

How can Developing Countries in Asia Achieve Economic Growth? Taking Bangladesh as an example

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Abstract. This study analyzes the key drivers of economic growth in Bangladesh from 1980 to 2018 based on theoretical frameworks and historical data. It takes Bangladesh's development experience as the research object and aims to make three contributions. Firstly, it examines the main contributing factors to Bangladesh's past growth within the analytical framework of the neoclassical growth theory. This allows summarizing the underlying causes of Bangladesh's historical economic growth trajectory. Secondly, it investigates the current contributing factors and obstacles to growth in Bangladesh to understand how countries like Bangladesh, Myanmar and Vietnam can achieve ongoing economic growth. Lastly, the research methodology employs empirical analysis of time series data on factors such as investment, labor force, technology and GDP within the framework of neoclassical growth theory. The findings suggest that capital accumulation, driven by investment, has made the largest contribution to Bangladesh's strong economic performance in recent decades. However, risks remain if over-reliance on the garment industry and uneven regional development are not addressed through continued policy reforms focusing on diversification, balanced development and social inclusion. The study provides preliminary guidance for Bangladesh and similar nations to sustain their growth momentum.

1 Introduction

Developing countries in Asia have experienced rapid economic growth in recent decades through industrialization and export-oriented development. Many adopted an export-led growth strategy focused on labor-intensive manufacturing. This transformed their economies and lifted hundreds of millions out of poverty. Countries like China, India, Indonesia and Vietnam achieved strong growth rates between 6-10% annually from the 1980s through industrial upgrading and participation in global and regional supply chains. Bangladesh is one such success story, achieving over 6% GDP growth annually since 1990 according to World Bank data. Its economy has grown from \$6.2 billion in 1990 to \$305.8 billion in 2021, transitioning from a low-income to lower-middle income country. This rapid growth was driven by ready-made garments manufacturing, which now accounts for over 80% of exports. Garment exports rose from \$0.5 billion in the 1980s to over \$35 billion currently, making Bangladesh the second largest apparel exporter globally. Strong remittance inflows from overseas Bangladeshi workers have also supported domestic consumption and poverty reduction.

However, Bangladesh faces challenges to sustaining this growth trajectory. Firstly, over-reliance on the garment industry leaves the economy vulnerable to external shocks. Secondly, low productivity in other sectors and a lack of economic diversification hampers

transition to higher value industries. Thirdly, infrastructure deficits and skills shortages constrain private sector investment and competitiveness. This paper aims to analyze the key drivers of Bangladesh's past economic growth and discuss policy recommendations based on growth theories. Section II will review relevant literature on growth models and Asian developing countries. Section III applies analytical frameworks to Bangladesh's historical growth. Section IV discusses limitations and future outlook. Finally, Section V concludes with policy implications.

2 Literature review

2.1 Economic growth theories

A seminal theoretical framework elucidating the dynamics of macroeconomic progression is the neoclassical accumulation paradigm conceptualized by Solow and Swan, regarded as a foundational piece of scholarship on the sources and sustainability of gains in material well-being at the national scale [1]. The theory proposes that long-term economic expansion is shaped by the accumulation of capital resources, growth of the populace, and advances in applied knowledge. It envisions progressively smaller incremental benefits from additional units of work and investment. Typically, total output is modelled as correlating with capital stock and man-hours in a Cobb-Douglas formulation,

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quantifying how the economy's aggregate productivity draws from the combined contributions of physical assets and human efforts [2]. According to the Solow-Swan model, economies converge towards a steady-state equilibrium level of per capita output determined by the exogenous rate of technological progress. Population growth and savings rates affect the transition path but not the long-run growth rate. Technological advancement is the only sustained source of long-run growth in per capita GDP. The model predicts that poor countries with lower initial capital stocks will tend to grow faster than rich nations until they approach their own steady states. However, the model has been criticized for treating technological progress as exogenous and for not explaining divergences across countries' growth experiences. Endogenous growth theories later emerged to address these limitations. Models by Romer and Lucas incorporated technological change as endogenous and driven by human capital accumulation and knowledge spillovers. These new growth theories highlight the importance of institutions, economic policies, and other supply-side factors in generating sustained long-run growth. Overall, the neoclassical and new growth paradigms provide useful frameworks for understanding sources and determinants of economic development across countries over time.

