Comparative Study of the Characteristics of Newly Industrialized Countries and Less Developed Countries and the Countermeasures to the Problems Being Confronted

Yuting Han

Beijing International Bilingual Academy, Beijing, 101300, China

2026lhan@biba-student.org

Abstract. This study focuses on the characteristics, challenges, and countermeasures of newly industrialized countries (NICs) and least developed countries (LDCs). In the context of global economic differentiation, newly industrialized countries represented by Singapore and less developed countries such as Ethiopia and Bangladesh have shown completely different development trajectories. This study uses case analysis, comparative analysis, and secondary data analysis to compare the economic structure, social development, and international participation of the two groups of countries. The study found that newly industrialized countries face challenges such as maintaining stable growth, ecological-industrial balance, and resource constraints, while less developed countries face difficulties such as debt burden, low export rate, and poverty cycle. The study believes that newly industrialized countries should adopt targeted strategies such as industrial upgrading and sustainable resource management, while less developed countries should adopt measures such as debt restructuring and export diversification to effectively respond to the challenges they face, thereby providing a reference for global balanced development.

Keywords: Newly industrialized countries (NICs), Least developed countries (LDCs), Economic growth, Economic development policy

1. Introduction

Globally, countries are classified as developed, developing, and newly industrialized, with newly industrialized countries in a transitional stage between the first two. The United Nations classifies the least developed countries (LDCs) based on income, human capital, and economic vulnerability, highlighting the obvious development gap between them. This study focuses on comparing newly industrialized countries (Singapore as an example) and least developed countries (such as Ethiopia, Bangladesh, and Haiti) to explore their unique characteristics, core challenges, and adaptive strategies. This study aims to clarify how structural differences affect their development paths and find customized solutions to achieve sustainable growth.

The main purpose of this study is to systematically analyze the characteristics of newly industrialized countries and least developed countries in terms of economy, society, and international participation, diagnose their unique challenges, and propose feasible countermeasures. Its significance lies in two aspects: theoretically, it enriches the literature on development typology by elaborating on the transformation dynamics of newly industrialized countries and the bottleneck problems faced by least developed countries; in practice, it provides policy references for governments and international organizations to help newly industrialized countries maintain stability and help less developed countries break through development traps.

This study uses case analysis, focusing on countries such as Singapore and Ethiopia; comparative analysis, by comparing newly industrialized countries and less developed countries; and secondary data analysis, using official statistics, reports, and academic data. Structurally, this study first outlines the characteristics of newly industrialized countries and less developed countries. This study analyzes the main challenges they confronted: newly industrialized countries face growth fluctuations, ecological and industrial conflicts, and resource scarcity. Less developed countries face problems such as debt and low export rates.

2. Characteristics of New Industrialized Countries

Newly industrialized countries are a category between developed and developing countries. The economies of these countries have achieved a transition to a highly developed stage in a short period of time, and then they are divided into four waves. For example, the NICs in the first wave include Hong Kong, South Korea, Singapore, Taiwan, Argentina, Brazil, and Mexico, while the second wave includes India, Malaysia, Thailand, and Chile [1].

2.1. Economic Structure Characteristics

The economic characteristic of newly industrialized countries is high per capita output. Take Singapore as an example. From 1960 to 2022, Singapore's per capita output has increased significantly. As shown in the figure 1 below, the blue line represents Singapore's per capita output, while the red line represents Western Europe. In 1960, Western Europe's per capita output was $10,900, higher than Singapore's per capita output. However, around 1993, Singapore's per capita output equaled Western Europe's per capita output, and it has been rising rapidly since then, reaching $80,300 by 2022, almost twice Western Europe's per capita output.

