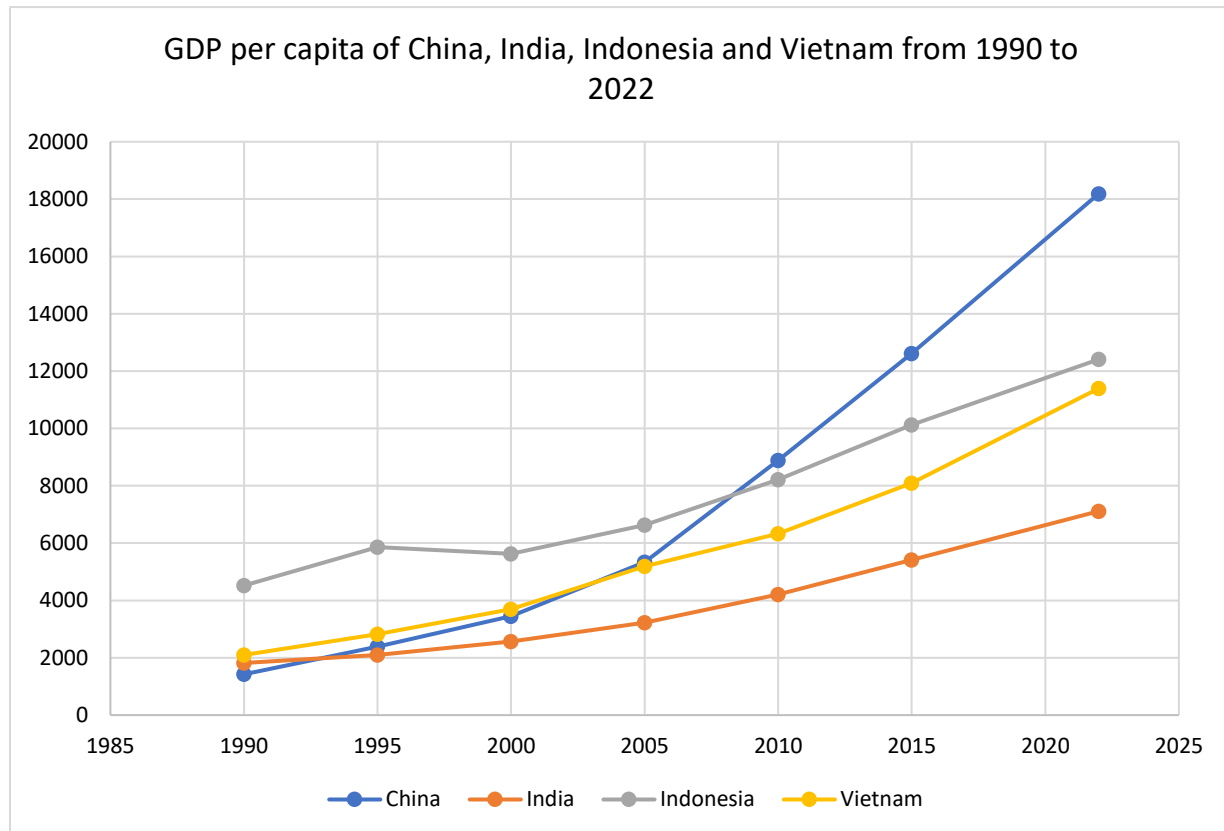
However, challenges persist, as highlighted by Leung (2024). The economy faced a downturn in 2023, with issues such as falling exports and industrial production decline. Structural weaknesses, including overreliance on foreign firms and bureaucratic red tape, necessitate bold reforms. These reforms include revamping state-owned enterprises, streamlining bureaucracy, and continuing anti-corruption efforts to regain momentum and achieve middle-income status.

3.2.2. A cross-country perspective

To get a cross-country perspective, China, India, and Indonesia are deemed comparable to Vietnam due to their shared trajectories of significant economic reforms and liberalization, leading to rapid economic growth from the 1990s onwards (Wignaraja (2011)). All four countries transitioned from more controlled economies to market-oriented ones, experienced substantial GDP increases, integrated into global trade networks, and leveraged large, youthful labor forces (Kong (2013)). Additionally, their governments actively promoted key sectors like manufacturing and services, driving their economic transformations (Akash (2022)).

3.2.2.1. GDP per capita

Figure 7: GDP per capita of China, India, Indonesia and Vietnam (1990 – 2022)



(Source: Our World in Data (2024c))

The chart illustrates the GDP per capita of China, India, Indonesia, and Vietnam from 1990 to 2022, revealing distinct economic growth patterns for each country over the three-decade period.

China's GDP per capita was relatively low in 1990, comparable to that of India and Vietnam. However, starting around the year 2000, China experienced a significant surge in economic growth. This rapid expansion continued, particularly after 2010, resulting in China achieving the highest GDP per capita among the four countries by 2022, reaching approximately 20,000 USD. China's economic trajectory stands out for its remarkable and sustained upward trend, far outpacing the other nations.

India's GDP per capita also started from a low base in 1990. Although there has been consistent growth over the years, the pace has been relatively modest compared to China and even Vietnam.

By 2022, India had the lowest GDP per capita among the four countries, reaching around 4,000 USD. Despite steady progress, India's economic growth has been less dynamic, resulting in a slower improvement in living standards relative to the others.

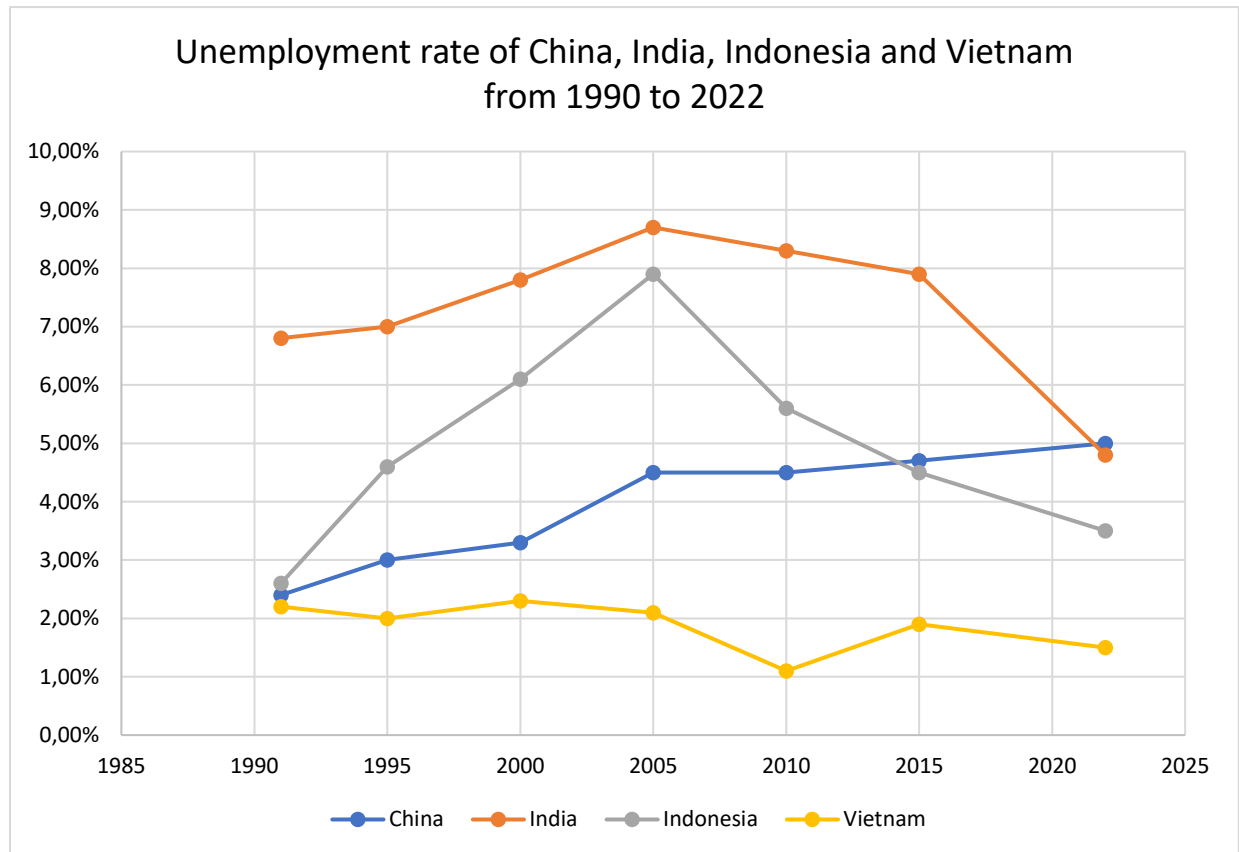
Indonesia had a higher GDP per capita than both China and India in 1990. The country's economic growth has been steady over the years, but it was eventually overtaken by China's rapid ascent around 2010. By 2022, Indonesia's GDP per capita was the second highest among the four, reaching approximately 12,000 USD. Indonesia's growth has been stable and significant, although not as pronounced as China's.

Vietnam's GDP per capita was similar to that of India and China in 1990. From the mid-2000s onward, Vietnam's economic growth became more pronounced, outpacing India's growth rate. By 2022, Vietnam's GDP per capita had surpassed India's, reaching around 6,000 USD, making it the third highest after China and Indonesia. Vietnam's economic performance highlights a successful period of growth, particularly in the latter part of the timeline.

In summary, the chart reveals that China experienced the most dramatic increase in GDP per capita, establishing itself as the economic leader among the four countries by 2022. India showed the slowest growth, maintaining the lowest GDP per capita throughout the period. Indonesia's growth was steady and robust, resulting in the second highest GDP per capita by 2022. Vietnam displayed significant progress, especially in the later years, surpassing India and nearing Indonesia. Each country's unique economic trajectory over the three decades underscores varying levels of development and growth dynamics.

3.2.2.2. Unemployment rate

Figure 8: Unemployment rate of China, India, Indonesia and Vietnam (1990 – 2022)



(Source: Our World in Data (2024f))

The chart illustrates the unemployment rates of China, India, Indonesia, and Vietnam from 1990 to 2022, highlighting the different trends and levels of unemployment among these countries over the three-decade period.

In 1990, China's unemployment rate was relatively low at around 2%. Over the years, the unemployment rate saw a gradual increase, reaching around 4% by 2005. From 2010 onwards, the rate remained relatively stable, fluctuating around 4-5%. By 2022, China's unemployment rate was approximately 5%, indicating a modest increase over the three decades.

