



Economic growth based on science, technology, and innovation in Vietnam

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Abstract

In Vietnam, the contribution of science and technology to economic growth remains low, investment by the business sector in innovation is weak, and the quality of human resources does not yet meet requirements. These facts differ from the policy ideas defined since the 1990s. The main reasons are the heavily bureaucratic characteristic of science management mechanisms, the inconsistency in institution design, and especially, limitations in mobilizing and allocating capital for science and technology. Looking to the future, the process of growth based on science and technology in Vietnam faces challenges in choosing the appropriated time to transform the growth model and selecting the suitable quantities to expand fiscal and monetary policies to achieve high growth while maintaining macroeconomic stability.

Keywords: science and technology policy, total factor productivity (TFP), incremental capital-output ratio (ICOR), research and development (R&D).

JEL classification: O30, O40, O38, O53, O14.

1. Introduction

Vietnam has identified sustained high economic growth as a prerequisite for escaping the middle-income trap and achieving its goal of becoming a high-income developed country by 2045 (Vietnam Government Electronic Newspaper, 2025). Accordingly, Vietnam's growth model must transition away from factor-intensive inputs - such as capital accumulation and labor expansion - toward a model driven by science, technology, and innovation (STI). Establishing such a model, including its foundational elements that will shape long-term trajectories, constitutes a central research question that this article seeks to address.

This article examines how STI-driven economic growth can be achieved in practice, taking into account the structural characteristics of the Vietnamese economy. Drawing on quantitative economic methods, the study assesses the role of science and technology in Vietnam's growth over the past three decades. The findings indicate that the contribution of science and technology to economic growth remains limited, business sector investment in innovation is insufficient, and the quality of human capital does not yet meet the demands of a knowledge-based economy. These outcomes stand in stark contrast to the policy ambitions articulated since the 1990s. The principal constraints identified include the administratively centralized science management system, institutional inconsistencies in policy implementation, and persistent weaknesses in the mobilization and allocation of resources for science and technology.

A body of existing literature has examined STI-based economic growth in Vietnam. Nguyen T.C. (2021) demonstrates that the quality of economic growth - measured by efficient resource utilization and technological intensity - remained low and unstable during the period 1990-2000. More recently, Nguyen D.T. (2018) documents a gradual shift in Vietnam's labor productivity growth away from capital deepening toward total factor productivity (TFP). Nevertheless, labor productivity in Vietnam remains markedly below international benchmarks. Tran and Ngo (2025) estimate that achieving high-income status by 2045 will require an annual growth rate of approximately 8.5%, contingent upon innovation-led development alongside institutional reform and private sector dynamism.

Against this backdrop, the present article makes two principal contributions. First, it clarifies the conceptual and operational contours of an STI-based growth model for Vietnam. Second, and in contrast to prior studies, it systematically analyzes the divergence between stated policy objectives and observed outcomes, situating this gap within the specific institutional and structural context of the Vietnamese economy. The article concludes by identifying key challenges to integrating science, technology, and innovation into Vietnam's growth agenda in the coming years.

2. Science and technology policy in Vietnam

Vietnam's science and technology (S&T) policy framework has a relatively long developmental history, as evidenced by the successive guidelines issued by the Communist Party of Vietnam (CPV) across different periods of national development.

As early as 1963, President Ho Chi Minh articulated the foundational importance of S&T, instructing that "the task of science and technology is extremely important, therefore all sectors and all people must participate in scientific and technological work" (Ho, 1963). Over the subsequent four decades, CPV guidelines on S&T development have undergone substantial evolution, reflecting iterative adjustments to Vietnam's changing economic conditions, social imperatives, and international integration commitments. Key policy milestones include the Sixth National Congress of the CPV (1986), Resolution 26-NQ/TW (1991), Resolution 07-NQ/HNTW (1994), Resolution 02-NQ/HNTW (1996), Resolution 20-NQ/TW (2012), Resolution 52-NQ/TW (2019), and Resolution 57-NQ/TW (2024).