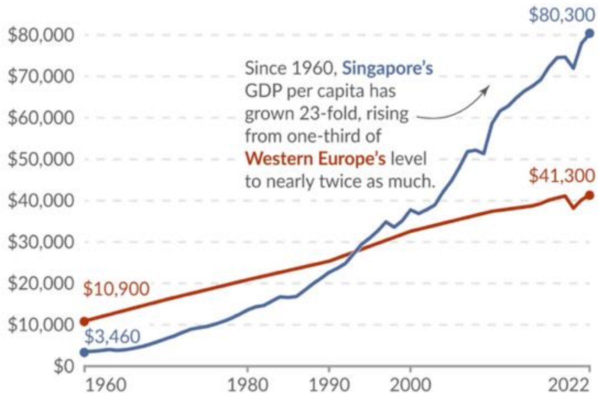

Figure 1. Singapore's GDP per capita (1960-2022)

In addition, Singapore's economic structure, the tertiary sector contributes the majority of GDP, and its share continues to rise. Data from the Singapore Department of Statistics shows that between 2018 and 2023, the secondary sector's share of GDP will range from 22% to 26%, while the tertiary sector's contribution will range from 68% to 73% [2]. Therefore, Singapore's annual per capita output growth rate has almost always maintained a positive growth rate from 1961 to 2023. The highest per capita output growth rate was in 1974, reaching a growth rate of 38.94%. And even in the case of a negative growth rate, it can be adjusted back to the right track within two years and return to a positive growth rate, proving that Singapore has a strong ability to grow its economy, as shown in Figure 2.

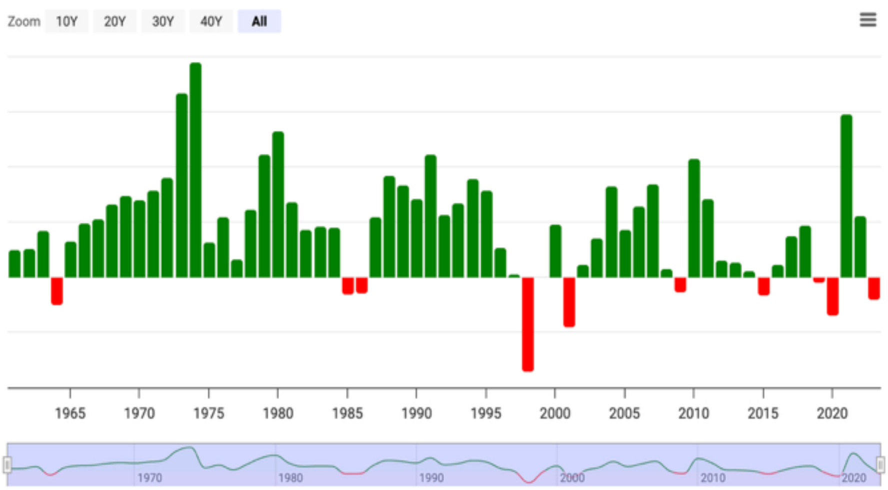

Figure 2. Singapore GDP Annual change (%)

Moreover, in Singapore's modernization process, industrial transformation has always been considered a key factor in promoting economic development and structural change, and it is also another economic characteristic of a newly industrialized country. The figure 3 below describes Singapore's investment commitment to fixed assets. From the figure 3, we can see that from 2015 to 2024, Singapore's investment in fixed assets has been above $9,000 million, especially in 2022, reaching $22,490 million, nearly doubling the fixed asset investment in 2015. Just last year, in 2024, Singapore's fixed asset investment was $13,451 million, an increase of $791 million from 2023.

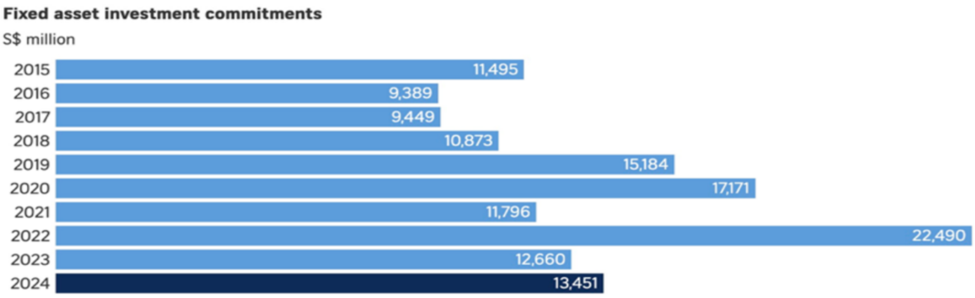

Figure 3. Distribution of Singapore's Fixed Asset Investment (2015-2024)

2.2. Characteristics of Social Development

Singapore has excellent education and training, as well as good infrastructure. This is the second characteristic of a newly industrialized country. Singapore has opened a new teaching model in education. For example, using information technology to create a student-centered learning environment in the basic education informatization development plan-Masterplan 2 (MP2) [3]. Basic education informatization-Masterplan 3 (MP3) emphasizes that teachers should design learning content in an information environment to promote students' independent learning and collaborative learning [3]. Basic education informatization development plan–Masterplan 4 (MP4) requires teachers to become designers of students' learning experience and context and provide ubiquitous and personalized teaching in an information technology environment [3].