India started with a higher unemployment rate of around 6% in 1990. The rate saw a gradual increase, peaking at nearly 8% around 2005. After this peak, India's unemployment rate began to

decrease steadily, falling to about 5% by 2022. This indicates a significant reduction in unemployment over the latter part of the period, despite initial increases.

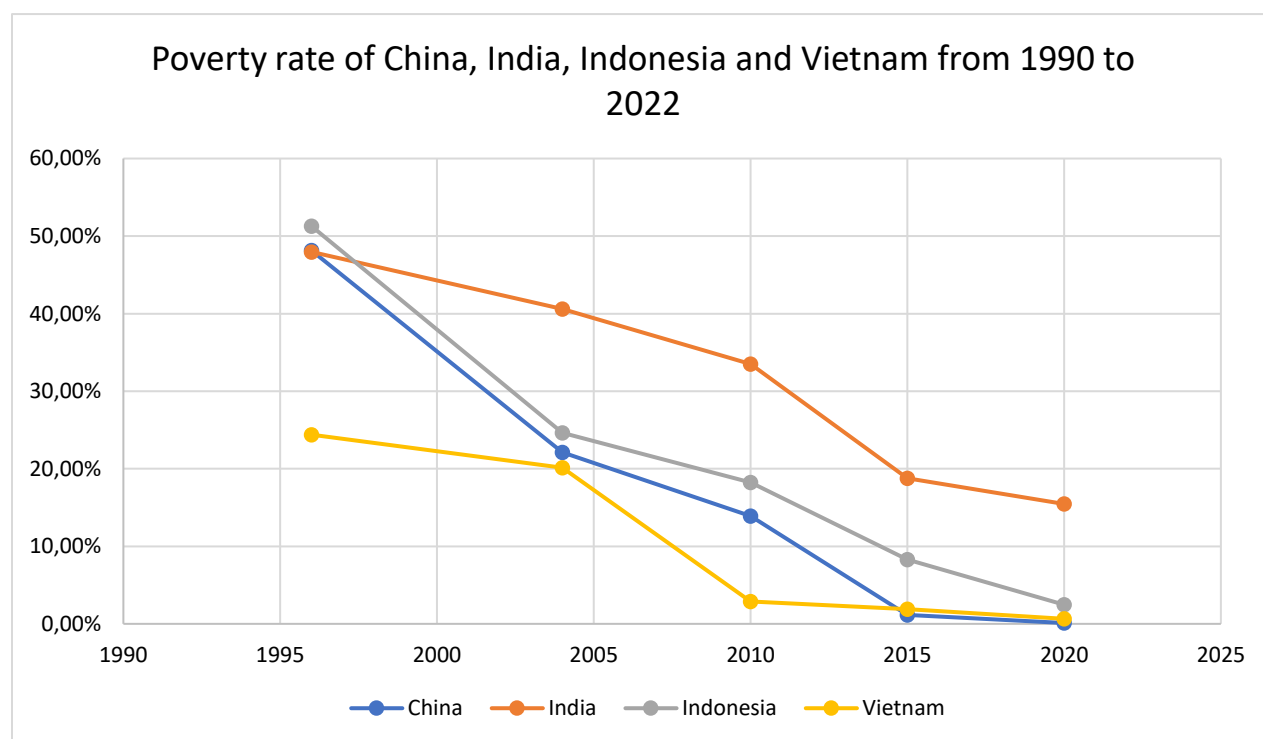
Indonesia's unemployment rate was about 4% in 1990. It increased sharply, reaching a peak of around 8% in the early 2000s. After 2005, the unemployment rate began to decline, dropping to about 4% by 2015 and further to around 3% by 2022. Indonesia's trend shows a high peak followed by a significant decline, resulting in a lower unemployment rate by the end of the period compared to the start.

Vietnam had the lowest unemployment rate among the four countries throughout the period, starting at around 2% in 1990. The unemployment rate remained consistently low, experiencing minor fluctuations but never exceeding 3%. By 2022, Vietnam's unemployment rate was about 2%, indicating remarkable stability and low unemployment over the entire period.

All in all, Vietnam consistently had the lowest unemployment rate, while Indonesia showed significant improvement after a peak in the early 2000s. China experienced a gradual increase but remained relatively stable from 2010 onwards. India saw a peak in the mid-2000s but managed to reduce its unemployment rate significantly by 2022. These trends reflect the diverse economic conditions and labor market dynamics in each country over the past three decades.

3.2.2.3. Poverty rate¹

Figure 9: Poverty rate of China, India, Indonesia and Vietnam (1990 – 2022)



(Source: Our World in Data (2024e))

The chart illustrates the poverty rates of China, India, Indonesia, and Vietnam from 1990 to 2022, showing significant declines across all four countries, though at different rates and starting points.

In 1990, China had a high poverty rate of around 50%. However, over the next three decades, China achieved a remarkable reduction in poverty. By 2000, the poverty rate had halved to about 25%, and it continued to fall steadily, reaching approximately 10% by 2010. By 2022, China had almost eradicated extreme poverty, with the rate dropping to below 5%. This substantial decrease reflects China's rapid economic growth and effective poverty alleviation policies.

India also started with a high poverty rate of around 45% in 1990. Unlike China, India's reduction in poverty was more gradual. By 2000, the rate had decreased to about 35%, and it continued to fall to approximately 20% by 2010. The decline persisted over the next decade, and by 2022,

¹ Share of population living in extreme poverty ([Our World in Data, 2024](#)).

India's poverty rate was just above 10%. Although slower than China's, India's progress in reducing poverty is notable, reflecting steady economic growth and targeted social programs.

Indonesia's poverty rate in 1990 was similar to India's, at around 50%. The country saw a rapid decline in poverty throughout the 1990s, reaching about 30% by 2000. This trend continued, with the poverty rate dropping to around 15% by 2010. By 2022, Indonesia had significantly reduced its poverty rate to below 10%. Indonesia's consistent economic development and social policies contributed to this substantial reduction in poverty over the period.

Vietnam's poverty rate was slightly lower than the other three countries in 1990, at around 35%. Vietnam achieved a remarkable reduction in poverty even faster than China. By 2000, the rate had dropped to about 20%, and it continued to fall dramatically to around 10% by 2010. By 2022, Vietnam had virtually eliminated extreme poverty, with the rate nearing 0%. Vietnam's rapid and sustained economic growth, coupled with effective poverty reduction programs, drove this impressive achievement.

Overall, the chart highlights significant progress in poverty reduction across all four countries from 1990 to 2022. China and Vietnam showed the most dramatic improvements, nearly eradicating extreme poverty by 2022. Indonesia also made substantial progress, while India's reduction, though slower, was still considerable. These trends underscore the diverse yet successful efforts of each country in tackling poverty over the past three decades.

3.3. Overview of the education system in Vietnam

3.3.1. History of the education system in Vietnam

The evolution of Vietnam's education system reflects a complex interplay of historical, cultural, and socio-political factors. Rooted in centuries of Confucian influence, as highlighted by Nguyen et al. (2020) and London (2011), education in Vietnam was initially modeled after ancient Chinese systems, emphasizing Confucian ideologies in both private and public schools. This system culminated in prestigious institutions like Quoc Tu Giam, catering primarily to royal courtiers.

The advent of French colonialism marked a significant turning point, leading to the adoption of the French model of education and the displacement of Chinese with French in schools. This

period, as noted by Nguyen et al. (2020), saw the emergence of primary, secondary, and tertiary levels, though access remained limited to French and wealthy Vietnamese children.

Post-colonial developments, following Vietnam's independence declaration in August 1945, aimed at eradicating illiteracy and unifying educational programs. Reforms sought to move away from coercion and rote learning, emphasizing scientific thinking and professional training. During the war with America, education reforms focused on fostering patriotism, collective spirit, and scientific work habits, streamlining education and integrating science subjects.

The period post-unification (1976-present) witnessed the adoption of the Soviet education model, aiming for a cultural ideological revolution and holistic development across economic, cultural, scientific, and technical domains. This era also saw the expansion of compulsory education to 12 years, reflecting Vietnam's commitment to broader educational access and development.

Despite these historical transformations, contemporary challenges persist, as highlighted by London (2011). Rapid economic growth has heightened demand for education, yet issues of quality, distribution, and accessibility remain. Debates about the need for educational reforms underscore the ongoing evolution of Vietnam's education system as it navigates the complexities of modernization and globalization.

3.3.2. The contemporary education system in Vietnam

3.3.2.1. Structure of the education system in Vietnam

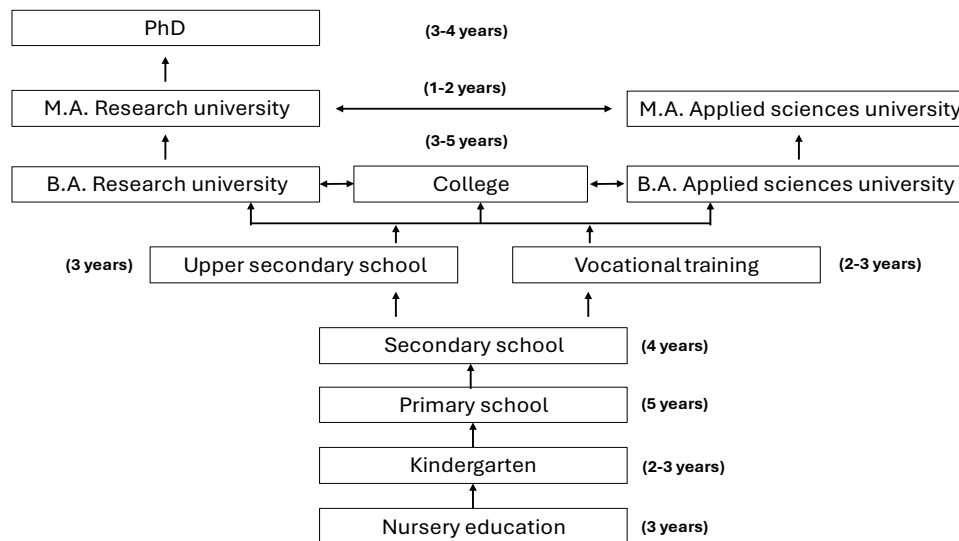
The Decision No.1981 in 2016 “Approving the structural framework of the national education system” (Prime Minister of the Socialist Republic of Vietnam (2016)) outlines the standards for entry, duration of study, and subsequent educational opportunities across various levels of education and training in Vietnam. Preschool education encompasses both nursery education, catering to children aged 3 months to 3 years, and kindergarten education for those aged 3 to 6 years.

