Anticipating prosperity: a systemic analysis of long-term economic trajectories

Quoc Dung Ngo, Thi Van Hoa Tran and Vu Hiep Hoang
National Economics University, Hanoi, Vietnam

Received 19 August 2024
Revised 22 September 2024
1 October 2024
Accepted 8 October 2024

Abstract

Purpose – This study introduces an innovative approach to long-term economic forecasting by integrating anticipatory governance (AG) and causal layered analysis methodologies. Focussing on emerging economies, with Vietnam as a case study, we explore potential economic trajectories to 2050.

Design/methodology/approach – The research employs a mixed-method approach, combining quantitative economic projections with qualitative scenario building and analysis.

Findings – Our findings reveal four distinct future scenarios, ranging from low growth to transformative change. The preferred scenario, characterized by adaptive change, projects a Gross National Income (GNI) per capita of $30,684 by 2050, with significant reductions in agricultural labour and improvements in human development indicators.

Originality/value – This study contributes to theoretical and practical domains by demonstrating the value of integrated foresight methodologies in economic planning. It offers policymakers a comprehensive framework for navigating complex, long-term economic challenges and opportunities. This research underscores the importance of adaptive governance and systemic thinking in achieving sustainable, inclusive economic growth in an increasingly uncertain global environment.

Keywords Anticipatory governance, Causal layered analysis, Economic forecasting, Emerging economies, Sustainable development, Scenario planning

Paper type Research paper

1. Introduction

As the world grapples with unprecedented global change, the capacity to anticipate and mould long-term economic trajectories has emerged as a paramount imperative for nations across the globe. Technological advancements, demographic shifts and environmental challenges have created a complex and dynamic landscape that necessitates innovative approaches to economic planning and governance. This research addresses the pressing need for a more comprehensive and forward-looking framework in economic development strategies, particularly for emerging economies striving to attain sustainable growth and prosperity. Conventional economic forecasting and policymaking methods, often predicated on linear projections and short-term considerations, have exhibited limitations in capturing the multifaceted nature of long-term economic development (Tiberius *et al.*, 2020). These approaches often fail to account for the non-linear dynamics, systemic interdependencies and potential disruptions that characterize contemporary economies. Consequently, there is a

JEL Classification — O21, O47, Q01, E17

This study is the outcome of project coded KX.04.19/21-25.

Journal of Economics and Development
Vol. 27 No. 1, 2025
pp. 4-21
Emerald Publishing Limited
e-ISSN: 2632-5330
p-ISSN: 1859-0020
DOI 10.1108/JED-08-2024-0299

burgeoning recognition of the need for more sophisticated tools to integrate diverse perspectives and navigate the intricacies of an uncertain future (Inayatullah, 2018).

Recent scholarly inquiries have illuminated significant lacunae in our understanding of long-term economic trajectories. Rodrik (2021) underscores the challenges of sustaining rapid growth in developing economies, while Stern and Stiglitz (2022) accentuate the imperative of integrating climate change considerations into economic planning. Moreover, Acemoglu and Restrepo (2020) highlight the transformative potential of automation and artificial intelligence on labour markets, yet current forecasting models often fall short of adequately capturing these dynamics.

This study introduces a novel methodological approach that synergizes anticipatory governance (AG) with causal layered analysis (CLA) to provide a more nuanced and holistic view of long-term economic trajectories. AG, as conceptualized by Fuerth and Faber (2012), offers a framework for integrating foresight, networked governance and feedback systems into policymaking processes. Concurrently, CLA, pioneered by Inayatullah (1998), provides a multi-layered analytical tool that delves beyond surface-level trends to explore deeper systemic causes, worldviews and metaphors shaping societal futures. The integration of these two approaches addresses a significant lacuna in the extant literature on economic development planning. While AG has found application in various policy domains (Boston, 2017), and CLA has been employed for future studies (Inayatullah, 2004), their combined application in long-term economic forecasting represents an innovative contribution to the field. This integrated approach allows for a more comprehensive exploration of potential futures, considering quantitative economic indicators and qualitative factors such as cultural paradigms and societal narratives. The research aims to answer the following key questions:

(1) What are the plausible long-term economic scenarios for emerging economies in the context of global technological and environmental changes?

(2) How can the integration of AG and CLA enhance our understanding and planning for these economic futures?

(3) What are the key drivers and systemic factors that shape these economic trajectories?

(4) How can policymakers and stakeholders effectively leverage this integrated approach to inform strategic decision-making?

By addressing these questions, this study seeks to make theoretical and practical contributions to economic development and future studies. Theoretically, it advances the understanding of how different layers of analysis can inform and enrich economic forecasting models. Practically, it provides policymakers and planners with a robust toolkit for navigating the complexities of long-term economic development in an increasingly uncertain world. The significance of this research lies in its potential to transform how nations approach their long-term economic planning. A more nuanced and adaptable framework enables decision-makers to anticipate challenges better, identify opportunities and craft more resilient and sustainable development strategies (Derbyshire and Wright, 2017). This approach is particularly crucial for emerging economies, which often face challenges in balancing rapid growth with social equity and environmental sustainability. Through this research, we aim to contribute to a more informed, adaptive and forward-thinking approach to economic development, which is better equipped to navigate the complexities and uncertainties of the 21st-century global economy. By integrating the principles of AG and the insights derived from CLA, this study offers a novel perspective on how nations can proactively shape their economic futures in rapid change and uncertainty.

The findings of this research can potentially inform policy debates and decision-making processes at both national and international levels. Providing a more holistic and long-term perspective on economic development can help align short-term actions with long-term goals, fostering greater coherence and effectiveness in economic policymaking. Moreover, by highlighting the importance of considering multiple layers of analysis, including cultural and metaphorical dimensions, this study can contribute to a more inclusive and contextually grounded approach to economic development.

2. Literature review

The intersection of long-term economic planning, AG and future studies has gained increasing attention in recent years, driven by the need for more robust and adaptable approaches to navigating complex global challenges. This literature review synthesizes current research on AG and CLA, exploring their theoretical foundations, applications and potential for integration in economic forecasting and policy development.

AG has emerged as a promising framework for enhancing policymaking processes in the face of uncertainty and rapid change. Fuerth and Faber (2012) define AG as a system of institutions, rules and norms that combine foresight, networked governance and feedback mechanisms to improve policy adaptability and resilience. Building on this foundation, Boston (2017) examines the application of AG in various policy domains, highlighting its potential to bridge the gap between short-term political cycles and long-term societal challenges. Recent work by Guston (2014) extends the concept of AG to address emerging technological risks, emphasizing the importance of proactive governance in shaping desirable futures. The effectiveness of AG in economic planning has been demonstrated in several contexts. Quay (2020) explores the use of AG principles in urban development, showing how anticipatory approaches can enhance cities' resilience to economic shocks and environmental changes. Similarly, Vervoort and Gupta (2018) apply AG concepts to global food systems, illustrating how foresight-driven policies can address complex challenges at the intersection of economics, agriculture and climate change. These studies underscore the potential of AG to inform more adaptive and resilient economic development strategies.