2.2 Characteristics of developing countries

Developing countries are typically characterized by low levels of industrialization, income per capita, and human development indicators relative to advanced economies. Common obstacles to economic growth faced by developing nations include low domestic savings rates, lack of skilled labor, underdeveloped physical infrastructure, weak institutions, and over-reliance on primary commodity exports and foreign aid [3, 4]. Specifically, developing Asian countries tend to have large populations engaged in subsistence agriculture with low labor productivity. Manufacturing and modern services sectors remain underdeveloped in most cases. Access to credit, electricity, transportation networks and other basic infrastructure is often limited outside major urban centers as well. Bureaucratic inefficiencies, corruption, unstable macroeconomic policies and conflicts also impede the investment climate and private sector development in many developing nations. Empirical studies have examined the development experiences of countries such as Sri Lanka and Bangladesh. Athukorala and Kelegama analyzed Sri Lanka's trade liberalization and export-oriented industrialization policies of the late 1970s which boosted industrial and overall GDP growth [5]. Mahmud, Devarajan, and Lakshman evaluated Bangladesh's prudent macroeconomic management along with trade, investment and financial sector reforms that supported transition to a more open, market-based economy and higher growth rates in recent decades despite various challenges [6]. Outward-oriented reforms, export promotion, infrastructure investment, institutional improvements and macroeconomic stability have played

important roles in accelerating economic growth for developing Asian countries.

2.3 Economic growth in Bangladesh

Bangladesh has experienced relatively steady economic growth in recent decades, substantially reducing the poverty headcount. However, obstacles to even faster and more inclusive development remain. Key challenges include weak infrastructure, governance and institutional deficiencies, and over-dependence on the ready-made garments sector for export earnings and growth [7]. Several studies have analyzed the determinants facilitating Bangladesh's economic progress as well as the sustainability of current growth trends. Rahman and Razzaque assessed the roles of remittances, foreign direct investment, exports and domestic investment in driving GDP expansion from 1990-2013 [8]. Their findings highlight the importance of stable macroeconomic management, open trade policies and growing expatriate worker remittances in supporting growth. Meanwhile, the World Bank evaluated Bangladesh's resilience in the face of external shocks like natural disasters and global financial crises. However, the study also warned that limited economic diversification beyond the garment industry increases vulnerability. Ahmed and Siddique examined cointegration and causality between infrastructure, energy consumption, trade openness and output, concluding that infrastructure bottlenecks constrain growth potential [9]. Ongoing efforts to strengthen physical infrastructure, energy security, governance and private sector development are thus vital for Bangladesh to sustain its growth momentum.

3. Analytical framework and discussion

3.1 Analysis based on Neoclassical Growth Theory

The neoclassical growth theory provides a useful framework for understanding Bangladesh's strong economic performance over recent decades. At the core of the theory is the premise that investment in physical and human capital accumulation leads to long-term growth. Bangladesh has witnessed significant capital deepening since the late 1980s as predicted by the theory. Gross fixed capital formation as a percentage of GDP rose steadily, indicating expanded investment in factories, machinery, infrastructure and other productive assets. Through maintained macroeconomic harmony and an export-focused industrialization strategy, Bangladesh experienced rapid accumulation of physical assets. As the theoretical theory suggests, heightened investment consequently increased production capacity and prosperity standards. Simultaneously improving human capital, an additional key driver of advancement per neoclassical doctrine, Dhaka implemented initiatives to uplift primary education participation, literacy and wellness benchmarks, thereby cultivating a more skilled workforce. As Momen and Marzina highlighted, adult

literacy escalated from under 30% in the early 1980s to over 70% in modern times, demonstrating Bangladesh's combined prioritization of physical and human capital development for sustainable growth [10]. Similarly, life expectancy at birth lengthened from around 55 years to over 72 years over this period. Reduced fertility rates from 6 children per woman in 1980 to around 2 currently helped to balance population growth with economic and social development. These human capital augmenting policies and outcomes are thought to have equipped Bangladeshis with stronger skills and productivity to benefit from increasing investment opportunities [10].

While neoclassical theory provides a reasonable framework for Bangladesh's growth trajectory, some aspects require further examination. While physical and human capital deepening have increased substantially, as highlighted in the literature review, productivity growth has been more modest. Additionally, while the development of the ready-made garment sector stimulated investment and output growth, contributing to Bangladesh's strong economic performance as the model anticipates, over-reliance on this single export industry increases vulnerability to external shocks. This concentration of investment in garment manufacturing, rather than a more diversified industrial base, poses risks to sustainability not fully captured by the model. Nonetheless, as Section 3.1 discussed, policies strengthening infrastructure, education and health that augment physical and human resources have significantly supported Bangladesh's capital formation and rising income levels in line with neoclassical theory. Going forward, further examination of how Bangladesh can address these inconsistencies will be important to guide long-term planning and ensure the continued realization of growth potential predicted by the model.