Across this sequence of resolutions, the conceptual framing of S&T's role in national development has shifted markedly. Early formulations characterized S&T as occupying a "key position" and serving as a "great driving force" for industrialization and modernization (CPV, 1986; CPV Politburo, 1991). This was subsequently elevated to a "foundation and driving force" for economic development (CPV Central Committee, 1996), before being designated a "top national priority" and "most important driving force" (CPV Central Committee, 2012). Most recently, Resolution 57-NQ/TW (2024) characterized S&T - alongside innovation and digital transformation - as a "decisive factor", a "prerequisite", and Vietnam's "best opportunity" for development (CPV Politburo, 2024).

Beyond rhetorical elevation, the substantive content of CPV S&T policy has evolved along several dimensions. Policy objectives have progressively shifted from qualitative aspirations toward measurable, quantitative targets, including indicators for total factor productivity (TFP) growth, research and development (R&D) expenditure as a share of GDP, and the number of technology-based enterprises. Policy instruments have become increasingly specific, with recent resolutions placing greater emphasis on investment mobilization, the role of the private sector, high-quality human capital development, and digital governance. Geographically, the policy orientation has broadened from a primary focus on domestic capacity-building toward active international integration, with recent frameworks explicitly incorporating digital transformation and high-technology development as strategic priorities (CPV, 1986; CPV Politburo, 1991, 2019, 2024; CPV Central Committee, 1996, 2012).

In implementing the CPV's resolutions on science and technology, the Government has translated party directives into a series of national strategies, legislative frameworks, and programmatic instruments. At the strategic level, four successive planning documents have

been issued: a national S&T development strategy extending to 2010 (promulgated in 2003), a strategy covering the period 2011-2020 (issued in 2012), a strategy with a horizon to 2030 (adopted in 2022), and, most recently, an action program enacted in 2025 to operationalize Resolution 57-NQ/TW of the CPV Politburo.

At the operational level, the Government and the Ministry of Science and Technology issue periodic directives establishing orientations, objectives, and priority tasks for S&T activities across successive five-year planning cycles. These instruments are complemented by a range of targeted programs and classification frameworks, including key national S&T programs, priority lists of high technologies designated for investment and development, catalogues of Industry 4.0 core technologies, and inventories of strategic technologies, strategic technology products, and sector-specific strategic technology clusters. Collectively, these mechanisms provide sector ministries, subnational authorities, and implementing organizations with specific operational guidance for the execution of national S&T policy.

In parallel, the Government has progressively strengthened the legislative framework governing S&T activities through a series of laws submitted to the National Assembly for enactment. These include successive iterations of the Law on Science and Technology (2000, 2013, and 2025), the Law on Technology Transfer (2006 and 2017), the Law on High Technology (2008), and the Law on Intellectual Property (2005, as amended in 2009 and 2022). Taken together, this evolving body of legislation reflects a sustained effort to establish a comprehensive and adaptive legal infrastructure for S&T governance in Vietnam.

Several key policy directions have been implemented since the early 1990s, three of which merit particular attention.

First, successive national S&T strategies have reflected a progressive shift in policy emphasis. The strategy extending to 2010 prioritized physical infrastructure development - including the establishment of Hoa Lac High-Tech Park and key national laboratories - alongside incentive schemes for S&T personnel. The subsequent strategy for 2011-2020 reoriented focus toward institutional restructuring, targeting the formation of sixty research organizations meeting regional standards, the expansion of the S&T enterprise sector to five thousand firms by 2020, and growth in patent output. The most recent strategy, with a horizon to 2030, further advances this trajectory by emphasizing institutional capacity-building, digital infrastructure development, and a balanced integration of indigenous innovation capacity with the strategic adoption of advanced foreign technologies (Prime Minister, 2003, 2012, 2022).

Second, human capital for science and technology has been a persistent policy concern since at least the early 1990s. Vietnam's attention to high-caliber S&T personnel, including the concept of chief engineers, can be traced to policy documents dating to 1994, while the notion of leading scientists has antecedents as early as 1981 (Hoang and Hoang, 2022).