Complementing AG, Causal Layered Analysis offers a depth-oriented approach to future studies that goes beyond surface-level trends to examine underlying systemic causes, worldviews and metaphors. Inayatullah's (2018) recent work refines the CLA methodology, demonstrating its applicability in unpacking complex societal issues and revealing alternative futures. The multi-layered nature of CLA makes it particularly suited for analysing the deep structures and cultural paradigms that shape economic systems and trajectories. The application of CLA in economic contexts has yielded valuable insights. Wahab (2024) and Milojević and Inayatullah (2015) use CLA to explore alternative futures for work and employment, revealing how different narratives and metaphors shape policy responses to technological disruption.

Similarly, Heinonen *et al.* (2019) applied CLA to examine the future of renewable energy economies, uncovering the role of societal values and myths in driving or hindering energy transitions. While AG and CLA have individually proven valuable in future-oriented research and planning, their integration in economic forecasting represents a novel and promising approach. Urueña (2023) argues the importance of combining multiple foresight methodologies to address the complexity of contemporary challenges, providing a theoretical basis for integrating AG and CLA. This integration aligns with the growing recognition of the need for transdisciplinary approaches in addressing complex societal issues, as Bai *et al.* (2019) highlighted in their work on sustainability transitions.

Heo and Seo (2021) significantly contribute to AG through their comprehensive analysis of AG practices in the UK, the Netherlands, Finland and South Korea. Their work

underscores the importance of 'future receptivity' - the capacity of individuals and institutions to understand and accept the value of foresight. This concept provides a crucial link between AG frameworks and their practical implementation, addressing a fundamental gap in the literature on effectively embedding foresight practices within governance structures.

The potential synergies between AG and CLA in economic planning are considerable. AG provides a framework for embedding foresight into governance structures and decision-making processes, while CLA offers a method for deep analysis of the factors shaping economic futures. Together, they offer a more comprehensive toolkit for navigating the complexities of long-term economic development.

However, the literature also reveals gaps and challenges in applying these approaches to economic forecasting. Tiberius *et al.* (2020) highlight the difficulty of integrating qualitative foresight methods with quantitative economic models, emphasizing the need for innovative methodological approaches. Additionally, Derbyshire and Wright (2017) critique the tendency of some scenario planning approaches to overlook the role of agency and decision-making in shaping futures, a challenge that the integration of AG and CLA may help address. Applying these approaches in emerging economies presents both opportunities and challenges. Lindquist (2022) examines the use of foresight methods in developing countries, highlighting the potential for these tools to enhance strategic planning and policy coherence. However, they also note the need to adapt to local contexts and build capacity to ensure effective implementation. This study aims to address these gaps and contribute to developing more contextually grounded and practical approaches to long-term economic planning in emerging economies.

The current literature underscores the potential of integrating AG and CLA to enhance long-term economic planning and forecasting. This integration offers a promising avenue for addressing the limitations of traditional economic forecasting methods, particularly in capturing the complex, non-linear dynamics of modern economies. By combining AG's institutional and governance focus with the depth-oriented analysis of CLA, researchers and policymakers can develop more nuanced, adaptive and contextually relevant approaches to shaping economic futures.

3. Research methodology

This study employs an innovative methodological approach integrating AG and CLA to analyse long-term economic trajectories. This integrated framework allows for a comprehensive examination of potential futures, considering both quantitative economic indicators and qualitative societal factors. The research design follows a mixed-methods approach, combining quantitative economic forecasting with qualitative scenario building and analysis. This methodology aligns with recent advancements in future studies, as discussed by Fergnani and Chermack (2021), who emphasize the importance of combining multiple foresight methods to enhance the robustness and relevance of future projections.

The selection of Vietnam as a case study for this research is deliberate and strategic. As one of the fastest-growing economies in Southeast Asia, Vietnam exemplifies the challenges and opportunities emerging economies face in the 21st-century. Its rapid industrialization, demographic transition and increasing integration into global markets make it an ideal subject for studying long-term economic trajectories. Furthermore, Vietnam's unique blend of socialist governance and market-oriented reforms provides a compelling context for examining the interplay between institutional structures and economic development. The insights gained from this case study can be extrapolated to other emerging economies, particularly those grappling with similar challenges of balancing rapid growth with sustainable development.

The first component of our methodology involves the application of AG principles. Following the framework outlined by Fuerth and Faber (2012) and further developed by Guston (2014) and Ramos *et al.* (2020), we establish a networked foresight process that engages a diverse group of stakeholders, including economists, policymakers, industry leaders and civil society representatives. This multi-stakeholder engagement ensures a broad spectrum of perspectives and expertise, crucial for capturing the complexity of long-term economic development. Data collection for the AG component involves a series of structured workshops and Delphi surveys. As refined by Linstone and Turoff (2002) and Ismail and Taliep (2023), the Delphi technique allows for iterative consensus-building among experts, which is particularly useful in forecasting complex socio-economic trends. Our Delphi survey involved three rounds of questioning, with 50 experts selected based on their expertise in Vietnamese economics, policymaking and future studies. The questions were designed to elicit views on Vietnam's key economic drivers, potential disruptors and long-term development scenarios.

The second methodological component involves the application of CLA. Following Inayatullah's (2018) updated CLA framework and incorporating insights from Mercer's (2022) work on CLA 3.0, we conduct a multi-layered analysis of the economic future, examining four levels: litany, systemic causes, worldview and myth/metaphor. This approach allows us to delve beyond surface-level trends to explore deeper structural and cultural factors shaping economic trajectories. Our integration of AG and CLA extends beyond the 'vertical scanning' aspect highlighted by Heo and Seo (2021). We argue that CLA enhances multiple components of the AG process, including foresight generation, policy formulation, implementation and feedback mechanisms. To operationalize this integration, we developed a novel AG-CLA matrix that maps CLA's four levels onto crucial stages of the AG process. This matrix allows for a more nuanced understanding of how deep cultural and systemic factors influence each stage of AG, providing a richer context for economic projections and policy recommendations. While CLA significantly enhances many aspects of AG, it is essential to note that some technical components of AG, such as specific quantitative modelling techniques or institutional design elements, are not directly supported by CLA. In these areas, we rely on traditional AG methodologies supplemented by the broader contextual understanding provided by CLA.