General education includes primary education, lower secondary education (basic education stage), and upper secondary education (career orientation education stage). Primary education spans 5 academic years, from Grade 1 to Grade 5, with progression to lower secondary education upon completion. Lower secondary education, conducted over 4 academic years (Grade 6 to Grade 9),

accepts graduates of primary education, and serves as a pathway to upper secondary education or intermediate-level training programs.

Upper secondary education, lasting 3 academic years (Grade 10 to Grade 12), admits graduates of lower secondary education. Upon completion, students may pursue university education or vocational programs.

Figure 10: Illustrated education system in Vietnam



(Source: Prime Minister of the Socialist Republic of Vietnam (2016))

Vocational education comprises intermediate-level and associate degree programs. Intermediate-level programs, with a minimum duration of 1 academic year for high school graduates and 2 to 3 years for lower secondary school graduates, offer pathways to higher education upon completion. Associate degree programs, lasting 2 to 3 academic years for high school graduates and 1 to 2 years for graduates of lower secondary education with a high school diploma, provide further opportunities for specialized education.

Higher education encompasses undergraduate, master's, and doctoral degrees. Undergraduate programs, spanning 3 to 5 academic years, accept high school graduates, graduates of intermediate-level education, or associate degree holders. Graduates can pursue master's degrees

or doctoral programs. Master's degree programs, lasting 1 to 2 academic years, admit graduates of undergraduate programs. Doctoral programs, with a duration of 3 to 4 academic years, accept master's degree graduates or undergraduate degree holders meeting program requirements.

Continuing education aims to provide learning opportunities for individuals of all ages and backgrounds to enhance knowledge, develop skills, and adapt to changing professional demands. Learners can transition between education modalities as needed, provided they meet program requirements and demonstrate competency.

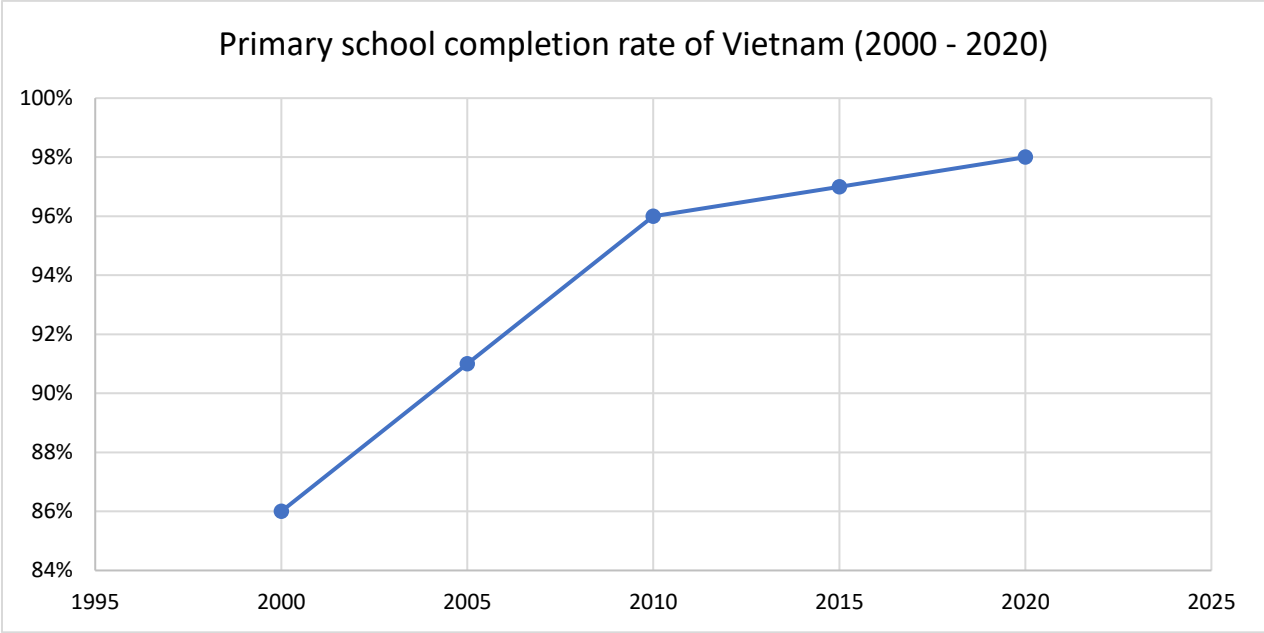
3.3.2.2. Completion rates among different education levels in Vietnam

Liu (2004) has also stated that the education system in Vietnam encompasses various levels, starting from kindergarten for children aged 1–5 years, compulsory primary education spanning grades 1 to 5 (6–10 years old), followed by lower secondary education covering grades 6 to 9 (11–14 years old), and finally upper secondary education from grades 10 to 12 (15–17 years old). There is a longstanding tradition of respecting education in Vietnam, reflected in an adult literacy rate of approximately 88%.

From 2000 to 2020, Vietnam demonstrated a commendable improvement in its primary school completion rate, reflecting the country's dedicated efforts in advancing its education system. In 2000, the primary school completion rate stood at 86%. This was a period when Vietnam was emerging from the economic challenges of the late 1990s and was beginning to see the benefits of its education reforms, which aimed to enhance access to and the quality of education across the country (Bélanger & Liu (2008)).

By 2005, the completion rate had risen to 91%. This significant increase was a result of continued government investment in educational infrastructure, teacher training, and policies focused on reducing dropout rates. The introduction of various programs aimed at supporting disadvantaged and rural students played a crucial role in this progress (Rolleston & Krutikova (2014)).

Figure 11: Primary school completion rate of Vietnam (2000 – 2020)



(Source: Dang et al. (2023), Our World in Data (2024a))

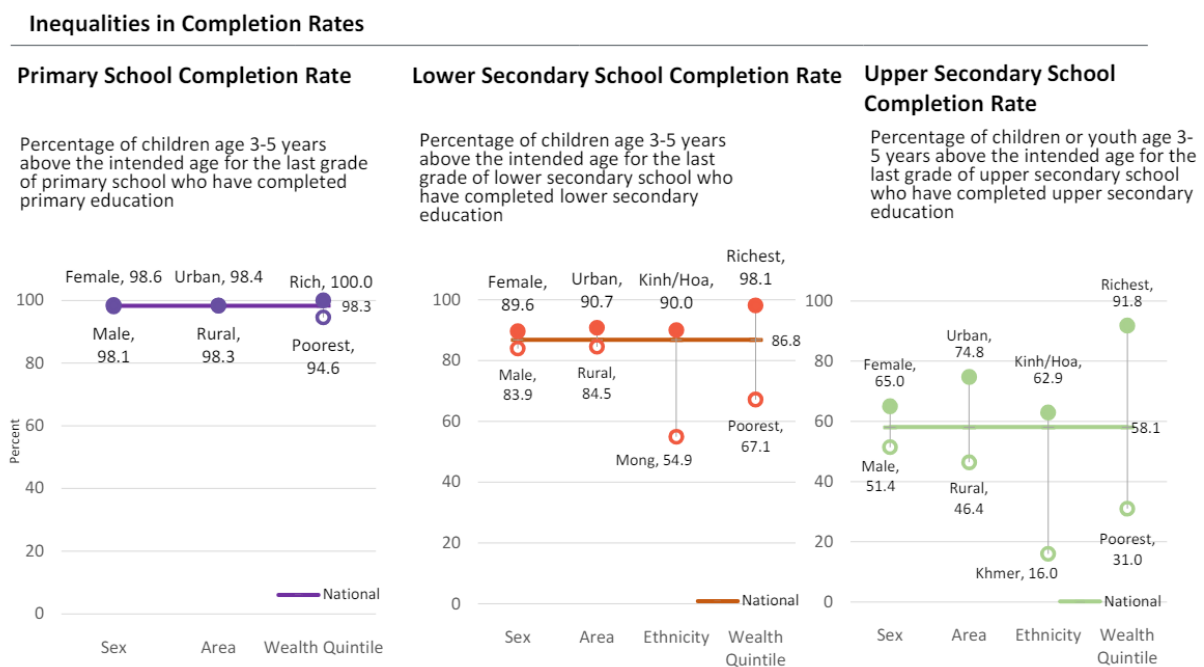
The upward trend continued into 2010, with the primary school completion rate reaching 96%. During this period, Vietnam's commitment to education was evident through substantial budget allocations and innovative educational policies (Harman et al. (2009)). Efforts to modernize the curriculum and improve school facilities contributed to higher enrollment and retention rates (Harman et al. (2009)). The emphasis on inclusive education ensured that more children, including those from marginalized communities, completed their primary education (Harman et al. (2009)).

By 2015, the completion rate had further increased to 97%, nearing universal primary education. Vietnam's strategic focus on education as a foundation for sustainable development was paying off (Kieu et al. (2016)). Programs promoting gender equality in education and initiatives to enhance learning outcomes for all students were instrumental in achieving these high completion rates. The government's collaborations with non-governmental organizations and international bodies also supported these advancements. Dang et al. (2023) also provided insights into completion rates in Vietnamese schools. In 2014 and 2015, Vietnam achieved an impressive 97% completion rate for primary school.

In 2020, the primary school completion rate peaked at an impressive 98%. This achievement highlighted the effectiveness of Vietnam's long-term educational strategies and the resilience of its education system in the face of challenges, including those posed by the COVID-19 pandemic. Digital learning platforms and remote education initiatives ensured that students continued their studies despite school closures (Tri et al. (2021)). The near-universal completion rate underscored the country's success in making primary education accessible and completing a key milestone in its educational development.

Further insights from Unicef (2021) underscored the disparities in completion rates across different levels and demographics. While the primary school completion rate remained high at 98.3%, lower secondary and upper secondary rates showed declines, reaching 86.8% and 58.1%, respectively. Factors such as gender, urban/rural divide, ethnicity, and wealth quintiles significantly influenced completion rates, highlighting the need for targeted interventions to address these disparities.