Successive policy frameworks have addressed the attraction, utilization, and appropriate remuneration of S&T talent, including provisions for recruiting overseas Vietnamese intellectuals and foreign experts under preferential arrangements. Early legislative milestones include Decree 40/2014/ND-CP on the recognition and utilization of S&T personnel, and Decree 140/2017/ND-CP on the recruitment of outstanding graduates and young scientists. However, concrete provisions specifically governing chief designers - covering housing, remuneration, and working conditions - did not appear until Resolution 57-NQ/TW and its implementing instrument, Decree 179/2024/ND-CP, effective from 2025 (Vietnam Government, 2024). This framework was subsequently elaborated by Decree 231/2025/ND-CP, which establishes detailed definitions, eligibility criteria, and remuneration structures for leading scientists, chief designers, and chief architects of large-scale technology projects (Vietnam Government, 2025a). In this respect, recent institutional developments may be understood as a formal codification of policy concepts that had circulated in earlier periods without achieving full legislative expression.

Third, a recurrent policy objective has been the transformation of public research institutes operating under line ministries into autonomous entities functioning on an enterprise basis. This objective is closely coupled with broader reforms to the mechanisms governing S&T task implementation, with increasing emphasis on output orientation and applied impact. The Law on Science, Technology and Innovation (2025) advances this agenda by introducing targeted fiscal instruments - including income tax provisions - to promote the operational autonomy of public S&T service units. These provisions are further elaborated in Decree 263/2025/ND-CP, which establishes the institutional framework governing the autonomy of S&T organizations and the management of S&T human resources and talent (Vietnam Government, 2025b).

3. Practices in STI in Vietnam

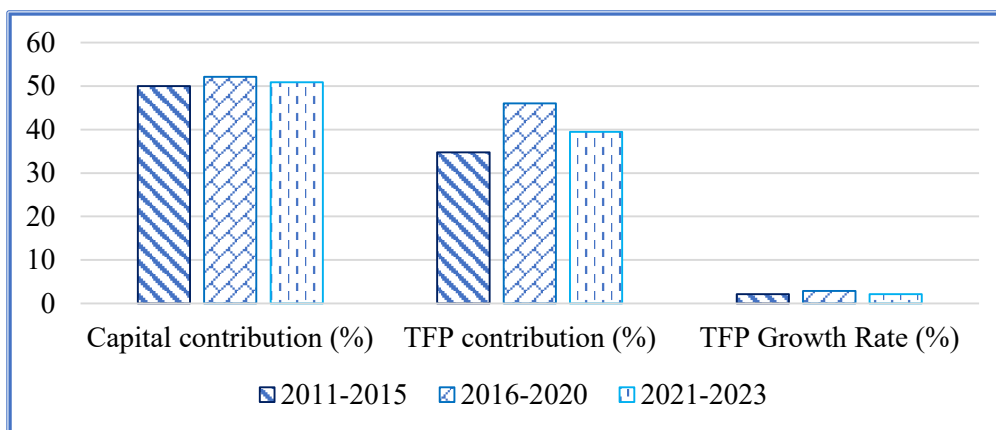
3.1. Technological advancements

Recent evidence suggests that technological progress in Vietnam has remained sluggish, as reflected in persistently low total factor productivity (TFP) growth and continued capital inefficiency as measured by the incremental capital-output ratio (ICOR). According to data published by the National Statistics Office of Vietnam (NSO, 2025), TFP growth has averaged approximately 0.48 percentage points per year, corresponding to a cumulative contribution of around 2.38 percentage points per five-year planning cycle. Moreover, the trajectory of TFP growth has been non-monotonic and, on balance, declining: it stood at 2.15 percentage points over the 2011-2015 period, rose to 2.88 percentage points during 2016-2020, before contracting sharply to 2.12 percentage points over the 2021-2023 period.

Capital efficiency, as measured by the ICOR, has similarly remained at elevated levels. Excluding the period of severe macroeconomic disruption associated with the COVID-19

pandemic (2020-2022), Vietnam’s ICOR has consistently exceeded 5.0. While Le V.D. (2025) documents a gradual downward trend in the ICOR since 2010, the period average of 7.3 (NSO, 2025) indicates that approximately 7.3 units of additional capital investment have been required to generate each additional unit of GDP growth - a ratio indicative of substantial inefficiency in capital allocation.

FIGURE 1: Contribution of capital and total factor productivity (TFP) to economic growth by period in Vietnam



Source: NSO (2025).