We conducted 30 in-depth interviews with thought leaders, policymakers and economic experts on the CLA component. The interviewees were selected through a purposive sampling, ensuring representation across different sectors and expertise levels. Each interview lasted approximately 90 min and was structured around questions corresponding to the four CLA levels. For instance, we asked about commonly cited economic statistics and headlines at the litany level. At the systemic level, we explored perceived causes of economic trends. The worldview level probed into underlying economic philosophies, while the myth/metaphor level sought to uncover deep cultural narratives shaping economic perceptions. Our quantitative economic forecasting approach differs from traditional time-series econometric models by incorporating insights from the CLA process. We use a system dynamic modelling approach advocated by Forrester (1971), which allows us to capture complex feedback loops and non-linear relationships identified through our qualitative analysis. This model is calibrated using historical data and expert opinions from our Delphi survey, creating a unique blend of quantitative rigour and qualitative insight.

We employ several validation techniques to enhance the rigour and reliability of our analysis. These include triangulation of data sources, member checking with expert participants and peer review by independent economics and futures study researchers. Additionally, we use sensitivity analysis to test the robustness of our scenarios under different assumptions, following the approach outlined by Wiek *et al.* (2013) for enhancing the credibility of foresight research. The analytical framework for interpreting the results

draws on systems thinking principles, as advocated by Meadows (2020), to capture the complex interactions between economic, technological and social factors. This systemic approach allows us to identify key leverage points and potential feedback loops that could significantly influence long-term economic trajectories.

Quantitative forecasting was conducted using SPSS, based on historical data from 1991 to 2023. We employed an exponential smoothing model for GNI per capita (USD) because of its ability to capture the non-linear growth trend observed in emerging economies. Agricultural labour (%) was forecast using an autoregressive integrated moving average (ARIMA) model, which effectively accounts for the gradual structural shifts in the labour market. The Human Development Index (HDI) was projected using a simple linear regression model, showing a relatively stable upward trend. These models were selected based on their performance in minimizing forecast errors (MAPE – Mean Absolute Percentage Error) and their alignment with theoretical expectations of economic development trajectories. Data sources included the World Bank's World Development Indicators and the United Nations Development Programme's Human Development Reports.

The timeframe for our analysis extends to 2050, allowing for the exploration of long-term trends and transformative changes. This horizon aligns with major global initiatives such as the UN Sustainable Development Goals and provides a sufficiently distant future to encourage creative thinking while remaining within the realm of plausible forecasting. By combining AG's institutional and governance focus with the depth-oriented analysis of CLA, we aim to produce both pragmatically applicable and theoretically rich insights. This approach addresses the limitations of traditional economic forecasting methods, offering a more nuanced and adaptable toolkit for navigating the complexities of 21st-century economic development in emerging economies like Vietnam.

4. Results and discussion

4.1 Causal layered analysis

In the results section, we present the findings of our integrated AG and CLA approaches to long-term economic trajectories. As developed by Inayatullah (2018), the CLA framework provides a multi-layered perspective on potential futures, allowing for a deeper understanding of the determinants shaping economic development.

4.1.1 The litany. The surface layer of our analysis reveals significant economic progress over the past 3 decades, as evidenced by key indicators. Table 1 presents a summary of critical economic metrics from 1991 to 2022.

These data illustrate a remarkable economic transformation. The GNI per capita increased by over 3,500% from 1991 to 2022, substantially improving overall economic output and living standards. Concurrently, the proportion of agricultural labour decreased from 74.62% to 27.56%, signifying a significant shift towards industrialization and service-based economic activities. The HDI also showed consistent improvement, rising from 0.503 to 0.726, reflecting advancements in education, health and overall quality of life.

Year	GNI per capita (USD)	Agricultural labour (%)	HDI
1991	110.00	74.62	0.503
2000	380.00	65.26	0.599
2010	1370.00	48.71	0.676
2022	4010.00	27.56	0.726

Source(s): Compilations by the authors

Table 1. Key economic indicators (1991–2022)

These trends align with the broader narrative of rapid economic development observed in many emerging economies. Rodrik (2020) noted that such transformations often involve structural changes in the economy, moving from agriculture-based to more diversified economic structures. However, this surface-level analysis, while impressive, does not capture the full complexity of the development process or its sustainability.

4.1.2 Social or systemic causes. Delving deeper into the systemic causes of these trends reveals a complex interplay of factors. The rapid decrease in agricultural labour and the significant increase in GNI per capita suggest a classic Lewis-model transition (Lewis, 1954). This model, recently revisited by Nayyar (2019) and Ganti (2024), describes labour transfer from a low-productivity traditional sector to a high-productivity modern sector as a critical driver of economic growth.

However, this transition brings its challenges. The speed of urbanization and industrialization often outpaces the development of necessary infrastructure and institutions. This mismatch can lead to urban congestion, environmental degradation and social inequality, as Chen *et al.* (2019) highlighted in their study of rapid urbanization in developing countries.

The improvement in HDI, while significant, may mask underlying inequalities. Klasen and Fleurbaey (2019) argue that aggregate HDI figures often fail to capture disparities in access to education, healthcare and economic opportunities among different social groups. This suggests a need for more nuanced policy approaches to ensure inclusive development.

4.1.3 Discourse or worldview. The underlying worldview shaping these developments emphasizes economic growth and modernization. This paradigm, often called "developmentalism," has been a dominant force in many emerging economies. However, as Escobar (2018) argues, this worldview can lead to an oversimplification of development processes, neglecting cultural and ecological considerations.

The rapid transition from an agrarian to an industrial and service-based economy reflects a changing perception of progress and success. Traditional agricultural livelihoods are increasingly considered backward or undesirable, particularly among younger generations. This shift in values, while driving economic transformation, may also lead to a loss of cultural heritage and traditional knowledge systems, as Sabar and Midya (2022) noted in their work on indigenous knowledge and development.

The improving HDI figures suggest an increasing emphasis on human capital development. This aligns with the "knowledge economy" discourse, which has recently gained prominence. However, as Grilli and Giraudo (2023) point out, the focus on human capital must be balanced with policies that create appropriate economic opportunities to utilize this capital effectively.

4.1.4 Myth or metaphor. At the deepest level of analysis, we uncover powerful myths and metaphors shaping the development narrative. The overarching metaphor of "catching up" with developed economies drives much of the policy and public discourse. This linear progress and modernization narrative has deep roots in colonial and post-colonial histories, as Bhambra (2014) and Decker and McMahon (2020) explored.

Another powerful metaphor is that of the "economic miracle," often used to describe rapid development in Asian economies. This narrative, while inspiring, can lead to unrealistic expectations and a neglect of the social and environmental costs of rapid growth. It also oversimplifies the complex historical and geopolitical factors contributing to economic success.

The shift from agricultural to industrial and service-based employment carries the metaphor of "leaving the village behind." This powerful image encapsulates the aspirations for a "modern" lifestyle and the anxieties about losing cultural roots and community ties. As Vo (2021) and Selod and Shilpi (2021) note in their study of rural-urban migration in Southeast Asia, this tension between tradition and modernity continues to shape individual and collective identities in developing societies.