In addition, Singapore's education focuses on the comprehensive development of students. For example, in addition to academic development, it also emphasizes character building, social participation, and self-realization [4]. The emphasis on comprehensive education also includes expanding the scope of education to other growth areas beyond cognitive ability and academic performance, such as physical, social-emotional, and artistic achievements [4]. Singapore's spending on education has always accounted for a high proportion of the total government budget, indicating that the Singapore government attaches importance to investment in education [4]. In 2019, Singapore's education expenditure was 16.48%, an increase of 0.39% from 2018. Next, Singapore's education expenditure in 2021 was 13.06%, an increase of 1.85% from 2020.

2.3. Characteristics of International Participation

Singapore's international participation can be reflected in the import and export data of international trade. As of 2024, Singapore's main service categories are transportation, business management, and finance [5].

Singapore has attracted 4,200 multinational companies to set up regional headquarters in Singapore by 2023 [6]. Well-known multinational companies that have set up headquarters in Singapore include Microsoft, Google, FedEx, Rolls-Royce, and Mead Johnson [6]. For example, TikTok and Shein have business centers in Singapore, while Alibaba Group and Huawei Technologies Co., Ltd. are expanding their businesses in Singapore [6].

According to the import and export report released by the Singapore government (Fig. 4), Singapore's total import and export data from 2020 to 2024 can be obtained [5]. In 2024, Singapore's total imports and exports reached $997.7 billion, of which net exports accounted for $528.6 billion, and have been on an upward trend since 2020 [5].

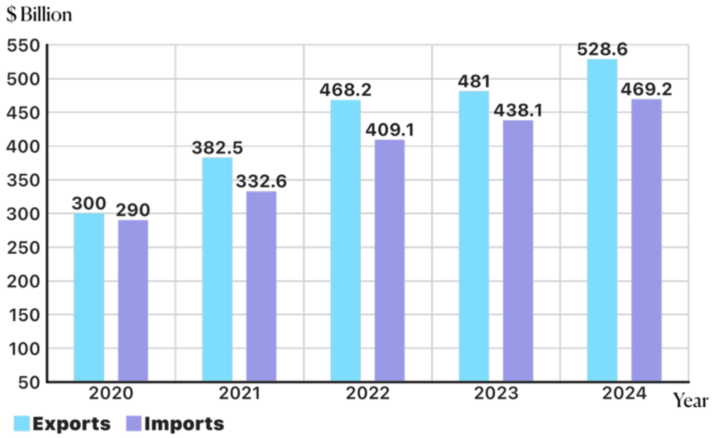

Figure 4. Singapore exports and imports of services (2020-2024)

3. Characteristics of the Least Developed Countries

The least developed country category was established by the United Nations General Assembly in 1971 [7]. The United Nations includes countries with low-income levels and facing serious structural obstacles to sustainable development. There are three standard characteristics of this category of countries:

First, income (Gross National Income): countries have a per capita income of less than $1.088 [7]; Second, human assets: countries score low on the human asset index, including infant mortality, maternal mortality, adult literacy, and gender parity in secondary school enrollment [7]; Third, economic and environmental vulnerability (EVI): countries have low economic growth rates and a high environmental vulnerability index and dependence on agriculture and vulnerability to natural disasters, among other factors [7].

This section will focus mainly on analyzing the economic characteristics of least developed countries by analyzing their per capita income, infant mortality, adult literacy, and agricultural dependence.

Take Ethiopia, for example, the second most populous country in Africa, with a population of about 126.5 million [8]. The per capita GNI is $1.020, its human capital level is low, and 70% of the workforce still relies on agriculture [8]. Around 15 million people will still rely on food aid in 2023 [8].