Compounding these concerns, the volatility of the ICOR has exhibited a pronounced upward trend over time, signaling increasing uncertainty in the efficiency of investment capital utilization - a pattern that is itself indicative of the limited and unstable contribution of technological progress to economic growth. Examining successive five-year periods, the standard deviation of the ICOR rose sharply from 0.45 during 2011-2015 to 3.75 during 2016-2020, and increased further to 4.9 during 2021-2024. At the annual level, the ICOR climbed from 5.5 in 2011, reaching a peak of 15.8 in 2021 - largely attributable to pandemic-related disruptions - before declining to 4.8 in 2022 and subsequently rising again to 7.9 in 2023. Preliminary estimates suggest the ICOR will remain elevated at 5.7 in 2024.

It is also noteworthy that the ratio of gross fixed capital formation to GDP remained broadly stable throughout 2011-2024, averaging 33.3% per annum, with its standard deviation declining modestly from 1.15 percentage points in the 2011-2015 period to 0.87 percentage points in 2021-2024 (NSO, 2025). Under conditions of a relatively stable investment-to-GDP ratio, increasing volatility in capital utilization efficiency is transmitted directly into greater variability in economic growth outcomes, rendering growth increasingly difficult to forecast and manage within policy planning frameworks. This dynamic is borne out by the data: the standard deviation of Vietnam’s annual GDP growth rate increased substantially, from 0.62 percentage points during 2011-2015 to 1.92 percentage points during 2016-2020, and further to 2.56 percentage points during 2021-2024 (NSO, 2025).

These trends reflect a broader structural feature of Vietnam's growth model: the contribution of technological progress to economic growth remains weak, with expansion driven primarily by large-scale factor inputs - capital, labor, and natural resources. According to NSO (2025), TFP accounted for approximately 40% of GDP growth on average annually over the period under review. At the sub-period level, the TFP contribution stood at 34.75% during 2011-2015, rose to 46.04% during 2016-2020, and retreated to 39.48% during 2021-2023. This fluctuation in TFP's contribution has been accompanied by a persistently dominant role for capital investment, which has consistently accounted for approximately half of economic growth: 49.97% during 2011-2015, rising to 52.16% during 2016-2020, and moderating slightly to 50.47% during 2021-2023. The contribution of labor has followed a more volatile trajectory, declining sharply from 25.28% during 2011-2015 to a low of 1.80% during 2016-2020, before recovering to 9.65% during 2021-2023 - a rebound that may reflect renewed reliance on labor-intensive activities amid post-pandemic recovery.

While the contribution of science and technology to economic growth has thus fallen short of policy expectations, its broader role in Vietnam's socioeconomic development should not be understated. In particular, S&T has contributed to: (i) fundamentally reshaping societal perceptions and the conceptual frameworks underpinning socioeconomic development; and (ii) providing an evidence base that has informed the formulation of CPV and Government policies on economic construction and development (Le and Mai, 2013).

3.2. Innovation

Vietnam's developmental trajectory from 1986 to 2024 reveals persistent constraints on domestic innovation capacity. The number of domestically granted patents rose modestly from 149 in 2015 to 308 in 2024, representing a 2.1-fold increase over nearly a decade (NSO, 2025). Although this trajectory reflects an average annual growth rate of approximately 20%, it is characterised by pronounced volatility. The growth rate peaked at 118% in 2018 before declining sharply, registering negative values for four consecutive years thereafter. Examining the sub-period from 2018 to 2024, the growth rate reached its nadir at -56.4% in 2024. In contrast, foreign-origin patents registered in Vietnam have demonstrated considerably greater volume and stability. Between 2015 and 2024, the average annual number of foreign patents stood at 2,818 - approximately 8.1 times that of domestic patents (348 per year) - while the standard deviation of foreign patents (24.7 per year) was substantially lower than that of domestic patents (59.3 per year), indicating a markedly more consistent pattern of foreign intellectual property registration.

The enterprise sector similarly reflects an insufficient prioritisation of innovation, with firms continuing to rely predominantly on capital- and labour-intensive modes of growth. During the period from 2015 to 2023, the business sector allocated an average of 23 trillion VND annually to research and development (R&D) in science and technology (NSO, 2025).