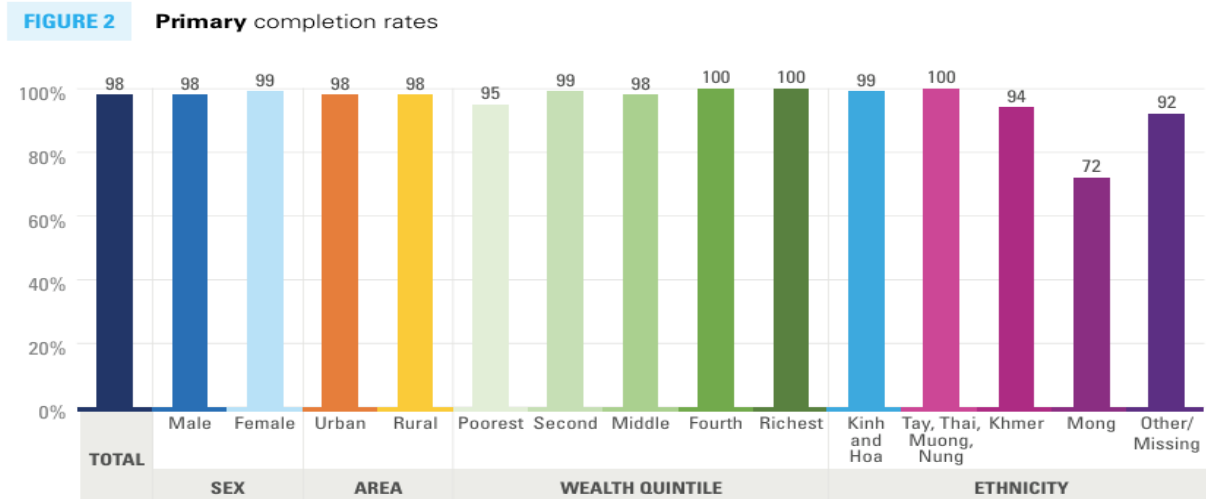
Figure 12: Primary school, lower secondary school and upper secondary school completion rate of Vietnam



(Source: Unicef (2021))

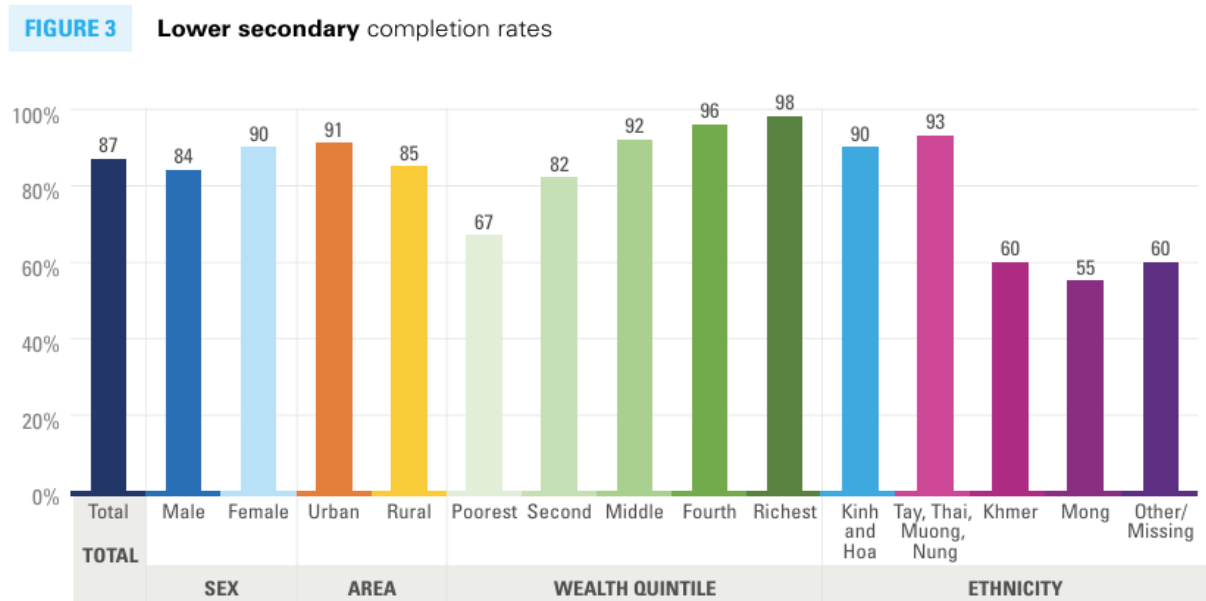
O’Connell et al. (2022) also provided similar numbers of the completion rates, as in 2020-2021, primary education in Vietnam boasted nearly universal completion at 98%, while lower secondary education saw a slight decline to 87%.

Figure 13: Primary school completion rate of Vietnam



(Source: O’Connell et al. (2022))

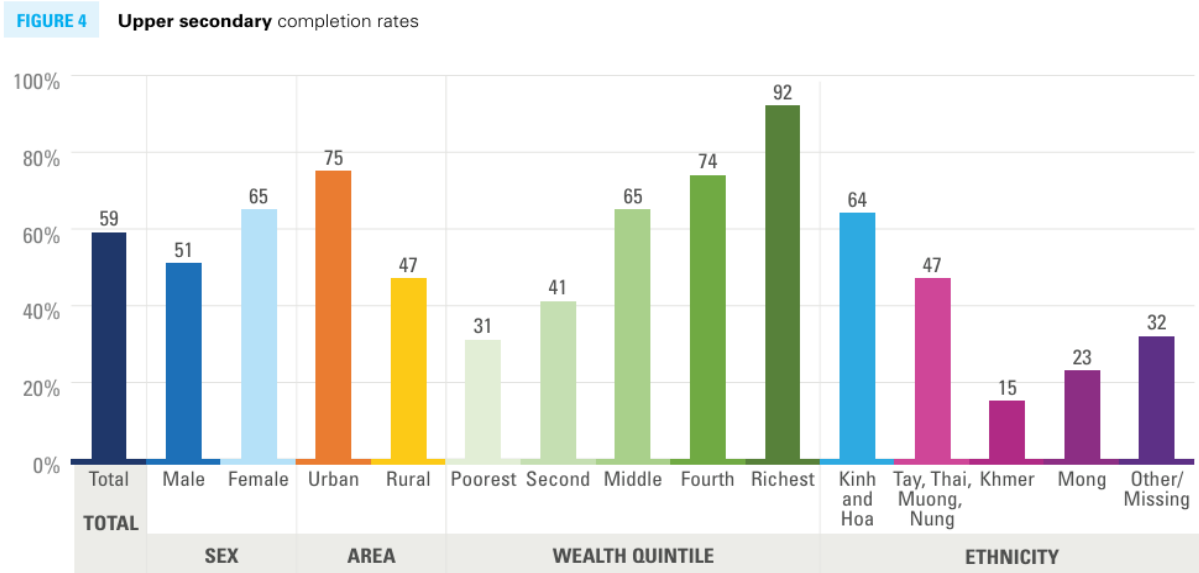
Figure 14: Lower secondary school completion rate of Vietnam



(Source: O’Connell et al. (2022))

However, completion rates significantly dropped to 59% for upper secondary education, which is not compulsory. Despite high literacy rates, foundational learning skills like reading and numeracy remain a challenge for a considerable portion of children, with out-of-school rates also showing disparities across levels.

Figure 15: Upper secondary school completion rate of Vietnam



(Source: O’Connell et al. (2022))

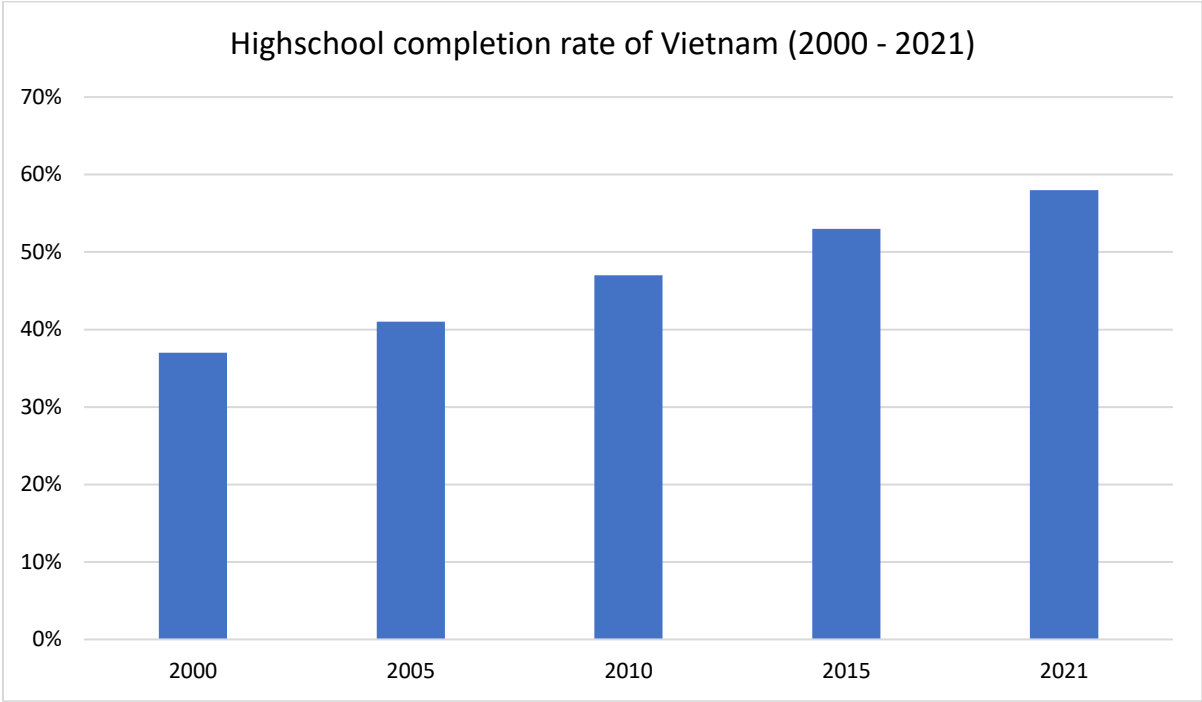
Viet Anh (2021) provided a more granular view of high school completion rates, which stood at 58.1% nationally in early 2021. Regional variations were evident, with the Red River Delta exhibiting higher rates compared to the Central Highlands. Household living standards and maternal education levels emerged as influential factors shaping completion rates at this level.

As per Our World in Data (2024b), the high school completion rate in Vietnam has seen clear upward trend over the two-decade period. In 2000, the completion rate was around 40%, indicating that less than half of the students were finishing high school at the beginning of the 21st century. By 2005, this rate had increased to approximately 45%, reflecting modest improvements in educational attainment.

The upward trend continued more noticeably over the next five years, with the completion rate rising to around 50% by 2010. This increase suggests that more students were able to complete

their high school education, likely due to educational reforms and increased access to schooling. By 2015, the completion rate had further climbed to about 55%, indicating sustained progress in the education sector.