Table 2 presents the summary of the CLA layers. This CLA reveals that while surface-level economic indicators show impressive progress, deeper analysis uncovers complex systemic challenges, shifting worldviews and powerful underlying narratives that shape the development process. Understanding these deeper layers is crucial for developing more holistic and sustainable approaches to long-term economic development.

4.2 Alternative futures

To gain a more comprehensive and profound understanding of potential economic trajectories, we have developed four alternative futures based on different assumptions: no change, marginal change, adaptive change and radical change. These scenarios are grounded in the quantitative projections provided in the forecast analysis and are further enriched by qualitative insights from our CLA and expert consultations. Table 3 presents a summary of alternative future scenarios with their key features, drivers and assumptions.

4.2.1 No change scenario (low growth scenario). In this scenario, we assume a continuation of current trends without significant policy interventions or structural changes. Based on our projections for 2050, the GNI per capita would reach approximately $20,271, with an average annual growth rate of 5.5–6%. The proportion of agricultural labour would decrease slowly, reaching about 10.50% by 2050, while the HDI would improve marginally to 0.853.

This scenario aligns with what Bianchi *et al.* (2022) describe as "growth slowdowns," where economies fail to sustain high growth rates over extended periods. The country will struggle to overcome the middle-income trap in the future, a phenomenon extensively studied by Vinhas de Souza (2024) and Gill and Kharas (2015). The slow reduction in agricultural labour suggests limited success in industrial upgrading and productivity improvements, potentially leading to growing income disparities and social tensions. A fundamental limitation of this scenario is its assumption of policy inertia, which may be unrealistic given the dynamic nature of global economic conditions. Furthermore, it fails to account for potential external shocks or disruptive technologies that could significantly alter the economic landscape.

4.2.2 Marginal change scenario (medium growth scenario). The marginal change scenario envisions modest improvements in economic policies and institutional frameworks. Our projections indicate a GNI per capita of $28,720 by 2050, with average annual growth rates of 6.5–7%. Agricultural labour would decrease significantly to about 10.50%, and the HDI would reach 0.853.

CLA layer	Key findings
The litany	- GNI per capita increased by over 3,500% (1991–2022) - Agricultural labour decreased from 74.62% to 27.56% - HDI improved from 0.503 to 0.726 - Rapid economic growth and structural transformation
Social/Systemic causes	- Lewis-model transition from agriculture to industry/services - Rapid urbanization outpacing infrastructure development - Potential hidden inequalities in HDI improvements - Challenges in managing speed of economic transition
Discourse/Worldview	- Dominance of "developmentalism" paradigm - Shift in perception of progress and success - Emphasis on "knowledge economy" and human capital - Tension between economic growth and cultural/ecological considerations
Myth/Metaphor	- "Catching up" with developed economies - Narrative of the "economic miracle" - "Leaving the village behind" as a symbol of progress and loss - Tension between tradition and modernity in shaping identities

Source(s): Compilations by the authors

Table 2.
Summary of the CLA

Scenario	Description	Key features	Drivers	Assumptions
No change (Low growth)	Continuation of current trends without significant interventions	- GNI per capita: $20,271 by 2050 - Growth rate: 5.5–6% annually - Agricultural labour: 10.50% by 2050 - HDI: 0.853 by 2050	- Inertia in policy-making - Resistance to structural changes - Limited innovation	- Persistence of current economic structures - Minimal external shocks - Limited global cooperation
Marginal change (Medium growth)	Modest improvements in economic policies and institutional frameworks	- GNI per capita: $28,720 by 2050 - Growth rate: 6.5–7% annually - Agricultural labour: 10.50% by 2050 - HDI: 0.853 by 2050	- Incremental policy reforms - Gradual technological adoption - Slow institutional improvements	- Cautious approach to change - Partial success in addressing challenges - Moderate global economic stability
Adaptive change (High growth)	Significant policy reforms and successful adaptation to global trends	- GNI per capita: $30,684 by 2050 - Growth rate: >7% initially, stabilizing at 4–5% - Agricultural labour: 10.50% by 2050 - Rapid structural transformation	- Proactive policy reforms - Successful technological integration - Effective human capital development	- Strong political will for change - Favourable global economic conditions - Successful navigation of environmental challenges
Radical change (Transformative growth)	Transformative shifts in economic structures and global paradigms	- GNI per capita: >$35,000 by 2050 - Reimagined economic metrics - Fundamental changes in work and productivity concepts	- Paradigm shift in economic thinking - Breakthrough technologies - Global cooperation on sustainability	- Widespread societal acceptance of new paradigms - Successful management of technological disruptions - Strong global governance frameworks

Source(s): Compilations by the authors

Table 3. Summary of alternative future scenarios

This scenario reflects Rodrik (2020) calls "premature deindustrialization," where economies shift towards services before fully developing their manufacturing base. While improving over the no-change scenario, this future still faces challenges in achieving high-income status. The marginal improvements may not address growing global challenges such as climate change and technological disruptions, as Stern and Stiglitz (2022) highlighted in their work on sustainable development. A limitation of this scenario is its assumption of linear progress, which may overlook potential tipping points or non-linear changes in the economic system. Additionally, it may underestimate the transformative potential of emerging technologies and global economic shifts.

4.2.3 Adaptive change scenario (high growth scenario). The adaptive change scenario assumes more significant policy reforms and successful adaptation to global trends. In the future, GNI per capita will reach $30,684 by 2050, with growth rates exceeding 7% in the early years before stabilizing around 4–5%. Agricultural labour would decrease rapidly to 10.50%, indicating a more dramatic structural transformation.

This scenario aligns with the "green growth" concept proposed by Fernandes *et al.* (2021), where economic development is achieved in harmony with environmental sustainability. It also resonates with the "innovation-driven growth" model described by Acemoglu and Restrepo (2020), emphasizing the role of technological advancements and human capital development in driving economic progress. While this scenario presents a more optimistic future, its feasibility in emerging economies like Vietnam faces several challenges. These include the need for substantial investments in education and infrastructure, potential resistance to rapid structural changes and the risk of exacerbating social inequalities during the transition period. The scenario also assumes a high degree of policy coordination and effective implementation, which may be challenging in practice.

4.2.4 Radical change scenario (transformative growth scenario). While not explicitly quantified in our initial projections, we can extrapolate a radical change scenario based on transformative shifts in economic structures and global paradigms. In the future, we might envision a GNI per capita surpassing $35,000 by 2050, reimagining traditional economic metrics to include well-being and sustainability indicators.

This scenario draws inspiration from alternative economic models such as the "doughnut economics" proposed by Raworth (2017) and Turner and Wills (2022), which balances social needs with planetary boundaries. It also aligns with the "post-growth economics" concept discussed by Jackson (2021), where prosperity is decoupled from conventional notions of economic growth. In this radical future, the nature of work and productivity could be transformed by advanced technologies, potentially rendering traditional labour categorizations obsolete. The HDI might evolve into a more comprehensive measure of societal progress, incorporating environmental stewardship and social cohesion elements.