Given that the number of active enterprises grew from approximately 65,000 in 2017 to 92,000 in 2023, the average annual R&D expenditure per active enterprise amounted to roughly 32 million VND - corresponding to an average annual growth rate of only 3.3%. This figure falls considerably short of the average annual GDP growth rate of 5.8% recorded over the same period, suggesting that R&D investment did not constitute a primary driver of economic expansion. Rather, growth during this period appears to have been sustained by factor accumulation and other non-innovation-based activities.

The deficiencies in enterprise-level innovation further compound the structural vulnerabilities undermining Vietnam's long-term growth foundations, particularly given that the majority of domestic firms remain concentrated in the service sector. The industrial sector - and more specifically the manufacturing industry, which constitutes the principal engine of export performance and economic growth - is characterised by a relatively limited domestic presence and remains largely dominated by foreign-owned enterprises.

A further distinguishing feature of innovation in Vietnam is its overwhelming reliance on imitation, with indigenous invention remaining markedly underdeveloped. According to the World Intellectual Property Organization (WIPO, 2025), Vietnam records no revenue from intellectual property as a share of total export value, scoring 0.0 on this indicator and ranking 115th out of 115 surveyed economies. Performance on this metric reflects the extent to which a country is meaningfully integrated into the global innovation ecosystem. This finding presents a striking paradox when juxtaposed with Vietnam's performance on a related indicator - the ratio of high-technology goods exports to total trade turnover - on which the country scored 36.1 points, ranking first among all 115 economies surveyed. This apparent contradiction is explained by the composition of Vietnam's export structure: approximately 70% of exports originate from foreign direct investment enterprises, predominantly concentrated in the electronics, mobile devices, and computer components sectors, with production largely controlled by a small number of global corporations such as Samsung and Intel. Consequently, while Vietnam is nominally recognised as a world leader in high-technology export intensity, the domestic value-added captured from such activities registers at 0.0 points - the lowest recorded globally.

This configuration is consistent with broader patterns observed across economies characterised by low technological endowments and considerable distance from the global technological frontier (Aghion and Howitt, 1992). In theoretical terms, countries operating far from the frontier are better positioned to pursue growth through the adoption and contextual adaptation of advanced foreign technologies rather than through frontier innovation. It is only as an economy progressively converges toward the global technological frontier that the transition from imitation-based to innovation-driven growth - entailing the creation of genuinely novel technological outputs - becomes both feasible and strategically necessary.

4. Comparison of Vietnam's policies and practices

4.1. Current differences

Vietnam's policy framework for science and technology development and innovation has incorporated a number of forward-looking provisions since the 1990s. Nevertheless, the practical implementation of these policies has consistently fallen short of the objectives articulated in successive socio-economic development strategies, and the risk of technological regression has been explicitly acknowledged in recent policy discourse (Nguyen Q., 2024).

A principal explanation for this implementation gap lies in the persistent inadequacy of financial resource mobilisation and allocation for science and technology activities. Aggregate investment in this domain, while exhibiting a gradual upward trend over time, remains critically low - amounting to approximately 1.0% of gross domestic product as of end-2024 (Do *et al.*, 2024). It should be noted that this figure encompasses not only expenditure on research and development, but also salaries and the administrative costs of public science and technology institutions (Bui, 2016), implying that direct R&D spending constitutes an even smaller proportion of the total.

According to data compiled by the NSO (2025), total expenditure on research and development reached VND 42.8 trillion in 2023, equivalent to 0.41% of GDP - a marginal decline from 0.42% of GDP recorded in 2021. Over the longer term, Vietnam's average R&D expenditure as a share of GDP stood at 0.32% during the period 2000-2022, placing it well below comparator economies in East Asia, including Japan (3.5%), South Korea (3.16%), and China (1.73%), as well as the global average (2.11%) and the average for middle-income countries (1.17%) (World Bank, 2025).

Compounding the problem of low absolute investment levels is the relatively limited absorptive capacity within the science and technology sector. Audit findings indicate that unspent carry-over funds during the 2020-2022 period averaged 36.3% of the allocated budget, representing approximately VND 4.35 trillion out of a total of VND 11.99 trillion. These undisbursed funds were attributable primarily to scientific programmes that had been suspended, remained incomplete, or had exceeded their designated implementation periods (State Audit Office of Vietnam, 2024).