Figure 16: Highschool completion rate of Vietnam (2000 – 2021)



(Source: Our World in Data (2024b))

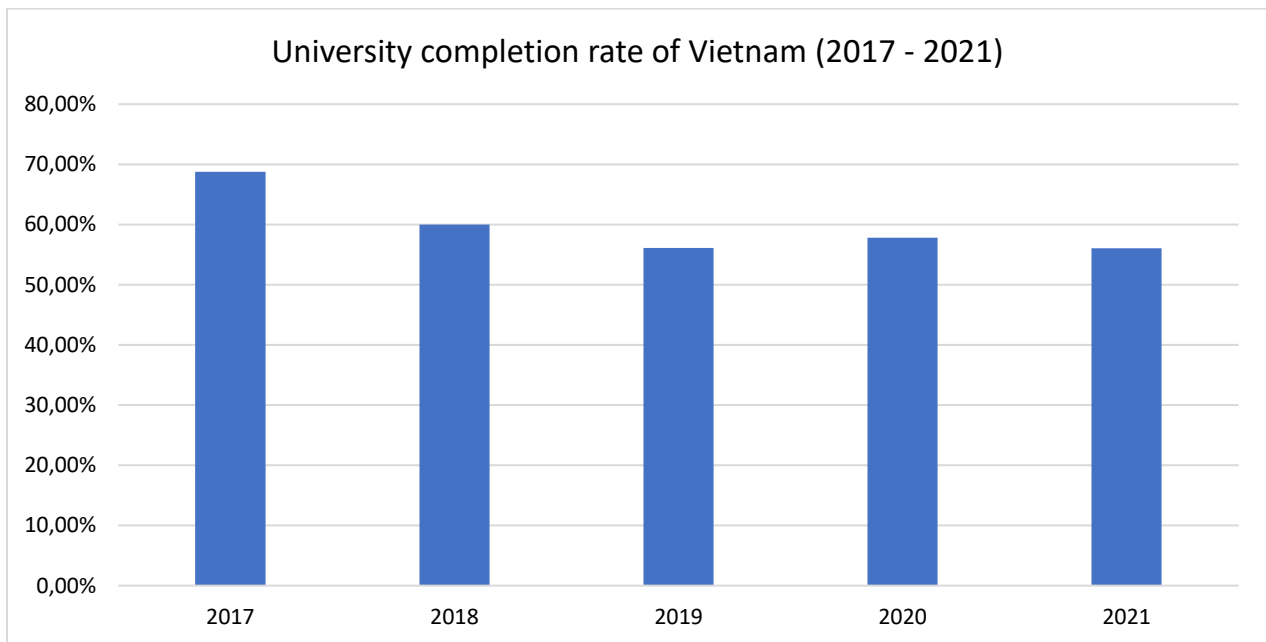
The most recent data point in 2021 shows a high school completion rate of around 58%, marking the highest level achieved during the period covered by the chart. This significant rise reflects ongoing efforts to improve education in Vietnam, resulting in more students successfully completing high school. All in all, the data demonstrates a steady and substantial increase in high school completion rates in Vietnam from 2000 to 2021, underscoring the country's commitment to enhancing educational outcomes for its youth.

When it comes to university completion rate, from 2017 to 2021, the university completion rate in Vietnam experienced a noticeable decline, reflecting various challenges within the higher education system during this period. In 2017, the university completion rate was 68.75%, indicating that a significant majority of students who enrolled in university successfully graduated. This relatively high rate suggested that the educational reforms and investments made in previous

years were having a positive impact, enabling a substantial portion of the student population to complete their studies (Wang et al. (2021)).

However, by 2018, the completion rate had dropped to 60.00%. This decline of nearly nine percentage points indicated emerging issues that could be affecting student retention and graduation rates. Factors such as financial constraints, academic difficulties, or a mismatch between student expectations and university offerings might have contributed to this downward trend (Pham et al. (2019)).

Figure 17: University completion rate of Vietnam (2017 – 2021)²



(Source: Minh (2023))

The downward trend continued in 2019, with the completion rate further decreasing to 56.11%. This consistent decline raised concerns about the underlying causes affecting students' ability to graduate. Possible factors could include inadequate support services, such as academic advising and mental health resources, which are crucial for helping students navigate university life successfully. Moreover, socioeconomic disparities might have played a role, with students from disadvantaged backgrounds facing more significant obstacles in completing their degrees.

² Own calculations based on the provided source are made for this figure

In 2020, the completion rate saw a slight improvement, rising to 57.84%. This modest increase, though small, suggested some positive developments or interventions that helped stabilize the downward trend. The improvement could be attributed to targeted initiatives aimed at supporting at-risk students, enhanced online learning resources, or other adaptive measures taken by universities in response to ongoing challenges (Harman et al. (2009)). However, the rate was still significantly lower than the 2017 peak, indicating that more work was needed to address the systemic issues.

By 2021, the completion rate had slightly decreased again to 56.08%. This stabilization at a lower rate than the previous years highlighted the persistent challenges within the higher education system. The fluctuations in completion rates during this period could have been influenced by the global COVID-19 pandemic, which disrupted educational systems worldwide (Dao & Nguyen (2020)). The pandemic likely exacerbated existing issues and introduced new challenges, such as remote learning barriers and increased economic pressures on students and their families.

3.4. Challenges in accessing and providing quality education in Vietnam.

According to Tien & Ha (2015), in rural areas, access to education has improved, but issues persist in terms of quality, efficiency, and equity. Curriculum development often exhibits an urban bias, neglecting the needs of rural students. There's a call for rethinking educational development in rural regions to align with local needs, including fostering agriculture, rural innovation, and self-confidence in career development.

Nguyen et al. (2023) highlight essential competencies for curriculum development, emphasizing the need for sustainable education and inclusion across regions. Despite challenges, ethnic minority students show promising competency levels, suggesting potential for inclusive curriculum practices.

Thao & Boyd (2014) underscore the disparities in educational quality and access between urban and rural areas. While urban centers boast high enrolment rates and well-equipped facilities, rural areas grapple with inadequate resources and unqualified teachers. Efforts to reform the curriculum face hurdles, including resistance to pedagogical shifts and insufficient teacher training, particularly in rural regions.

Vu (2021) traces the evolution of Early Childhood Education (ECE) in Vietnam, noting the transition from a teacher-centered to a child-centered approach. However, disparities persist due to economic barriers and the legacy of war, affecting the quality of kindergarten education in rural areas. Recent initiatives aim to bridge this gap by fostering cognitive skills and critical thinking in all learners.

Do et al. (2020) advocate for multicultural education to promote equal opportunities for students from diverse backgrounds. While curriculum integration is encouraged, challenges in rural areas, where many ethnic minorities reside, pose significant obstacles. Harsh geographical conditions and socio-economic difficulties hinder curriculum development efforts, highlighting the need for tailored interventions to address rural disparities.

Behr (2005) elaborated that rural schools in Vietnam receive basic funding from the government, supplemented by parental contributions. However, financial constraints often limit offerings such as full-day education and foreign language classes. Disparities in school facilities and services, health and well-being support, parental involvement, and student aspirations persist between urban and rural settings, reflecting broader socio-economic divides.

Nguyen (2006) discussed the educational challenges in rural Vietnam, encompassing various dimensions. While differences between the majority Kinh and ethnic minorities are not significant in terms of school quality, gender disparities persist, with girls facing unequal access. School presence alone doesn't override family background effects on enrollment, and educational costs, although significant, do not solely determine enrollment due to exemptions for the poor.

Lo (2022) underscores economic challenges faced by rural families, with average incomes around \$90 per month, affecting their ability to support education. Additionally, reliance on agriculture and weather variability exacerbate economic difficulties. Karlidag-Dennis et al. (2020) highlight the educational challenges for ethnic minority students, often residing in rural areas, due to language barriers and cultural disparities, compounded by limited access to resources.

Rural-urban discrepancies in education are evident, as noted by Le & Chung (2020). Rural areas lag slightly behind urban ones in literacy rates, with a gap of 4.0 percentage points as of 2019. Moreover, urban regions exhibit significantly higher school enrolment rates at higher education levels, leading to disparities in educational attainment. Despite government efforts to improve rural

education, Trieu (2018) highlights widening gaps in upper-secondary education for ethnic minorities, exacerbated by disparities in school access and quality between rural and urban areas.

Government initiatives aimed at addressing these disparities face challenges, according to Pham et al. (2024) and Linh (2012). Ethnic minorities, constituting more than 85% of the population, experience lower educational attainment rates compared to the Kinh majority. Rural areas, home to many ethnic minorities, suffer from poor transportation options and lower-quality schools, widening the educational gap. Despite efforts to promote education among ethnic minorities, Trieu (2018) suggests that more targeted policies are needed to bridge the gap effectively.

Tran (2023) emphasizes the importance of education in rural provinces, but highlights persistent disadvantages compared to urban areas. Despite the significance of education, rural students face barriers due to limited public awareness and investment. Vo & Ho (2023) further support this, indicating lower educational abilities and enrollment rates among ethnic minorities and rural residents, necessitating comprehensive interventions to address disparities.

On the economic front, Do (2024) notes that urban families invest 2 to 2.4 times more in education than rural ones, leading to disparities in educational outcomes. Despite progress in access to high school education for rural children, dropout rates remain higher compared to urban areas. In 2022, the literacy rate in urban areas stood at 98.3%, compared to 94.76% in rural areas. Moreover, urban areas offer better job opportunities with higher income levels, exacerbating rural-urban disparities.

TRAN & YANG (2022) highlighted enrollment disparities between urban and rural areas, with geographic gaps affecting learning outcomes. Only 20% of the poorest students remain in school by age 19, highlighting the impact of socio-economic status. Government intervention is crucial to address these disparities, emphasizing the importance of improving school readiness, providing incentives, and minimizing social barriers.

According to Le & Chung (2020) urban areas exhibit higher literacy rates compared to rural areas, with nearly 100% literacy across both demographics, albeit slightly higher among males and urban groups. While primary education has achieved near-universal enrollment rates, clear disparities emerge at higher education levels, with urban residents over two times more likely to complete upper secondary education and almost four times more likely to hold college degrees compared to rural residents. These educational achievements significantly influence job opportunities, thereby

affecting income and poverty levels. The rate of trained laborers aged 15 and older is notably higher in urban areas compared to rural regions.

H. T. Nguyen (2019) highlights poverty and income disparities, noting significantly lower living standards among non-Kinh minority groups compared to the Kinh majority. Educational disparities are stark, with the non-Kinh population experiencing lower literacy rates and discrepancies in enrolment rates across various educational levels. Dropout rates among non-Kinh children are double that of Kinh children, reflecting challenges in schooling progress and performance. Educational inequality also exists within non-Kinh ethnic groups, influenced by household characteristics and broader socioeconomic factors. Addressing these disparities requires a comprehensive understanding from both analytical and policy perspectives.