Bangladesh, also a least developed country, has a growth elasticity of poverty (i.e., the extent to which poverty changes with growth in per capita income) that is typically between -1 and -4, with an average of about -2 [9]. This means that for every 10% increase in per capita income, poverty increases by about 2% [9]. However, for every unit increase in income, poverty falls by 20% [9]. This highlights the importance of economic growth in reducing poverty, especially in developing countries.

In addition, infant mortality is equally important in measuring a country's human asset index. Infant mortality refers to the number of infants who die before the age of one year per 1,000 live births each year. For example, in the Central African Republic, the infant mortality rate was 189.10 in the most recent year of 2022, an increase of 102.03% from 2021, reaching the peak of the past decade. Then, just last year, in 2024, its infant mortality rate decreased but still reached 69.41, an increase of 14.91% from 2023.

Economic characteristics are mainly measured by the GDP growth rate. GDP is the sum of the total value added by all resident producers in an economy plus any product taxes, minus any subsidies not included in the value of the products. Taking Sudan as an example, Sudan's GDP growth rate in 2020 was -3.63%, a decrease of 1.45% from 2019. As of 2023, Sudan's GDP growth rate was -20.11%, the lowest in nearly 20 years.

4. Problems Facing Newly Industrialized Countries

Newly industrialized country, Singapore, in the World Economic Forum's Global Competitiveness Report 2019, was ranked first among 140 economies, making it the top-performing economy in Asia [10]. But in 2024, it slipped slightly from the top position in the Global Competitiveness Index. Its cross-factor strength highlights a robust and future-oriented economy [11]. In "Government Efficiency", Singapore's ranking dropped one place to third. In "Business Efficiency", the country's ranking dropped the most, from second to eighth [11].

Secondly, another problem faced by newly industrialized countries is that it is difficult to maintain a steady economic growth rate. For example, in the figure, Singapore's economic growth rate was relatively stable between 1961 and 2007, but the trend fluctuated after 2008. For example, in 2010, Singapore's economic growth rate was 14.52%, but ten years later, in 2020, Singapore's GDP growth rate was -3.87% [11]. It is very difficult for newly industrialized countries to maintain a steady economic growth rate, such as between 6% and 8%.

Increasing industrialization will damage the ecological environment to a certain extent, so the government needs to weigh between industrialization and protecting the ecological environment. In 2024, Singapore began reclamation work on the east side of SuDong Island to upgrade the existing military airstrip [12]. About 31.1 hectares of land were reclaimed in the east of the island. In the process, 2 hectares of coral reefs, a large number of endangered marine species, and 1.46 hectares of mangrove areas may disappear [12]. And the seed dispersal ability of the surviving mangroves may also be affected [12].

Furthermore, as an island country with limited land area, no ability to collect rainwater, and no natural freshwater source of its own, the impact of industrial development on water resources is one of the most serious national challenges it faces [13]. It is expected that by 2065, Singapore's total water demand will have to nearly double, which is due to the rapid development of Singapore's industry. Non-residential water use is expected to account for more than 60% of total water demand, compared with 55% currently [13]. As climate change increases and global water pressure increases, companies face increasing operational risks due to water shortages [13]. For a country like Singapore, which is short of natural resources, the severity of this problem cannot be underestimated. The challenge is to achieve sustainable resource management while driving industrial development, while maintaining Singapore's competitive advantage and long-term water security.

5. Problems Faced by Less Developed Countries

One of the most serious problems facing the least developed countries is debt. Take Ethiopia, for example, as of March 31, 2022, total public debt reached $56.5 billion (50.7% of GDP) [14]. Followed by an increase to $60 billion in 2023 [14]. This public debt is evenly divided between internal ($28 billion) and external ($28.5 billion) [14]. Over the past decade, debt repayments have accounted for approximately half to two-thirds of the country's annual exports. This has put significant pressure on the country's foreign exchange reserves and exacerbated its foreign exchange shortage [14]. Due to insufficient ability to repay debts, Ethiopia has lost international credibility, and it will be restricted from access to international credit, currency devaluation, and reduced foreign investment.

Another least developed country facing debt problems is Bangladesh. Between 2012 and 2023, Bangladesh's external debt grew by 248%, from $29.16 billion to $101.45 billion, driven primarily by public sector borrowing [15]. This indicates that debt repayment obligations will increase significantly in the near and medium term.