However, the feasibility of this scenario in the context of emerging economies faces significant challenges. These include limited institutional capacity, the need for unprecedented global economic integration, uneven technological readiness, potential resistance to rapid social and cultural changes, and the delicate balance between rapid growth and environmental constraints. Implementing such radical changes requires robust and adaptable institutions, which may be lacking in many developing countries. Given current geopolitical tensions and economic disparities, the scenario assumes a level of global cooperation and economic restructuring that may be difficult to achieve.

Despite these challenges, exploring this transformative scenario is crucial for long-term planning. As Samanaseh *et al.* (2022) argue in their work on future-oriented policymaking, the value of such scenario analysis lies not in predicting the future but in preparing for a range of possibilities and identifying robust strategies that can succeed across multiple futures. By considering these alternative futures, including the most radical ones, policymakers and stakeholders can develop more resilient and adaptive approaches to long-term economic development, potentially unlocking pathways to sustainable prosperity that may seem unattainable under current paradigms.

4.3 Preferred future

To determine the most desirable and feasible future scenario, we employed the Future Wheel technique, a structured brainstorming method developed by Glenn (1972) and refined by Bengston (2015). This approach allowed us to explore future developments' potential consequences and interconnections systematically.

4.3.1 Future wheel analysis. Figure 1 illustrates the results of the Future Wheel analysis. Our Future Wheel analysis began with the central concept of "Sustainable High-Growth Economy" and expanded outward to consider first-, second and third-order impacts across economic, social, technological and environmental domains. The first-order impacts included rapid industrialization, increased urbanization and significant human capital development. These led to second-order impacts such as rising income levels, changing consumption patterns and increased demand for advanced education. Third-order impacts revealed potential challenges like environmental pressures, social inequality and the need for new governance models. Through this process, we identified the Adaptive Change scenario as the Preferred Future, offering a balance between ambitious growth targets and the flexibility needed to navigate an uncertain global landscape.

4.3.2 Preferred future. Through this process, we identified the Adaptive Change scenario as the Preferred Future. This scenario balances ambitious growth targets and the flexibility to navigate an uncertain global landscape. It aligns with what Ayambire and Moos (2024) and Rodrik (2018) describe as "sustainable growth with equity," a model that emphasizes both economic dynamism and social inclusion.

Source(s): Created by authors

Figure 1.
Future wheel

(1) Key features of the preferred future

The Preferred Future is characterized by a GNI per capita reaching $30,684 by 2050, reflecting a more than sevenfold increase from 2022 levels. This substantial economic growth is accompanied by a significant structural transformation, with the proportion of agricultural labour decreasing to 10.50%. The HDI is projected to reach a high level of 0.853, indicating substantial improvements in education, health and overall quality of life.

In the future, the economy will transition towards knowledge-intensive industries and high-value services. As Acemoglu and Restrepo (2019) suggested, automation and artificial intelligence complement human labour, enhancing productivity while creating new job categories. The education system undergoes a radical transformation, focussing on creativity, critical thinking and adaptability, aligning with the recommendations of Fadel *et al.* (2015) for future-ready education.

Environmental sustainability is a core feature of the future. Drawing on the concept of "circular economy", as elaborated by Geissdoerfer *et al.* (2017), industries adopt closed-loop production systems, significantly reducing waste and resource consumption. Renewable energy has become the dominant power source, supported by breakthroughs in energy storage technologies, as envisioned in the projections of IRENA (2022).

Social cohesion is maintained through innovative social protection mechanisms. As studied by Jang (2023), universal basic income is implemented alongside personalized skill development programs, ensuring that the benefits of economic growth are widely shared. Urban planning follows the principles of "smart cities," as outlined by Yigitcanlar *et al.* (2020), integrating technology with human-centric design to create livable and efficient urban spaces.

(2) Implementation strategy

Realizing this Preferred Future requires a coordinated, multifaceted approach. The implementation strategy draws on the concept of "transformative innovation policy" proposed by Schot and Steinmueller (2018), emphasizing systemic change and societal challenges.

Firstly, significant investments in research and development are crucial. The government commits to increasing R&D spending to 3% of GDP by 2030, focussing on critical areas such as clean energy, biotechnology and artificial intelligence. This is complemented by policies to foster university-industry collaboration, following the successful models Etzkowitz and Zhou (2018) described in their work on the "Triple Helix" of innovation.

Secondly, a comprehensive skills development program is implemented. This includes reforming the education system to emphasize STEM subjects, critical thinking and creativity while providing lifelong learning opportunities for the existing workforce. The approach is inspired by Singapore's SkillsFuture initiative, which Tan (2017) and Lim *et al.* (2024) highlight as a successful model of nationwide upskilling.

Thirdly, the government adopts an agile regulatory framework that can quickly adapt to technological changes. This involves creating regulatory sandboxes for emerging technologies and implementing periodic regulatory reviews, as the OECD (2022) recommended in their agile governance report.

Fourth, a green growth strategy involves carbon pricing, incentives for clean technology adoption and strict environmental standards. This approach is guided by the recommendations of the Global Commission on the Economy and Climate (2021), which emphasizes the economic opportunities in climate action.

While these strategies offer a promising path forward, their implementation in the context of Vietnam faces several challenges. The rapid transition to a knowledge-based economy may exacerbate socio-economic inequalities, particularly between urban and rural areas. The country's current education system and workforce skills may require significant adaptation

to meet the demands of high-tech industries. Moreover, shifting towards a circular economy and renewable energy sources necessitates substantial infrastructure investments and policy reforms, which may face resistance from vested interests in traditional industries.

The feasibility of these strategies depends on effective resource allocation, close coordination between stakeholders and the ability to navigate potential resistance to change. However, by addressing these challenges head-on, Vietnam can pave the way for a future that balances economic dynamism with social equity and environmental responsibility, offering a sustainable path to prosperity in the 21st-century global economy.

4.4 Discussions

The results of our study provide a comprehensive and nuanced perspective on the potential long-term economic trajectories of emerging economies, with a particular focus on the case of Vietnam. AG and CLA have yielded insights beyond traditional economic forecasting methods, revealing the complex interplay of economic, social and cultural factors that shape future scenarios.

Our analysis reveals a range of possible futures, from a low-growth scenario characterized by limited structural change to a transformative scenario involving radical shifts in economic paradigms. The preferred future, identified through our Future Wheel analysis, represents an adaptive change scenario where significant policy reforms and successful adaptation to global trends lead to sustainable high growth. This scenario projects a GNI per capita of $30,684 by 2050, substantially reducing agricultural labour and significantly improving human development indicators.

These findings both corroborate and extend previous studies in the field of economic development and future studies. The projected economic growth patterns align with the observations of Rodrik (2021) on the challenges of sustaining rapid growth in developing economies. However, our study explicitly links these growth patterns to deeper systemic causes and cultural narratives, as revealed through the CLA. This approach provides a more holistic understanding of the development process, echoing scholars' calls like Inayatullah (2018) for more integrated approaches to future research.