Chinh et al. (2014) discuss disparities in teaching and learning conditions, particularly between rural and urban areas. Rural schools face challenges such as a lack of resources and traditional teaching methods, while urban schools benefit from better-equipped facilities and more innovative teaching approaches. Cultural exposure and stakeholder engagement also differ, with urban areas having more resources and support for English language education.

Dinh (2019) examines migration trends and their impact on education in Vietnam. Internal migration has surged, particularly to urban centers like Hanoi and Ho Chi Minh City, affecting the education of migrant children. The household registration system poses barriers to education access for migrant children in cities, exacerbating educational inequalities. Financial burdens, compounded by additional costs associated with schooling in urban areas, further widen these disparities. Policy implications include reforming the household registration system and reducing school fees to mitigate educational disparities among migrant children.

3.5. How education relates to sustainable development in Vietnam

Education plays a vital role in promoting sustainable development in Vietnam, as evidenced by various studies that highlight the multifaceted aspects of education for sustainable development (ESD)³.

³ [Education for sustainable development \(ESD\)](#) is UNESCO's education sector response to the urgent and dramatic challenges the planet faces. Education for sustainable development (ESD) equips learners with the knowledge, skills, values, and agency to tackle global challenges such as climate change, biodiversity loss, resource depletion, and inequality. It empowers individuals to make informed decisions and take action to transform society and protect the

According to Kieu et al. (2016), teachers are crucial in achieving a sustainable society by imparting knowledge, competencies, and values necessary for responsible actions. ESD-related topics are integrated into both formal and non-formal education systems, emphasizing a shift in pedagogy and worldview. However, traditional pedagogy, large class sizes, and inadequate facilities create a gap between ESD cognition and teaching capacity. Collaboration among stakeholders is suggested to improve the effectiveness of ESD approaches. Teacher education institutions in Vietnam face challenges such as weak high school institutions and the lack of prioritization of sustainability in curriculum, highlighting the need for institutional support to promote ESD.

Nguyen & Hallinger (2022) underscore the urgency of enhancing sustainability training for educators to facilitate ESD effectively. Current training methods are limited, and there is a need to develop educators' capacities in sustainability. A significant initiative involves adapting a business simulation for the educational context, creating an online simulation to train educators in leading sustainability changes within Vietnamese schools. This simulation is culturally adapted to the Vietnamese context, equipping educators with the knowledge and skills necessary for teaching, learning, and managing sustainability in education. However, challenges remain, as Vietnamese teachers often lack the attitudes and competencies required for integrating ESD into educational practices, necessitating tools to train educators in sustainable management and knowledge dissemination.

T. P. Nguyen (2019) focuses on equipping students with the knowledge, skills, and competencies needed for problem-solving, adaptation, and cooperation to prepare them for a changing society. ESD aims to instill appropriate behaviors towards sustainability based on students' understanding of sustainable development themes and competencies. There is a perception gap between teachers and educational stakeholders regarding the aims of ESD, affecting its implementation. Better communication and consensus on the meaning of ESD in Vietnam are called for.

Kieu & Singer (2017) highlight the significant role of NGOs in ESD in Vietnam, employing participatory and experiential approaches to enhance student teachers' sustainability competencies. However, NGOs face challenges such as weak collaboration with universities and limited local government interest, hindering their training effectiveness. Despite these challenges, NGO-led

planet. ESD is a lifelong process that enhances cognitive, socio-emotional, and behavioral learning. It is integral to quality education, encompassing learning content, outcomes, pedagogy, and the learning environment.

training courses positively impact student teachers by improving their sustainability competencies and inspiring them to adopt active learning pedagogies. Strengthening partnerships between universities and NGOs through sustained dialogue, selecting suitable partners, and active university participation is recommended to advance ESD.

Hoang & Kato (2016) observed a notable improvement in students' knowledge about eco-bags and plastic bag decomposition after an environmental education workshop. Vietnam faces challenges in solid waste management, including collection, transfer, disposal, and public awareness, particularly in urban areas. The government has attempted to implement waste separation and recycling policies, but success has been limited due to funding and resource constraints.

H. T. Nguyen (2019) note that higher education institutions (HEIs) in Vietnam are rapidly adapting to societal and economic transformations and are expected to integrate sustainability into their practices and operations. However, challenges such as lack of institutional support and governance for sustainability persist. Vietnamese HEIs are integrating sustainability into their educational value chain, particularly in training activities, but more comprehensive integration across all activities is needed. Recommendations include investing more in energy and waste management systems, adopting 3Rs (recycling, reducing, reusing) practices, and internationalizing part-time executive education to support practical R&D activities addressing social problems.

Gegout (2024) emphasizes the importance of education in achieving sustainable development goals, advocating for education to be at the forefront of EU and Vietnamese policies to promote economic and social development. Addressing unequal access for poor and minority children in Vietnam is crucial. The EU is encouraged to prioritize education in its foreign policy towards Vietnam, increase its focus on education rights within trade agreements and aid policies, and support sustainable development in Vietnam. Despite Vietnam's economic growth and educational policies, challenges remain in providing equal educational opportunities. Direct funding and contextual support for students, particularly in remote and poor areas, are called for to improve educational opportunities. Policy recommendations include increasing teacher salaries to reduce corruption, supporting families and local social enterprises, and improving local infrastructure to enhance education in Vietnam. The EU should allocate more development aid to education and consider the voices of Vietnamese citizens, not just the government, in policy-making.

3.6. Economic benefits of education in Vietnam

Education has played a significant role in Vietnam's economic transformation, particularly since the economic reforms that began in 1986. These reforms have had profound impacts on the labor market, earnings, and the value of education, as highlighted by various authors.

Moock et al. (2003) noted that despite Vietnam's major economic reforms, including labor market liberalization, returns to education in 2003 were relatively low, averaging 13% for primary education and 11% for university education. Returns were higher for females (12%) compared to males (10%), indicating a gender disparity. However, secondary and vocational education saw returns of only 4-5%, reflecting labor market challenges and the need for educational adaptation to meet new economic demands.

Patrinos et al. (2018) reported that by 2018, the overall private rate of return to schooling in Vietnam was about 10%, higher than most countries in the region. Returns to high school education were particularly high at around 20%, suggesting significant benefits for individuals and their families. However, returns to primary and secondary education had declined over time.

Vu et al. (2021) highlighted substantial investments in human capital through education as crucial for sustainable economic development. Education enhances productivity, creativity, and entrepreneurship, contributing to technological advances and socio-economic development. The ideology of "growing humans," inspired by Ho Chi Minh, focuses on developing individuals to serve national causes with strong moral foundations. While the ideology of "growing humans" inspired by Ho Chi Minh emphasizes the importance of human capital development through education for national causes with strong moral foundations, the focus on education and moral development to serve national causes might overshadow the need for a more holistic approach to education that encourages critical thinking, individualism, and personal aspirations. Education systems that prioritize nationalistic goals can sometimes limit academic freedom and creativity, which are essential for fostering innovation and entrepreneurship. The ideology of "growing humans" can also lead to an overly centralized and uniform education system that may not adequately address diverse needs and talents. Educational models that are too rigid or ideologically driven may struggle to keep pace with the demands of the modern workforce and the global market. This can result in graduates who are well-versed in nationalistic ideals but lack the practical skills and competencies needed to thrive in a competitive international environment.

London (2006) noted that Vietnam's economic boom in the early 1990s coincided with expansions in education provision. Market reforms allowed for increased investments in education, leading to gains in accessibility and enrolment rates despite educational inequalities. The growth of an informal education economy, such as "extra study" (hoc them), indicates the high demand for education and its perceived economic value.

Dao (2020) emphasized the high social and private returns from education, such as improved health and reduced crime rates, and increased individual income. Education enhances the labor force by providing new skills and knowledge, boosting productivity, and facilitating technological adoption and innovation. Government investment in education since 2000 has led to nearly universal primary education and improved educational quality.

Ninh (2021) discussed the positive impact of education on the output of rice farming households. Education enables better farm management, efficient input use, and improved production decisions, leading to higher agricultural output. Investing in education can thus enhance income and trigger long-term economic and agricultural growth.

4. Analysis of education initiatives in Vietnam

4.1. Reformation of Vietnam's school textbooks

1976 – 2000:

The textbook program reform in Vietnam (1976-2000) aimed to unify the educational systems of the North and South post-reunification. The Ministry of Education created standardized curricula and textbooks, starting with grade 1 in 1981-1982. The Center for Educational Reform Textbook Compilation merged with the Education Publishing House to streamline production (Linh (2022), Le (2022), Vietnam Education Publishing House (2022)). The centralized approach, while ensuring high-quality materials, imposed a uniform curriculum that overlooked regional educational needs and cultural differences, potentially disadvantaging students from diverse backgrounds. Despite challenges, such as debates over content selection and handwriting styles, the initiative provided uniform educational materials nationwide.

Content selection debates and the creation of multiple high school textbook sets introduced complexities in exams, which often narrowly focused on specific interpretations, failing to assess

a broad range of skills. Multiple sets of high school textbooks were created by institutions like Hanoi National University of Education and the Ho Chi Minh City Mathematical Association, later consolidated into single sets by 2000 (Linh (2022), Le (2022), Quang (2023)). Policies were introduced to sell textbooks and enhance school libraries for better access. The government secured a large World Bank loan to improve textbook production and distribution (Linh (2022), Le (2022)). Efforts to improve textbook accessibility through libraries and World Bank loans were commendable but did not fully address the need for exams to reflect modern educational standards and critical thinking skills.

2002 – 2008:

The 2002-2008 reform introduced new textbooks progressively from 2002 to 2008 for grades 1-12, based on the 2000 curriculum framework. This phased approach, starting with grades 1-6 in 2002 and concluding with grade 5 in 2006, was aimed at modernizing education but appeared rushed and lacked thorough academic scrutiny. In 2006, high school education was streamlined into Basic Sciences, Natural Sciences, and Social Sciences and Humanities, with corresponding textbooks completed by 2008 as per Resolution 40 (Linh (2022), Le (2022), Duc (2022)).

The textbook distribution followed market mechanisms, with the state providing textbooks to students in remote areas while most parents purchased textbooks. The low cost of textbooks was facilitated by World Bank loans and the economies of scale achieved by producing a single set of textbooks for the entire country (Linh (2022), Le (2022), Duc (2022)). Moreover, the reliance on World Bank loans to keep textbook costs low raises concerns about the sustainability of the financial model and the long-term affordability of educational resources. It also underscores potential dependencies on external funding sources that may not align with national educational priorities in the future.