The above content mentioned that least developed countries have subsistence agriculture, so their exports are low and cannot provide sufficient funds for the country. In Bangladesh, export growth is mainly driven by the rubber manufacturing industry [16]. In 2024, the growth of this industry in the corresponding period slowed down significantly, down 2.7% compared with 2023 [16]. As a result, the overall export revenue growth in the first five months of 2024 was low. Also, as Africa's second-largest wheat producer, Ethiopia has a high proportion of employment in the primary industry [17].

The government is committed to achieving self-sufficiency through measures such as expanding wheat planting areas, developing irrigation, and narrowing yield gaps [17].

Haiti also faces the problem of a low export rate. In Fig. 5, after Haiti reached the peak of export rate around 2015, the export volume has declined year by year, even close to the previous low. It shows that Haiti's exports have failed to establish a virtuous cycle to ensure the stability of the export rate. Five years later, in 2020, Haiti's exports were US$1.02 billion, a decrease of 35.91% from 2019. Next, exports in 2023 were US$1.05 billion, a decrease of 28.57% from 2022.

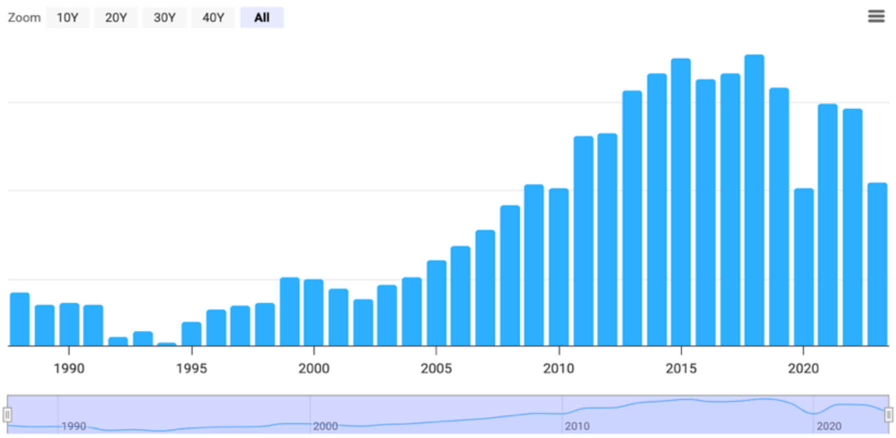

Figure 5. Haiti’s Exports (1988-2023)

Due to high unemployment and low income in underdeveloped countries, there is no tax base. This prevents the government from increasing its budget surplus through taxation. When the government does not have extra budget to invest in education, infrastructure, subsidies, etc., it leads to a cycle of poverty. Bangladesh, for example, still lags behind other similar countries in terms of direct tax collection [18]. In 2018, its direct taxes accounted for only 2.62% of GDP. In comparison, the average for South Asia is 4.6%, while the global average is 8.5%.

6. Countermeasures and Suggestions

6.1. New Industrialization Countermeasures and Suggestions (Singapore)

To help Singapore maintain a steady economic growth rate of 6–8%, we can start with the industrial structure. First, it is recommended to increase investment in digitalization and innovation, such as AI R&D and infrastructure, to increase the added value and efficiency of productive services and manufacturing. Secondly, it can expand exports in emerging markets and high-tech fields through economic and trade cooperation with other countries. In this way, Singapore can enhance economic stability and maintain high-quality and sustainable growth.

To deal with the trade-off between industrial development and ecological environment, Singapore recommends that rare and rare coral species from the reclamation project in the east of SuDong Island can be transplanted to the surrounding islands. Endangered animals living in the intertidal zone can be relocated to the lagoon in the north of SuDong Island or surrounding islands [12]. Singapore can replant the destroyed mangroves, collect the remaining mangrove seeds, and transplant them to suitable natural areas [12]. Finally, habitat restoration work will be carried out immediately after the proposed reclamation project is completed in 2028.