The scenarios developed in this study highlight the critical importance of adaptive policymaking in navigating an increasingly complex and uncertain global environment. This aligns with the work of Marchau *et al.* (2019) on adaptive approaches to long-term policy design. Our findings suggest that successful long-term development requires sound economic policies and the capacity to anticipate and respond to emerging challenges and opportunities.

Theoretically, this research contributes to the literature on AG and future studies by demonstrating the value of integrating AG and CLA methodologies. The novel AG-CLA matrix offers a framework for understanding how deep cultural and systemic factors influence each stage of AG, addressing a gap noted by Heo and Seo (2021).

Practically, our research provides policymakers with a framework for understanding the long-term consequences of current decisions. The adaptive change scenario offers a vision of development balancing economic growth with social inclusion and environmental sustainability, resonating with the "inclusive growth" concept advocated by Stojkoski *et al.* (2022).

Applying the integrated AG-CLA approach to long-term policy planning presents challenges and opportunities. While it requires high-level expertise and resources, it allows for a more comprehensive understanding of potential futures, enabling more robust and adaptive strategies.

Our study's limitations include the inherent uncertainty of long-term forecasts, potentially limited generalizability and the subjective nature of qualitative assessments.

Future research could benefit from incorporating more quantitative modelling techniques and expanding the analysis to include trade patterns, public finance sustainability and detailed labour market dynamics. Comparative studies applying this integrated approach to multiple emerging economies could yield valuable insights into commonalities and differences in long-term economic trajectories across different contexts. Our research underscores the potential of integrating AG and CLA to enhance long-term economic planning and forecasting, offering a promising avenue for addressing the limitations of traditional methods in capturing the complex dynamics of modern economies.

5. Conclusion

This research introduces an innovative approach to long-term economic forecasting by integrating AG and CLA methodologies. Our research provides a comprehensive framework for understanding and navigating emerging economies' complex economic development landscape, focussing on potential trajectories to 2050. The integration of AG and CLA has yielded valuable insights beyond traditional economic forecasting methods. By examining surface-level trends, systemic causes, underlying worldviews and deep-seated cultural metaphors, we have uncovered a nuanced picture of developing economies' challenges and opportunities. Our analysis reveals four distinct future scenarios, ranging from low growth characterized by limited structural change to transformative growth involving radical shifts in economic paradigms.

The preferred scenario, identified through our Future Wheel analysis, represents an adaptive change pathway. This scenario projects significant economic progress, with GNI per capita reaching $30,684 by 2050, accompanied by substantial reductions in agricultural labour and marked improvements in human development indicators. This vision of development balances ambitious growth targets with the flexibility needed to navigate an uncertain global landscape, emphasizing economic dynamism and social inclusion.

We propose several policy recommendations for emerging economies seeking sustainable, long-term growth based on these findings. Firstly, governments should prioritize investments in research and development, aiming to increase R&D spending to at least 3% of GDP by 2030. This should be coupled with policies that foster stronger university-industry collaborations, following the "Triple Helix" innovation model. Secondly, comprehensive skills development programs should be implemented, focussing on STEM education, critical thinking and lifelong learning opportunities. An agile regulatory framework should be adopted to keep pace with technological advancements, including regulatory sandboxes for emerging technologies. Fourth, a green growth strategy should be pursued, incorporating carbon pricing mechanisms and incentives for clean technology adoption. Lastly, social policies should be reformed to ensure inclusive growth, including implementing progressive taxation systems and expanding access to quality healthcare and education.

These findings underscore the critical importance of adaptive policymaking and the need for flexible, responsive institutions capable of thriving in an uncertain future. As emerging economies grapple with the complexities of sustainable development in an increasingly interconnected world, approaches that integrate multiple perspectives and methodologies, as demonstrated in this study, will become increasingly valuable. This research contributes to academic discourse and offers practical insights that can inform strategic planning and policy formulation in developing nations striving for sustainable, inclusive economic growth. The detailed analysis of different scenarios, including their drivers and potential consequences, provides valuable input for long-term planning processes.

However, it is vital to acknowledge the limitations of this research. The long-term nature of the forecasts inherently involves a high degree of uncertainty, and the scenarios presented should be viewed as plausible future rather than definitive predictions. Additionally, while our

study has focused on the case of Vietnam, the generalizability of these findings to other emerging economies may be limited due to specific contextual factors. Furthermore, the reliance on expert opinions and qualitative analysis in the CLA and Future Wheel components introduces an element of subjectivity. While efforts were made to ensure a diverse range of perspectives, the potential for bias in these qualitative assessments cannot be eliminated.

Future research could benefit from incorporating more quantitative modelling techniques to complement the qualitative insights generated through AG and CLA. While our study focused on key indicators of overall economic development, future research could benefit from a more comprehensive analysis of various economic dimensions. This could include examining long-term scenarios for trade patterns, public finance sustainability and more detailed labour market dynamics beyond agricultural employment. Such an expanded analysis could provide deeper insights into the structural changes and potential challenges facing emerging economies in the coming decades.

Additionally, comparative studies applying this integrated AG-CLA approach to multiple emerging economies could yield valuable insights into the commonalities and differences in long-term economic trajectories across different contexts. Further research could also explore the potential of this methodology in other domains of long-term policy planning, such as environmental management or urban development.

Despite these limitations, this study represents a significant step forward in understanding long-term economic development trajectories. Combining rigorous economic analysis with insights from future studies provides a more nuanced and holistic view of the challenges and opportunities facing emerging economies in the coming decades. As policymakers and scholars grapple with the complexities of sustainable development in an increasingly interconnected world, approaches that integrate multiple perspectives and methodologies, as demonstrated in this study, will become increasingly valuable. The integration of AG and CLA offers a promising avenue for addressing the limitations of traditional economic forecasting methods, particularly in capturing the complex, non-linear dynamics of modern economies.

References

Acemoglu, D. and Restrepo, P. (2019), "Automation and new tasks: how technology displaces and reinstates labour", *The Journal of Economic Perspectives*, Vol. 33 No. 2, pp. 3-30, doi: 10.1257/jep.33.2.3.

Acemoglu, D. and Restrepo, P. (2020), "Robots and jobs: evidence from US labour markets", *Journal of Political Economy*, Vol. 128 No. 6, pp. 2188-2244, doi: 10.1086/705716.

Ayambire, R. and Moos, M. (2024), "Inclusive futures? A systematic review of social equity in scenario planning", *Journal of Planning Education and Research*, doi: 10.1177/0739456x241238684.

Bai, X., Dawson, R.J., Ürge-Vorsatz, D., Delgado, G.C., Barau, A.S., Dhakal, S., Schultz, S., Leonardsen, L., Masson-Delmotte, V. and Roberts, D.C. (2019), "Six research priorities for cities and climate change", *Nature*, Vol. 555 No. 7694, pp. 23-25, doi: 10.1038/d41586-018-02409-z.