2013 – now:

The 2013 reform program, following Resolution 29-NQ/TW and Resolution 88/2014/QH13, aimed to end Vietnam's textbook publishing monopoly by inviting multiple publishers (Linh (2022), Le (2022)). Despite licensing new publishers since 2017, their participation appears limited, raising doubts about genuine competition. The Ministry of Education and Training's new general education program, introduced in December 2018, began a phased rollout of new textbooks

starting with Grade 1 in 2020-2021 (Linh (2022), Le (2022), Hong (2018)). However, this may cause inconsistencies across grades. To improve textbook quality, Vietnam Education Publishing House consolidated multiple sets into three main ones: "Connecting Knowledge with Life," "Creative Horizons," and "Kite" (Linh (2022), Le (2022)). The lack of transparency in the selection process raises concerns about potential biases.

4.2. Reformation of Vietnam's national high school exam and university entrance exam

1990-2001:

From 1990 to 2001, Vietnam's university entrance exam system was marked by rigorous challenges for high school graduates. Candidates faced logistical and financial burdens, traveling long distances to take exams at multiple universities, especially taxing for those born between 1970 and 1979. The decentralized system led to inefficiencies, with each university developing its exams independently, resulting in overlapping content and administrative duplication. Affluent students had advantages over economically disadvantaged peers, exacerbating disparities in access to higher education. Variation in exam standards further undermined fairness and student well-being, highlighting the need for reforms to promote equity and accessibility (Dang (2020), Nhat (2020), Hong (2019)).

2002 - 2014:

The Ministry of Education and Training in Vietnam introduced the "3 commonalities" exams, which included a high school graduation exam, two university entrance exams, and a college entrance exam. These exams aimed to create a unified national assessment but were decentralized, leading to varying standards across provinces (Dang (2020)). Minimum score thresholds for university admissions were implemented in 2004, intensifying pressure on urban centers. Despite reforms starting in 2002 to unify exam questions and assessments, issues such as exam-focused learning and the proliferation of exam preparation centers persisted, highlighting ongoing challenges in Vietnam's educational system (Nhat (2020)).

2015:

The transition to a unified national high school graduation and university entrance exam in 2015 aimed to streamline the assessment process but introduced significant logistical challenges (Hong (2019)).

The system required students to travel to designated exam centers, often causing inconvenience and financial strain, especially for those in inter-provincial clusters. The reliance on information technology for managing exams and university admissions brought technical challenges, including result announcement issues and application preference changes, creating confusion among students (Nhat (2020)).

The decentralization of exam administration to local Departments of Education and Training encountered hurdles due to insufficient preparation and resources, resulting in inconsistencies across regions (Dang (2020)). The "2-in-1" exam combined high school graduation and university admission requirements, increasing pressure on students and potentially misrepresenting their capabilities. The policy allowing flexible university admission choices faced implementation difficulties due to technical issues, limiting its effectiveness. Despite centralized control over exam content to maintain standardization, regional disparities in educational resources highlighted the need for a more equitable approach.

2016:

The 2016 reforms to the national high school graduation exam introduced significant changes but revealed several content-level challenges. The dual-cluster system, managed by local authorities and universities, caused logistical and financial burdens for students and families (Nhat (2020)). This system also led to potential inconsistencies in the examination process. While the exam questions were designed to meet both high school graduation and university admission requirements, balancing these dual purposes proved difficult (Hong (2019)). The dual-purpose nature may compromise the exam's effectiveness in assessing both graduation standards and university readiness.

2017:

Nhat (2020) analyzed the 2017 national high school graduation exam in Vietnam, revealing several critical issues. Despite efforts to mitigate selective learning by introducing additional subjects in natural and social sciences, curriculum content disparity remained a problem. Students tended to

prioritize subjects crucial for future prospects, and a comprehensive curriculum overhaul is needed to address this.

The decentralized collaboration between local authorities and higher education institutions led to varying standards and practices, affecting the fairness and reliability of exam (Nhat (2020)). There was also a significant gap between high school education and university expectations, with the exam content not fully preparing students for higher education challenges.

2018:

The Ministry of Education and Training has made ongoing adjustments to the national high school graduation exam and university admissions process, yet serious cheating incidents in certain provincial exam councils raised public concern (Hong (2019)). Dang (2020) highlighted major flaws in the 2018 exam system, with widespread fraud and score inflation leading to the prosecution of complicit teachers. This scandal exposed critical weaknesses in oversight and implementation, particularly in Ha Giang, Son La, and Hoa Binh, and revealed inadequacies in fraud prevention measures (Hong (2019), Dang (2020)). The prosecution of teachers highlighted gaps in accountability and the need for stronger oversight (Dang (2020)). The scandal ultimately eroded public trust and emphasized the need for effective policy execution (Hong (2019)).

2019:

In 2019, improvements to the national high school graduation exam aimed to prevent cheating and enhance security, including better technical equipment and increased monitoring (Nhat (2020)). Exams were locally conducted with multiple-choice tests graded by universities and essay tests by local authorities. Organized by provincial Departments of Education and Training, the exam featured three independent tests (Mathematics, Literature, Foreign Language) and two combined tests (Natural Sciences, Social Sciences), with unique test codes and computerized grading for multiple-choice answers (Hong (2019)).

Despite streamlining the process, concerns arose about the depth of knowledge assessment and the lack of differentiation in results, posing challenges for university admissions Hong (2019). Adjustments based on the 2018 exam shortcomings included enhanced university involvement, improved technical equipment, and strengthened inspections, leading to a smooth examination process.

2020:

In 2020, Vietnam's education system underwent significant changes in high school graduation exams and university admissions, led by the Ministry of Education and Training to enhance transparency. The high school graduation exam now focuses solely on graduation criteria, potentially weakening the link between secondary and tertiary education and raising concerns about university readiness. Decentralizing exam administration to provincial People's Committees could lead to disparities in exam difficulty and standards, compromising fairness and reliability (Dang (2020)).

Universities gained autonomy in setting their own admission exams and conducting multiple admission rounds, increasing flexibility but also creating inequalities based on resource access and preparation quality. The effectiveness of high school graduation exam results as a measure of university readiness remains questionable, highlighting a potential disconnect between assessed skills and university demands (Dang (2020)).

2024:

The Ministry of Education and Training's adjustments to the 2024 National High School Graduation Exam aim to standardize procedures nationwide, including clarifying exam subjects and using national databases for residency verification Vietnam Government News (2024). However, this emphasis on residency verification could disadvantage students with bureaucratic challenges or fluid residency situations, potentially excluding eligible candidates.

The security of candidates' personal information is another concern. Candidates must now safeguard their account information, but the adequacy of security protocols is uncertain amid rising cyber threats (Vietnam Government News (2024)). Robust safeguards and clear guidelines are essential to prevent unauthorized access or manipulation.

Additionally, expanding recognized language certificates to exempt candidates from foreign language exams aims to reduce testing burdens (Vietnam Government News (2024)). However, the success of this initiative depends on the accessibility and transparency of the updated list of acceptable certifications.

Despite enhancements in exam creation, printing, and security measures to comply with state secrecy laws, details on the implementation and auditing of these measures remain unspecified, raising concerns about the reliability and accountability of the examination process (Vietnam Government News (2024)). Clear guidelines are crucial to ensure trustworthiness and maintain public confidence in the exam's fairness and integrity.

4.3. Investment in education in Vietnam

Investment and funding trends in Vietnamese education

According to Cobbe (2007), the Vietnamese government prioritizes investment in human capital to accelerate economic growth, focusing on both the quantity and quality of education. From 2000 to 2008, total expenditure on education rose significantly, with state budget expenditure increasing from 18,386 billion VND in 2000 to 72,520 billion VND in 2008 (Le Huong (2009)). Public budgetary spending on education in Vietnam grew from 1% of GDP in 1990 to 4.8% by 2010, representing nearly 20% of the state budget (London (2010)). Vietnam allocates about 20% of its public budget to education and training, approximately 5% of GDP, contributing to economic growth by improving national productivity, reducing unemployment, and alleviating poverty (Hien (2018)).

Public and private contributions

Education's share of the state budget increased substantially, reaching 22% in 2008, though a significant portion of education costs is still borne by students and their families (Cobbe (2007)). Households' out-of-pocket education spending accounts for at least 50% of total education spending, driven by increased household earnings and policy shifts (London (2010)). Household contributions were also significant from 2009-2013, as noted by the Ministry of Education and Training (2016), and the private sector's contribution to education expenditure fluctuated, accounting for around 25-31% of the total expenditure during this period (Le Huong (2009)).

Decentralization and socialization policies

There is a trend towards greater decentralization of authority and decision-making in education, although the central government still influences budgetary decisions (Cobbe (2007)). The Budget Laws of 1996 and 2002 decentralized education spending to localities, and the "education

socialization” policy encouraged societal participation in education funding, including private contributions (Ministry of Education and Training (2016)). Despite these efforts, issues such as inequality in investment across different education levels and a lack of alignment between training activities and target outcomes persist (Hien (2018)).

Equity and access

Despite efforts to universalize access to basic education, disparities in education provision and financing persist, particularly in rural and disadvantaged areas (Cobbe (2007)). Significant issues with unequal access to education remain, especially for poor and minority children, with financial costs and corruption being major barriers (Gegout (2024)). The state employs redistributive fiscal policies to ensure a more egalitarian distribution of public education resources London (2010). Vietnam achieved high enrolment rates and improved education quality, but challenges remain in meeting social requirements and ensuring equitable access, especially for disadvantaged groups (Ministry of Education and Training (2016)).

Higher education challenges and reforms

Vietnam’s higher education system faces significant challenges, including low public funding, high tuition fees, and limited financial aid options. Public spending on higher education is only 0.25% of GDP, much lower than neighboring countries (Doan et al. (2020)). Vietnam’s public spending on higher education is among the lowest compared to its peers, with only 0.27% of GDP allocated in 2020 (Tran et al. (2023)). Potential reforms include exploring income-contingent loan schemes that could be more effective, aiming to be gentle on the fiscal budget while providing generous borrowing limits and repayment terms for students (Doan et al. (2020)). Recommendations include increasing state budget spending on higher education to at least 0.8%-1% of GDP by 2030 to support universities and provide financial aid to students, as well as increasing state budget allocation to university-led research and development (R&D) to develop a high-quality R&D workforce (Tran et al. (2023)).