Additionally, to assess the limited water supply in Singapore, the Singapore National Water Agency (PUB) has established a thorough regulatory and fiscal framework. The Water Agency prudently sets prices for water to capture the costs incurred for every single drop of this valuable resource [13]. From January 2024, industries that consume large amounts of water will have to work under a mandatory water recycling system. For instance, in the case of new large water users, there is an obligation to reach at least a 50% level of total water recycling [13].

At the same time, the Singapore Water Agency (PUB) has significantly increased the size of its Water Efficiency Fund [13]. From July 1, 2023, the funding limit for water recycling projects has been increased from S$1 million to S$5 million [13]. By taking a long-term approach and incorporating water sustainability into their operational planning through recycling and water conservation systems, companies can achieve significant benefits, including cost savings and increased competitiveness.

6.2. Countermeasures for less developed countries (Bangladesh, Ethiopia and Haiti)

The first approach is for Ethiopia to be able to use its large debt burden more effectively by overcoming the shortage of financing. By way of illustration, the country can achieve this goal through the expansion of the tax base, the efficiency of taxes, the improvement of the management of public finance, and the reduction of corruption. The other options for debt management of Ethiopia are the various tool approaches and the renewal of debts. These instruments are renegotiation and rescheduling, which are more favorable in their implementation perspectives and have certain advantages.

Another option is to hold a debt restructuring, which involves extending the finance term while achieving an adequate debt share between the official creditors and private creditors and working together with the IMF program. It is also understood that the repayment of the annual debt will be capped, and the terms of the repayment will be extended to the year 2033.

However, since Ethiopia is in default and does not have sufficient international credibility, it will make negotiations with creditors difficult, making it difficult to implement the above countermeasures. Therefore, it is also important for Ethiopia to enhance transparency and rebuild international trust. Recommended strategies include the government controlling public spending and directly investing funds in key areas such as manufacturing, agriculture, and services to increase foreign exchange earnings and reduce dependence on foreign borrowing. Ethiopia must maintain open communication with creditors and work closely with international institutions.

For the low export rate problem faced by Bangladesh and Haiti, the formulation and implementation of a comprehensive export policy will be very effective. Diversification of exports and encouragement of new areas in new markets are the primary goals. Bangladesh has an Export Policy 2024-2027 that aims to achieve exports of $110 billion by the final year and announced various forms of assistance from different ministries, organizations, and institutions as an alternative to cash incentives to avoid subsidy disputes.

In addition, least developed countries can also promote export rates by increasing export diversification, which is beneficial to structural factors such as revenue mobilization, lower tariffs, and other import duties [18]. It is recommended to adopt digital ports, which can reduce the average trade cost of less developed countries, not only shorten the customs clearance time of goods, but also reduce the hidden costs of enterprises. Secondly, by improving infrastructure investment, especially upgrading ports, warehousing, and networks, strengthening their supply chains, and attracting foreign companies to set up distribution centers locally. Less developed countries can also significantly improve the added value and market competitiveness of export products by strengthening human capital and technological upgrading. It is recommended to carry out professional skills training for staff in export-oriented industries, including modern agricultural technology operations, product grading inspection, etc., to stabilize and improve production and quality, and increase the possibility of exports.

To break the cycle of poverty without a tax base caused by high unemployment and low income, less developed countries need to improve and simplify the personal income tax and value-added tax (VAT) system, expand the taxable subjects to small and micro enterprises and high-income groups, and immediately increase the direct tax to GDP ratio. Secondly, it is recommended to promote electronic taxation, establish risk management units, and reduce tax evasion through automated invoice and electronic reporting. Through the above measures, less developed countries can consolidate their tax base and achieve a significant increase in the tax-to-GDP ratio.

7. Conclusion

In summary, this study compares the characteristics, challenges, and responses of newly industrialized countries represented by Singapore and least developed countries represented by Ethiopia and Bangladesh. Newly industrialized countries have high per capita output, advanced industrial structure, and high international participation, but problems such as unstable growth, environmental trade-offs, and resource constraints still exist. Least developed countries have low income, weak human capital, and heavy debt burden, and face problems such as stagnant exports and poverty cycles. Effective strategies for newly industrialized countries include industrial upgrading and sustainable resource management, while least developed countries should adopt debt restructuring, export diversification, and tax reform.