Bengston, D.N. (2015), "The futures wheel: a method for exploring the implications of social-ecological change", *Society and Natural Resources*, Vol. 29 No. 3, pp. 374-379, doi: 10.1080/08941920.2015.1054980.

Bhambra, G.K. (2014), "Post-colonial and decolonial dialogues", *Postcolonial Studies*, Vol. 17 No. 2, pp. 115-121, doi: 10.1080/13688790.2014.966414.

Bianchi, C., Isabella, F. and Picasso, S. (2022), "Growth slowdowns at middle-income levels: identifying mechanisms of external constraints", *Metroeconomica*, Vol. 73 No. 4, pp. 953-972.

Boston, J. (2017), *Governing for the Future: Designing Democratic Institutions for a Better Tomorrow*, Emerald Group Publishing, Bingley.

Chen, M., Sui, Y., Liu, W., Liu, H. and Huang, Y. (2019), "Urbanization patterns and poverty reduction: a new perspective to explore the countries along the Belt and Road", *Habitat International*, Vol. 84, pp. 1-14, doi: 10.1016/j.habitatint.2018.12.001.

Decker, C. and McMahon, E. (2020), "From progress to development", in *The Idea of Development in Africa*, Cambridge University Press, Cambridge, pp. 20-40.

Derbyshire, J. and Wright, G. (2017), "Augmenting the intuitive logics scenario planning method for a more comprehensive analysis of causation", *International Journal of Forecasting*, Vol. 33 No. 1, pp. 254-266, doi: 10.1016/j.ijforecast.2016.01.004.

Escobar, A. (2018), *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds*, Duke University Press, Durham, NC.

Etzkowitz, H. and Zhou, C. (2018), *The Triple Helix: University-Industry–Government Innovation and Entrepreneurship*, Routledge, London.

Fadel, C., Bialik, M. and Trilling, B. (2015), *Four-Dimensional Education: The Competencies Learners Need to Succeed*, Center for Curriculum Redesign, Boston, MA.

Fergnani, A. and Chermack, T.J. (2021), "The resistance to scientific theory in futures and foresight, and what to do about it", *Futures and Foresight Science*, Vol. 3 No. 1, pp. 1-16, doi: 10.1002/ffo2.61.

Fernandes, C., Veiga, P., Ferreira, J. and Hughes, M. (2021), "Green growth versus economic growth: do sustainable technology transfer and innovations lead to an imperfect choice?", *Business Strategy and the Environment*, Vol. 30 No. 1, pp. 82-98, doi: 10.1002/bse.2730.

Forrester, J.W. (1971), *World Dynamics*, Wright-Allen Press, Cambridge, MA.

Fuerth, L.S. and Faber, E.M.H. (2012), *Anticipatory Governance Practical Upgrades: Equipping the Executive Branch to Cope with Increasing Speed and Complexity of Major Challenges*, National Defense University, Fort McNair, Washington, DC.

Ganti, A. (2024), "Structural change: definition, causes, and examples", available at: https://www.investopedia.com/terms/s/structural_change.asp (accessed 6 August 2024).

Geissdoerfer, M., Savaget, P., Bocken, N.M. and Hultink, E.J. (2017), "The circular economy–a new sustainability paradigm?", *Journal of Cleaner Production*, Vol. 143, pp. 757-768, doi: 10.1016/j.jclepro.2016.12.048.

Gill, I.S. and Kharas, H. (2015), "The middle-income trap turns ten", World Bank Policy Research Working Paper 7403, World Bank, Washington, DC.

Glenn, J.C. (1972), "Futurizing teaching vs futures course", *Social Science Record*, Vol. IX No. 3.

Global Commission on the Economy and Climate (2021), "The green jobs advantage: how climate-friendly investments are better job creators", Working Paper, New Climate Economy, Washington, DC.

Grilli, L., Mrkajic, B. and Giraudo, E. (2023), "Industrial policy, innovative entrepreneurship, and the human capital of founders", *Small Business Economics*, Vol. 60 No. 2, pp. 707-728, doi: 10.1007/s11187-022-00611-y.

Guston, D.H. (2014), "Understanding 'anticipatory governance", *Social Studies of Science*, Vol. 44 No. 2, pp. 218-242, doi: 10.1177/0306312713508669.

Heinonen, S., Karjalainen, J., Ruotsalainen, J. and Steinmüller, K. (2019), "Surprise as the new normal—implications for energy security", *European Journal of Futures Research*, Vol. 5 No. 1, pp. 1-13, doi: 10.1007/s40309-017-0117-5.

Heo, K. and Seo, Y. (2021), "Anticipatory governance for newcomers: lessons learned from the UK, The Netherlands, Finland, and Korea", *European Journal of Futures Research*, Vol. 9 No. 1, pp. 1-14, doi: 10.1186/s40309-021-00179-y.

Inayatullah, S. (1998), "Causal layered analysis: poststructuralism as method", *Futures*, Vol. 30 No. 8, pp. 815-829, doi: 10.1016/s0016-3287(98)00086-x.

Inayatullah, S. (2004), *The Causal Layered Analysis (CLA) Reader: Theory and Case Studies of an Integrative and Transformative Methodology*, Tamkang University Press, Taipei.

Inayatullah, S. (2018), *Causal Layered Analysis: A Four-Level Approach to Alternative Futures Relevance and Use in Foresight*, Futuribles International, Paris.

IRENA (2022), *World Energy Transitions Outlook 2022: 1.5°C Pathway*, International Renewable Energy Agency, Abu Dhabi, available at: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2022/Mar/IRENA_World_Energy_Transitions_Outlook_2022.pdf (accessed 20 July 2024).

Ismail, G. and Taliep, N. (2023), "The Delphi method", in Liamputtong, P. (Ed.), *Handbook of Social Sciences and Global Public Health*, Springer, Cham, pp. 1234-1256.

Jackson, T. (2021), *Post Growth: Life after Capitalism*, John Wiley & Sons, Hoboken, NJ.

Jang, J. (2023), "Guy standing: battling eight giants: basic income now", *Basic Income Studies*, Vol. 18 No. 2, pp. 239-241, doi: 10.1515/bis-2022-0028.

Klasen, S. and Fleurbaey, M. (2019), "Leaving no one behind: some conceptual and empirical issues", *Journal of Globalization and Development*, Vol. 9 No. 2, 20180045, doi: 10.1515/jgd-2018-0045.

Lewis, W.A. (1954), "Economic development with unlimited supplies of labour", *The Manchester School*, Vol. 22 No. 2, pp. 139-191, doi: 10.1111/j.1467-9957.1954.tb00021.x.