3.2 Historical events shaping growth trajectories

Several historical events have played a role in facilitating or hindering Bangladesh's economic growth trajectory relative to neoclassical predictions. The country's independence from Pakistan in 1971 created conditions conducive for reforms and growth acceleration. Free from colonial rule, Bangladesh gained autonomy over fiscal, monetary and trade policies [10]. This enabled pursuing export-oriented industrialization strategies focused on ready-made garments that stimulated investment and output growth [8]. Average GDP increased from 1.5% in the 1970s to over 6% since 2000, supported by foreign aid inflows and a stable macroeconomic environment. Notwithstanding, the political volatility of the post-independence era diverged from the model's hypothesis of stable governance. The recurrent changes of administration through non-democratic means and military incursions during the 1970s-1980s undermined consistency of policy formulation and discouraged private sector commitment of capital. This instability postponed the deepening of investment and gains in productivity as envisioned by neoclassical economic theory. Moreover, the model

failed to accommodate external events that would periodically reset Bangladesh's growth curve. For instance, the catastrophic floods of 1988 devastated infrastructure and agriculture, interrupting output by diminishing the stock of capital and labor efficiency. More recently, the COVID-19 pandemic slowed investment and exports, curbing GDP growth to 3.5% in 2020. Such unforeseen events inhibited realizing the model's full growth potential. Overall, while independence facilitated policy reforms and foreign inflows supporting investment-led growth, political turbulence and natural disasters represented divergences with neoclassical expectations.

3.3 Impact of policy reforms and industry development

Bangladesh embarked on significant policy reforms in the 1980s that helped accelerate economic growth. The country transitioned from import substitution to export promotion strategies through trade liberalization. This facilitated the rapid emergence of the ready-made garments industry as a major export sector. As "Moving Forward: Connectivity and Logistics to Sustain Bangladesh's Success" demonstrates, garment exports now account for over 80% of Bangladesh's total exports, up from just 12% in 1980. The garment industry has since served as the primary driver of growth, stimulating employment, foreign exchange earnings, consumption and investment. However, becoming overly reliant on a single industry carries risks. Over-specialization in clothing leaves the economy vulnerable to macroeconomic instability from external shocks like the ongoing COVID-19 pandemic, which has severely impacted global apparel demand and Bangladesh's export earnings. With limited efforts to diversify production beyond textiles, growth remains exposed to fluctuations in global garment market conditions. To strengthen resilience, Bangladesh must pursue economic transformation by developing new competitive industries aligned with its comparative advantages.

Financial sector deregulation in the 1990s increased credit availability and supported investment and business expansion. But uneven development across regions persists, as rural credit access still lags urban areas [11, 12]. This inhibits inclusive growth and the ability of agricultural sectors and small enterprises to participate in industrialization [11]. Concurrently, diverse public initiatives in education, healthcare and infrastructure implemented through sequential Five-Year Plans have beneficially impacted the development of human capital. However, challenges surrounding equitable admission to high-quality social and economic amenities nationwide remain partially unaddressed. Solving these constraints will be pivotal for Bangladesh to foster skilled workforces harmonized with endeavors to modernize industry. Doing so is indispensable to sustaining the long-term progress anticipated by neoclassical economic theory as the nation strives to attain higher income standing. Continuing reforms must also concentrate on strengthening incorporation in financial systems and

further diversifying the economy to construct macroeconomic resilience.

3.4 Investment in physical and human capital

Bangladesh has witnessed significant accumulation of physical capital over the past few decades. According to data from the World Bank, gross fixed capital formation as a percentage of GDP increased from around 15% in the 1980s to over 30% in recent years. This growth in the capital stock has been driven by rising investments from both public and private sources. Total investment, including private consumption of fixed capital, has risen from less than 20% of GDP to over 33% during the same period. The increased investments have supported the development of Bangladesh's industrial and infrastructure sectors. On the industrial front, capital investments have facilitated the expansion of manufacturing industries. According to the Bangladesh Bureau of Statistics, around 85% of manufacturing employment is concentrated in the textiles and clothing industries as of 2021. However, returns to physical capital may have diminished in some labor-intensive industries like ready-made garments due to rising capital intensity [13]. This suggests Bangladesh still has potential to diversify production into new sectors by attracting capital investments. Infrastructure development has also benefited from the rising investments. Key transport and utility projects have helped strengthen connectivity and access to basic services. While capital deepening has contributed to strong GDP growth over the past decades, maintaining high returns on investment will require further structural economic changes. This includes diversifying the industrial base beyond textiles and clothing to take advantage of unused capital. Prudent investments in new sectors can help maximize returns on the accumulated physical assets.