The mechanisms governing state allocation of funds to science and technology in Vietnam have undergone notable evolution over time. During the initial phase in the 1990s, science and technology investment was classified under basic capital expenditure, with a stipulated formula requiring that the growth rate of such investment exceed the prevailing rate of economic growth (CPV Central Committee, 1994). This arrangement reflected a policy intent to accelerate the development of science and technology as a transformative driver of economic growth, even as the absolute scale of investment remained comparatively modest.

Under the current framework, science and technology expenditure has been reclassified under the recurrent expenditure component of the state budget. As a consequence, funding for science and technology must be balanced against competing claims from general administrative expenditure, rendering it subject to broader fiscal constraints. Allocations are therefore contingent upon the state budget balance, which is in turn shaped by the annual socio-economic development plan, the medium-term public investment plan, and the prevailing budget stabilisation cycle. A further institutional complication arises from the disbursement process, which applies dual regulatory requirements simultaneously: general provisions governing state budget expenditure control, alongside sector-specific regulations pertaining to the management of science and technology programmes (Le H.S., 2025). This overlapping regulatory architecture introduces substantial procedural complexity, creating significant practical impediments for researchers and scientific personnel in the effective execution of their work.

Vietnam's scientific and technological workforce exhibits significant deficiencies in both scale and quality, particularly in strategic and emerging technology domains. According to the NSO (2025), the country had approximately 173,000 individuals engaged in scientific research and technological development as of end-2023, corresponding to a density of 17.3 per 10,000 inhabitants. Of this total, only around 27,000 were employed within dedicated scientific research and technological development organisations, representing 15.7% of the overall science and technology workforce. In terms of disciplinary distribution, science, engineering, and technology constituted the largest field, accounting for 59,900 personnel or 34.6% of the total, while the natural sciences - which form the foundational basis for applied research - comprised only 14,700 individuals, or 8.5% of the total science and technology workforce.

With respect to workforce quality, the country recorded 52.3 million employed workers at end-2023 (NSO, 2025), of whom 13.65% held university degrees or higher qualifications. Although this proportion remains relatively low in absolute terms, it reflects a marked improvement from 5.5% in 2009. Within the science and technology sector specifically, Vietnam had 27,300 doctoral degree holders engaged in scientific research and technological development as of end-2023 - equivalent to 2.7 PhD holders per 10,000 people - who accounted for 15.7% of the total science and technology workforce (NSO, 2025). When master's degree holders are included, the number of personnel with postgraduate qualifications reached 95,000, representing approximately 55% of the total science and technology workforce.

A further constraint, previously identified by Nguyen Quan, former Minister of Science and Technology, pertains to weaknesses in policy implementation (Tran C., 2025). A case in point is the treatment of science and technology personnel in public service institutions:

despite well-documented shortages in human resources, the financial remuneration framework for such personnel remains insufficiently competitive, constrained as it is by overarching regulations governing civil servants and public employees more broadly.

In addition, Vietnam's overall level of scientific and technological development remains comparatively limited. According to the Global Innovation Index (WIPO, 2025), Vietnam's composite score for technology products and knowledge stood at 28.9 points, placing it 39th out of 115 surveyed economies. Notably, the sub-indicator for knowledge creation registered only 10 points, ranking 80th out of 115 - a result that reflects a particularly pronounced weakness in the country's capacity to generate new scientific and technological knowledge. Given this developmental baseline, achieving convergence with the global technological frontier represents an exceptionally ambitious objective, even in emerging fields such as semiconductors and artificial intelligence where the competitive landscape is still taking shape. In this context, approaches premised on developmental shortcuts or simplified catch-up models appear to offer limited practical efficacy.

4.2. Challenges ahead

Identifying the appropriate juncture at which to successfully transition from a growth model predicated on capital investment expansion to one driven by science, technology, and innovation is an inherently complex undertaking. As Acemoglu *et al.* (2006) demonstrated, mistiming this transition - whether prematurely or belatedly - risks entrapping an economy within its existing capital-intensive growth paradigm. Only by identifying and acting upon an appropriate transition window can an economy successfully achieve the structural shift toward a science, technology, and innovation-based growth model.