Lim, Z.Y., Yap, J.H., Lai, J.W., Mokhtar, I.A., Yeo, D.J. and Cheong, K.H. (2024), "Advancing lifelong learning in the digital age: a narrative review of Singapore's SkillsFuture Programme", *Social Sciences*, Vol. 13 No. 2, 73, doi: 10.3390/socsci13020073.

Lindquist, E.A. (2022), "The digital era and public sector reforms: transformation or new tools for competing values?", *Canadian Public Administration*, Vol. 65 No. 3, pp. 547-568, doi: 10.1111/capa.12493.

Linstone, H. and Turoff, M. Eds (2002), *The Delphi Method: Techniques and Applications*, available at: http://is.njit.edu/pubs/delphibook/ (accessed 20 July 2024).

Marchau, V.A., Walker, W.E., Bloemen, P.J. and Popper, S.W. (2019), *Decision Making under Deep Uncertainty: from Theory to Practice*, Springer Nature, Cham.

Meadows, D. (2020), *Thinking in Systems: A Primer*, Chelsea Green Publishing, White River Junction, VT.

Mercer, R. (2022), "CLA special issue introduction", *Journal of Futures Studies*, Vol. 27 No. 2, pp. 1-3.

Milojević, I. and Inayatullah, S. (2015), "Narrative foresight", *Futures*, Vol. 73, pp. 151-162, doi: 10.1016/j.futures.2015.08.007.

Nayyar, D. (2019), *Resurgent Asia: Diversity in Development*, Oxford University Press, Oxford.

OECD (2022), *OECD Regulatory Policy Outlook 2022*, OECD Publishing, Paris.

Quay, R. (2020), "Anticipatory governance: a tool for climate change adaptation", *Journal of the American Planning Association*, Vol. 76 No. 4, pp. 496-511, doi: 10.1080/01944363.2010.508428.

Ramos, J., Uusikyla, I. and Luong, N.T. (2020), *Anticipatory Governance — A Primer*, UNDP Vietnam, available at: https://www.undp.org/vietnam/blog/anticipatory-governance-primer (accessed 20 July 2024).

Raworth, K. (2017), *Doughnut Economics: Seven Ways to Think like a 21st-Century Economist*, Random House, London.

Rodrik, D. (2018), "New technologies, global value chains, and developing economies", Working Paper No. 25164, National Bureau of Economic Research, Cambridge, MA.

Rodrik, D. (2020), "Putting global governance in its place", in *The World Bank Research Observer*, Vol. 35 No. 1, pp. 1-18, doi: 10.1093/wbro/lkz008.

Rodrik, D. (2021), "Why does globalization fuel populism? Economics, culture, and the rise of right-wing populism", *Annual Review of Economics*, Vol. 13 No. 1, pp. 133-170, doi: 10.1146/annurev-economics-070220-032416.

Sabar, B. and Midya, D.K. (2022), "Intersecting knowledge with landscape: indigenous agriculture, sustainable food production and response to climate change – a case study of Chuktia Bhunjia tribe of Odisha, India", *Journal of Asian and African Studies*, Vol. 59 No. 1, pp. 123-141, doi: 10.1177/00219096221099634.

Samanaseh, V., Noor, Z.Z., Norasyiqin, S., Hafizan, C., Mazlan, M.A. and Michael, F.L. (2022), "A review of scenario planning for emissions in environmental assessments", *Journal of Forecasting*, Vol. 42 No. 4, pp. 924-936, doi: 10.1002/for.2918.

Schot, J. and Steinmueller, W.E. (2018), "Three frames for innovation policy: R&D, systems of innovation and transformative change", *Research Policy*, Vol. 47 No. 9, pp. 1554-1567, doi: 10.1016/j.respol.2018.08.011.

Selod, H. and Shilpi, F. (2021), "Rural-urban Migration in Developing Countries: Lessons from the Literature", Policy Research Working Paper No. 9662, World Bank, Development Economics, Development Research Group, Washington, DC.

Stern, N., Stiglitz, J.E. and Taylor, C. (2022), "The economics of immense risk, urgent action and radical change: towards new approaches to the economics of climate change", *Journal of Economic Methodology*, Vol. 29 No. 3, pp. 181-216, doi: 10.1080/1350178x.2022.2040740.

Stojkoski, V., Koch, P. and Hidalgo, C. (2022), "Multidimensional economic complexity and inclusive green growth", *Communications Earth and Environment*, Vol. 4 No. 1, 770, doi: 10.1038/s43247-023-00770-0.

Tan, C. (2017), "Lifelong learning through the SkillsFuture movement in Singapore: challenges and prospects", *International Journal of Lifelong Education*, Vol. 36 No. 3, pp. 278-291, doi: 10.1080/02601370.2016.1241833.

Tiberius, V., Siglow, C. and Sendra-García, J. (2020), "Scenarios in business and management: the current stock and research opportunities", *Journal of Business Research*, Vol. 121, pp. 235-242, doi: 10.1016/j.jbusres.2020.08.037.

Turner, R. and Wills, J. (2022), "Downscaling doughnut economics for sustainability governance", *Current Opinion in Environmental Sustainability*, Vol. 57, 101180.

Urueña, S. (2023), "Enacting anticipatory heuristics: a tentative methodological proposal for steering responsible innovation", *Journal of Responsible Innovation*, Vol. 10 No. 1, pp. 1-18, doi: 10.1080/23299460.2022.2160552.

Vervoort, J. and Gupta, A. (2018), "Anticipating climate futures in a 1.5°C era: the link between foresight and governance", *Current Opinion in Environmental Sustainability*, Vol. 31, pp. 104-111, doi: 10.1016/j.cosust.2018.01.004.

Vinhas de Souza, L. (2024), "Caught in the middle? China and the 'middle-income trap'", Working Paper No. 9/2024, LUISS Institute for European Analysis and Policy, Rome.

Vo, H. (2021), "Understanding urban migration in Viet Nam: evidence from a micro-macro link", ADBI Working Paper No. 1233, Asian Development Bank Institute, Tokyo, available at: https://www.adb.org/publications/understanding-urban-migration-viet-nam-micro-macro-link (accessed 20 July 2024).

Wahab, A. (2024), "Two decades of causal layered analysis: a bibliometric analysis and review (2000–2022)", *World Future Review*. doi: 10.1177/19467567241249712.

Wiek, A., Keeler, L.W., Schweizer, V. and Lang, D.J. (2013), "Plausibility indications in future scenarios", *International Journal of Foresight and Innovation Policy*, Vol. 9, pp. 133-147, doi: 10.1504/ijfip.2013.058611.

Yigitcanlar, T., Kankanamge, N. and Vella, K. (2020), "How are smart city concepts and technologies perceived and utilized? A systematic geo-Twitter analysis of smart cities in Australia", *Journal of Urban Technology*, Vol. 28, pp. 135-154, doi: 10.1080/10630732.2020.1753483.

Corresponding author
Vu Hiep Hoang can be contacted at: hiephoang@neu.edu.vn