The limitations of this study may include: the research subjects only cover a limited number of case countries, which may limit the generalizability of the conclusions. In addition, this study focuses on macro analysis and pays less attention to micro dynamics such as corporate behavior or grassroots response.

Future research can expand the sample to include more newly industrialized countries and less developed countries to conduct cross-regional comparisons. Further exploration of the impact of global factors, such as geopolitical changes and climate change. The development of the two types of countries and in-depth research on the effectiveness of policy implementation can enhance the practical value of such research.

References

[1] Savelyev, M. Y., Savchenko, A. I., Pushina, N. N., Sokolova, N. G., Koretsky, V. P., Bryndin, A. V.: Features of Economic Development Policies for New Industrial Countries. ICEST-II 2021, EpSBS, vol. 116, pp. 975–991. European Publisher, Lisbon (2021).

[2] Fu, K.: Research on Singapore's Monetary Policy, Monetary Authority, and Import-Export Economic Development. Adv. Econ. Manag. Polit. Sci. 150 (1), 101–107 (2025).

[3] Wang, J.: A Review of the Development of the Integration Strategy of Information Technology and Education in the Four Countries of the United States, Britain, China, and Singapore. Unpublished manuscript (2021).

[4] Kwek, D., Ho, J., Wong, H. M.: The Comprehensive Learning Diagnosis – Executive Summary. Internal Report, Singapore (2023).

[5] Department of Statistics Singapore: Singapore International Trade Infographic (2023). https://www.singstat.gov.sg/modules/infographics/singapore-international-trade.

[6] Tee, Y.: MNEs Pick Singapore Over Hong Kong for Their Regional HQs. ISCA Chartered Accountants Lab, 19 March 2024. https://ca-lab.isca.org.sg/seen-heard/mnes-pick-singapore-over-hong-kong-for-their-regional-hqs/.

[7] UN-OHRLLS: LDC Category. United Nations, 2024. https://www.un.org/ohrlls/content/ldc-category.

[8] World Bank: The World Bank in Ethiopia – Overview. 8 October 2024.

[9] Ahmed, A.: Op-Ed: Agricultural Growth Key to Accelerated Poverty Reduction in Bangladesh. IFPRI-Bangladesh, 12 February 2024. https://bangladesh.ifpri.info/2024/02/op-ed-agricultural-growth-key-to-accelerated-poverty-reduction-in-bangladesh/.

[10] Bertelsmann Stiftung: BTI 2024 Singapore Country Report. BTI 2024. https://bti-project.org/en/reports/country-report/SGP.

[11] IMD World Competitiveness Center: World Competitiveness Ranking 2025: Government Efficiency is Key to Fighting Social Divides and Keeping Economies Afloat. IMD Business School, 16 June 2025.

[12] Tan, C.: More Land to be Reclaimed off Pulau Sudong; Works Will Lead to Loss of Marine Habitats: Report. The Straits Times, 26 January 2024. https://www.straitstimes.com/singapore/more-land-to-be-reclaimed-off-pulau-sudong-works-will-result-in-loss-of-marine-habitats-report.

[13] PUB, Singapore's National Water Agency: Singapore's Industrial Water Revolution (2025). https://www.pub.gov.sg/Resources/News-Room/Featured-Stories/2025/Singapore-Industrial-Water-Revolution.

[14] Support, A., Geda, A.: Fundamental and Proximate Drivers of Public Debt in Ethiopia – Promoting a Pandemic Recovery: Evidence to Support Managing the Growing Debt Crisis Project. Unpublished manuscript (n.d.)

[15] Basher, S. A.: Bangladesh's External Debt Dynamics: The Recent Evidence. SSRN, 2024. https://doi.org/10.2139/ssrn.4981228.

[16] The Financial Express: Reducing the Costs of Just Transition for Bangladesh's RMG Workers. 2025. https://thefinancialexpress.com.bd/views/reducing-the-costs-of-just-transition-for-bangladeshs-rmg-workers.

[17] Senbeta, A. F., Worku, W.: Ethiopia's Wheat Production Pathways to Self-Sufficiency through Land Area Expansion, Irrigation Advance, and Yield Gap Closure. Heliyon 9 (10), e20720 (2023).

[18] IMF: Bangladesh: Selected Issues. IMF Staff Country Reports 2022/072 (2022).