The timing of this transition is also closely intertwined with the broader challenge of overcoming the middle-income trap, a critical juncture in the economic development process. The World Bank (2024) notes that very few economies have successfully navigated this transition, and that science and technology constitutes a fundamental enabling factor - alongside robust governance and broad-based societal participation - as evidenced by the developmental trajectories of East Asian economies such as South Korea, Japan, and China. Beyond the middle-income trap, Agénor (2017) identifies additional structural vulnerabilities that may impede long-run development, including the low-income trap, in which an economy fails to graduate from low-income status over an extended period, and other forms of income trap characterised by downward reclassification within the World Bank's annual country income groupings.

A further near-term challenge concerns the difficulty of sustaining macroeconomic stability over a sufficiently prolonged period, which risks progressively eroding the institutional and financial impetus required to advance scientific and technological innovation. This challenge is rooted in the well-established trade-off in both macroeconomic

theory and policy practice between high growth and elevated inflation, a dynamic documented across a wide range of economies (Lucas, 1973). More recently, this macroeconomic risk has been reframed as a bilateral concern, encompassing the simultaneous imperatives of maintaining low inflation and preserving low unemployment (Powell, 2025).

As in other economies, Vietnam's policy response to growth imperatives has involved the active deployment of both fiscal and monetary stimulus measures, including the removal of credit growth ceilings for the banking system. In the first eight months of 2025 alone, in pursuit of an 8.3% growth target, outstanding credit expanded by more than 16%, equivalent to an injection of approximately VND 1.8 trillion into the economy (SBV, 2025). When combined with over VND 400 trillion disbursed through public investment, total liquidity injected into the economy over this period approached VND 2.2 trillion. Notwithstanding this substantial stimulus, inflationary pressures have remained contained, in part due to a marked decline in the monetary velocity - from approximately 2.1 turns per year during the 1995-2005 period to only 0.68 turns per year in 2024 (SBV, 2025) - which has contributed to a degree of liquidity surplus in the economy. As a result, average inflation over the first eight months of 2025 stood at approximately 3.25% year-on-year, remaining well below the annual target ceiling of 5%.

Nevertheless, the risk of a sustained episode of high growth accompanied by elevated inflation and high nominal interest rates - analogous to the conditions observed during the 2007-2011 period - remains a salient concern. As the volume of liquidity injected into the economy continues to increase, inflationary expectations are likely to rise correspondingly, with such expectations materialising in higher realised inflation in the years following 2025. Furthermore, in accordance with the Fisher effect in macroeconomic theory, under the assumption of stable real interest rates, rising inflation will exert upward pressure on nominal interest rates. In an environment of macroeconomic instability characterised by simultaneously elevated inflation and interest rates, enterprises are likely to prioritise short-term financial survival over longer-term strategic investment, rendering the sustained allocation of resources toward technological innovation increasingly untenable.

This dynamic gives rise to a structural paradox with significant implications for Vietnam's long-run development trajectory: the more aggressively economic growth is stimulated through demand expansion, the more entrenched the economy's dependence on capital-intensive investment becomes, thereby progressively narrowing the conditions under which a genuine transition toward a science, technology, and innovation-driven growth model could be realised.

5. Conclusion

A growth model anchored in science, technology, and innovation represents a strategically sound policy orientation for Vietnam in the 2026-2030 period, with a long-term vision extending to 2045. This policy direction is rendered increasingly urgent by the narrowing window of opportunity for Vietnam to converge toward the income levels of developed economies - and thereby realise the national aspiration of a prosperous population and a strong state - in the face of accelerating demographic ageing and the country's presently limited scientific and technological capacity (Nguyen T.N., 2025). The identification of an appropriate strategy through which this policy can be effectively operationalised is, accordingly, of paramount importance.

Vietnam's pursuit of high economic growth driven by scientific and technological innovation is likely to encounter a range of significant structural and policy challenges. Chief among these are the precise timing of the transition away from the existing growth model and the selection of appropriate instruments to foster technological innovation while simultaneously preserving macroeconomic stability. How these twin imperatives are managed will be largely determinative of the success or failure of Vietnam's long-run development trajectory.

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Article history

Received on September 1, 2025

Revised on October 14, 2025

Accepted on October 14, 2025