4.4. Trainings for teachers in Vietnam

Initiatives and models in teacher training

According to Vu & Pham (2014), the NFL2020 Project was launched to improve foreign language learning in Vietnam, introducing English from grade 3 and requiring re-training for primary English teachers. This initiative adopted the Training-of-Trainers (ToT) model, where a small number of participants are trained to subsequently train others, ensuring widespread training. Despite improvements, evaluations highlighted the need for better course design, delivery knowledge, and connection with participants' training contexts. Significant differences in teaching conditions between urban and rural areas also impacted teacher capabilities and classroom facilities.

According to Van Hong et al. (2018), a training program integrating the Technological Pedagogical Content Knowledge (TPACK) model was implemented, combining content knowledge, pedagogical knowledge, and technological knowledge to enhance teaching effectiveness. Teachers need 21st-century skills such as cooperation, communication, IT use, creativity, critical thinking, and problem-solving. The 4th industrial revolution necessitates that teachers improve their technological capabilities and adapt teaching methods, including digital technology and STEM education. The program's structure includes general education, a technology education foundation, a major in technique and technology, and a graduation thesis.

Evaluation and effectiveness of training programs

Anh (2017) evaluated the Action Research (AR) course, which helps in-service English teachers develop the ability to conduct action research, crucial for their professional development. The evaluation used the Context, Input, Process, and Product (CIPP) model to assess the course's strengths and weaknesses, aiming for accountability and improvement. Common issues identified included crowded classes, unmotivated students, mixed levels, lack of teaching aids, and limited class time. Teachers suggested simplifying the textbook language and providing more practical examples to improve the course's effectiveness.

Truong (2017) emphasized the necessity of Professional Development (PD) for improving teacher quality, noting several weaknesses in current PD programs in Vietnam, such as being short-term, unsystematic, and lacking follow-up activities. Effective PD should be ongoing, school-based, collaborative, and tailored to teachers' needs, focusing on content knowledge, pedagogy, and student learning outcomes. PD programs should be designed with input from experienced teachers

and researchers, include a mix of online and face-to-face components, and provide continuous support and evaluation. These programs must also consider the specific contexts of Vietnamese schools and address both local and national educational demands.

Curriculum and teacher well-being

Do Thi & Zsolnai (2021) discussed the structure of teacher education programs in Vietnam, which typically last 3-4 years and include coursework and a 10-week practicum in K-12 schools. The curriculum covers general academic subjects, specialized academic sections, and pedagogical methodology. Challenges faced by Vietnamese teachers include stress, lack of emotional management skills, and insufficient training in social and emotional competence (SEC). The article recommends integrating social and emotional learning (SEL) into teacher education programs through free-standing lessons, integrating SEL into existing courses, and creating supportive classroom climates. Emphasizing SEC is important for teachers' well-being, career motivation, classroom management, and teacher-student relationships.

Addressing gaps in values education

Nguyen (2024) highlighted a lack of formal training in values education for both pre-service and in-service teachers in Vietnam. University education included some aspects of values education in subjects like General Education and Educational Psychology, but these were overly theoretical and rooted in Soviet educational philosophy, making them unsuitable for the current educational context in Vietnam. Practicum periods provided valuable practical experience, particularly in creating lesson plans and engaging in rehearsal teaching sessions, but the effectiveness of these experiences varied depending on the guidance provided by practicum supervisors. Additionally, there was a lack of training programs, seminars, and workshops specifically addressing values education for in-service teachers, who often had to manage values education issues independently.

5. Discussion

Vietnam's economic development from 1990 to 2024 resonates deeply with insights from both the Solow model and Endogenous Growth Theory, reflecting its transition from a centrally planned to a market-oriented economy and subsequent efforts in education reform. Vietnam's economic growth trajectory, particularly following the Đổi Mới reforms in the early 1990s, aligns with the

Solow model's emphasis on capital accumulation and technological progress. The shift towards a market-oriented economy spurred significant capital investment, both domestically and from foreign sources, driving industrialization and GDP growth. This period saw Vietnam's GDP surge from 5.1% in 1990 to 9.5% in 1995, illustrating the model's principle that increased savings and investment can boost economic output.

Moreover, Vietnam's integration into global supply chains, notably in electronics and textiles, underscores the role of technological advancements highlighted by extensions of the Solow model, such as those by Mankiw et al. Technological progress has been pivotal in sustaining Vietnam's economic resilience through challenges like the Asian Financial Crisis in 1997 and the global economic downturns, including the COVID-19 pandemic. The country's ability to adapt and innovate within these sectors reflects its commitment to advancing production capabilities and enhancing efficiency, contributing to sustained economic growth rates. Additionally, Vietnam's aspirations to achieve high-income status by 2045 epitomize its pursuit of steady-state growth envisioned in the Solow model. This goal underscores the nation's strategic focus on sustainable development, diversifying industries, and promoting private sector engagement to maintain economic momentum over the long term. Vietnam's approach to economic development also aligns with principles from Endogenous Growth Theory, which emphasizes the critical role of human capital accumulation and technological advancements in driving sustained economic growth. The country's comprehensive education reforms, aimed at improving access and quality across all levels of education, exemplify efforts to enhance human capital formation.

Education reform in Vietnam has not only increased literacy rates but has also fostered a skilled workforce capable of adapting to technological advancements and contributing effectively to economic productivity. This investment in human capital has been instrumental in reducing poverty rates significantly, from 4.38% in 1992 to just 0.04% in 2022, underscoring the theory's emphasis on the long-term benefits of education for economic development and poverty alleviation. Furthermore, Vietnam's strategic focus on technological advancements and innovation aligns with Endogenous Growth Theory's emphasis on internal factors driving economic progress. The country's policies supporting research and development (R&D) and innovation in key sectors reflect a proactive approach to enhancing productivity, fostering knowledge spillovers, and maintaining competitive advantages in global markets.

The robust economic growth facilitated by principles from the Solow model has played a pivotal role in lifting millions of Vietnamese out of poverty. By focusing on capital accumulation and technological progress, Vietnam has significantly improved living standards and economic opportunities for its population. Investments in education, guided by Endogenous Growth Theory, have not only expanded access to quality education but have also empowered individuals with the skills necessary to contribute meaningfully to the economy. This human capital development is crucial for sustaining long-term economic growth and fostering innovation. Vietnam's emphasis on a green economy and sustainable development goals reflects its commitment to balancing economic growth with environmental responsibility. Policies promoting renewable energy, environmental conservation, and sustainable practices in industries are essential steps towards ensuring a resilient and environmentally conscious future.

Despite progress, disparities in education quality and access persist, particularly between urban and rural areas. Future research should focus on addressing these inequalities to ensure equitable human capital development and foster inclusive growth. Further studies could explore the impacts of technological advancements and innovation policies on economic diversification, productivity gains, and global competitiveness. Evaluating the effectiveness of economic policies in achieving sustainable development goals, including poverty reduction and environmental sustainability, remains critical. Understanding how policies interact with economic theories and real-world outcomes can inform future policy adjustments. Exploring Vietnam's role in global supply chains and its implications for economic resilience and competitiveness would provide insights into broader economic dynamics and potential vulnerabilities.

All in all, Vietnam's economic journey offers valuable insights into the application of economic theories such as the Solow model and Endogenous Growth Theory in achieving robust economic growth, poverty alleviation, and sustainable development. By addressing remaining challenges through continued research and policy adjustments, Vietnam can further enhance its economic resilience, foster inclusive growth, and contribute to global sustainability efforts in the years ahead.

6. Conclusion

The economic trajectory of Vietnam from 1990 to 2024 reveals a remarkable evolution marked by transformative reforms and steadfast resilience in the face of external shocks. The Đổi Mới reforms

of the early 1990s initiated Vietnam's shift from a centrally planned economy to a market-oriented one, spurring rapid GDP growth driven by industrialization and increased foreign investment. Despite setbacks such as the Asian Financial Crisis in 2000 and the more recent challenges posed by the COVID-19 pandemic, Vietnam's economy has demonstrated robustness, maintaining growth rates and solidifying its position in global supply chains. The substantial increase in GDP per capita, rising from \$1,500 in 1990 to approximately \$11,000 in 2022, underscores significant economic development and improvements in living standards over these decades. However, persistent challenges including export fluctuations, industrial production issues, and structural weaknesses like dependency on foreign firms and bureaucratic inefficiencies continue to shape Vietnam's economic landscape.

The role of education in breaking the cycle of poverty and promoting sustainable economic development in Vietnam emerges as a critical research question amidst these economic developments. Vietnam's education system has undergone substantial reforms, evolving from historical influences of Confucianism and French colonialism to a modern structure aimed at improving access and quality. Significant strides have been made in educational attainment, with near-universal completion rates in primary education, yet challenges persist in ensuring equity, particularly for rural and ethnic minority populations. Disparities in educational quality, teacher qualifications, and curriculum relevance to economic needs remain pressing issues that impact the effectiveness of education as a tool for economic empowerment.

Examining Vietnam's journey through various phases of educational reform, from decentralized university entrance exams to a unified national system, highlights efforts to enhance fairness and transparency in educational assessments. These reforms have aimed to address disparities between urban and rural areas and improve overall educational outcomes. However, logistical complexities and equity concerns continue to pose challenges, necessitating ongoing adjustments and improvements.

Conclusions drawn from Vietnam's experience underscore the pivotal role of education in both poverty reduction and sustainable economic development. Education has been instrumental in lifting millions out of poverty by equipping individuals with the skills and knowledge necessary for economic participation. The dramatic reduction in poverty rates from 4.38% in 1992 to 0.04% in 2022 reflects the transformative impact of educational investments on livelihoods and social

mobility. Moreover, education has contributed significantly to Vietnam's economic growth by enhancing human capital, boosting productivity, and fostering innovation. Investments aligned with economic reforms have facilitated Vietnam's integration into global markets and supported sustained GDP growth over the years.

As Vietnam looks to the future, integrating sustainability into education emerges as a crucial priority for fostering long-term economic resilience and environmental stewardship. Efforts post-COVID-19 to emphasize a green economy and further reforms in education underscore a strategic commitment to sustainable development goals. However, challenges such as educational quality disparities, rural-urban divides, and the need for continuous curriculum reforms and teacher training persist as areas requiring focused attention.

Looking forward, addressing these challenges will be pivotal in maximizing the role of education as a catalyst for sustainable economic development and poverty alleviation in Vietnam. Future research should aim to delve deeper into enhancing educational quality, addressing equity gaps, integrating technological advancements into educational practices, and aligning educational outcomes with broader economic and environmental sustainability goals. By doing so, Vietnam can continue to build on its successes while navigating the complexities of a globalized economy and evolving educational landscape.

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