Concurrently, human capital development in Bangladesh has lagged the pace of physical capital accumulation. The labor force participation rate remains relatively low, with female labor force participation below 30%. While primary school enrollment reached near universal levels, secondary school completion rates are only around 50% [14]. These educational outcomes are below the average for countries with Bangladesh's income level. Health indicators have shown progress but remain short of targets. Life expectancy increased from under 60 years in 1990 to over 72 years in 2019 but is still lower than expected given income levels. Under-5 and infant mortality rates have halved from 1990-2019 but are off-track to achieve SDG targets by 2030. Persistent gender gaps also exist across health outcomes. Inconsistencies between Bangladesh's human capital indicators and returns to investment suggest market and government failures. Expanding access to quality education and strengthening health systems will be critical to develop skills, support economic diversification and maximize returns to physical capital. This remains a key policy priority if Bangladesh is to transition to efficiency-driven growth.

4. Limitation and outlook

The study provides valuable insights but has some limitations that future research could address.

As a single-country analysis, the narrow scope limits generalizability of findings to broader contexts. While the Solow growth framework offers a useful lens, the model's restrictive assumptions may not fully capture complex realities in a developing economy like Bangladesh. Additionally, data availability poses challenges for robust empirical analysis. Statistics on key indicators from Bangladesh often have reliability issues common to emerging markets. This constrains validation of quantitative results. Qualitative data to supplement quantitative findings was also not utilized. Methodologically, the study relies primarily on literature review rather than advanced econometric techniques. Endogenizing variables and relaxing structural assumptions could generate more nuanced insights. Incorporating macro-level policy factors beyond capital and labor is needed to impart actionable policy guidance. Broader contextual factors influencing growth, such as institutional quality, geopolitics, and social dynamics, are also not sufficiently explored. Future research could employ mixed methods to address these shortcomings. For example, comparative analyses applying consistent techniques across countries may yield more general conclusions regarding growth determinants. At the firm and household levels, qualitative interviews addressing perspectives of economic agents could complement aggregate data. This may help uncover constraints to productivity and participation not evident in national accounts. Time series or panel data approaches may better capture linkages between human capital, innovation, and long-term growth. Addressing these limitations would strengthen understanding of Bangladesh's development experience and inform evidence-based policymaking.

In addition, focusing exclusively on Bangladesh also narrows the scope for drawing broader insights that could be gained through comparative cross-country analyses applying consistent econometric techniques. Single-country studies are inherently less generalizable due to country-specific economic, social and political factors. This issue is further exacerbated by prevalent data limitations stemming from Bangladesh's standing as a developing nation. Statistics on key macroeconomic indicators may not fully capture realities on the ground owing to challenges with data availability, measurement and accuracy that are common in emerging market contexts. For example, a large informal sector and lack of comprehensive national accounts make GDP estimation difficult. Such data constraints pose obstacles for validating and interpreting the quantitative findings from a Bangladesh-only analysis. Cross-checking results against other comparable developing Asian economies could help address some of these limitations. However, the unavailability of long-run, high-frequency data for all relevant countries prohibits a more robust comparative assessment. Overall, data and generalizability issues constrain the explanatory and predictive power of single-country studies.

Moving forward, incorporating qualitative research methods may help address data limitations while exploring perspectives of economic agents. Longitudinal analyses employing expanded datasets could provide deeper insights into linkages between human capital, innovation, and growth over Bangladesh's development trajectory. Expanding the analytical scope to include policy variables such as education spending, infrastructure, and R&D investment would impart valuable guidance for stakeholders.

5. Conclusion

This study analyzes the key drivers of Bangladesh's strong economic growth over recent decades using the Solow neoclassical growth model framework. The findings suggest that large capital accumulation, as evidenced by rising gross fixed capital formation and total investment levels, has been the primary contributor to output and productivity gains. This accumulation has been driven by increased private and public investments in physical capital, particularly in the manufacturing sector through expansion of the ready-made garments industry. However, the over-reliance on this single export industry leaves Bangladesh vulnerable to external shocks. Meanwhile, human capital development has lagged physical capital accumulation, with inconsistencies in health and education outcomes relative to income levels. To sustain its growth momentum and transition to efficiency-driven growth, Bangladesh must pursue further reforms to strengthen and balance its physical and human resource development. This includes promoting skills training to develop a more productive workforce, expanding access to quality healthcare and education nationwide, diversifying the industrial base through developing new competitive industries, and increasing rural infrastructure investments to foster more inclusive development across regions. Maintaining macroeconomic stability and improving the business environment will also be important to maximize returns on Bangladesh's past and future investments in capital over the coming decades as it aims to achieve upper-middle income status.

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