

The middle-income trap: Definitions, interpretations and analytical tools with implications for China

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Abstract

The middle-income trap is a developmental phenomenon in which nations that reach middle-income status find it difficult to reach high-income levels. This literature review examines definitions and interpretations of this phenomenon. The review categorises the key factors contributing to the trap, including demographic shifts, human capital and innovation, growth trajectory, economic structure and productivity, and the institutional factor. It highlights the importance of technological upgrading, education reforms, and structural transformation in overcoming these barriers. Furthermore, the assessment emphasises the importance of analysing and incorporating the most recent global economic trends, such as those highlighted in recent World Bank publications, to understand shifting dynamics better. Low value-added production, low productivity, a lack of innovation, and a lack of education result from issues like investment dependency, depopulation, and an outdated economic structure; non-economic factors like the political and social systems also affect economic development.

Keywords: Middle-income trap, labour productivity, technological innovation, political economy, economic structure.

JEL classification: O11, O33, J24, O43, P16

Introduction

With the exhaustion of the traditional driving forces of economic development relying on the increase of the labour force and capital and the transformation of its external environment, many countries face the challenge of transitioning to a new, technology and knowledge-intensive growth trajectory. In several less developed countries, the pressure to switch to a new development path is combined with the challenge of the *middle-income trap* (MIT), which indicates the difficulties of overcoming certain critical development phases and levels. The transition should take place in a completely new global environment due to the consequences of the COVID-19 pandemic and Russia's war against Ukraine, including the subsequent rise in energy and commodity prices and the restructuring of the global value chains (GVCs) etc.

The World Bank invented the phrase 'middle-income trap' in 2007 to characterise the phenomenon in which countries effectively switch from low-income to middle-income level in per capita GDP but stagnate, unable to advance to high-income status (Gill & Kharas, 2007). This issue has become particularly critical for China as a middle-income country among the emerging economies in the light of its rapid economic growth over the last few decades and the recent deceleration of its dynamics. In addition, many developing countries belong to this category.

The *first objective* of this paper is to provide an overview and critical assessment relying on publicly available literary sources on the significant terms, definitions, interpretations,

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processes, factors, etc., associated with MIT and the transition to a new development trajectory with an outstanding emphasis on China. The selection of literary sources is based on relevant keywords, the most important of which is MIT; its discussion forms the essential part of the paper. Based on the frequency of occurrence, the most significant articles can be identified and discussed in detail.

The *second objective* is to provide an analytical framework, including relevant factors to consider, methods, and indicators based on the reviewed literature, and to highlight their implications for China. This paper aims to elaborate on the conceptual framework for analysing MIT and suggest ways to overcome it.

The structure of the paper is as follows: The first part is a short overview of the terms and definitions related to MIT. The second part highlights the causes and factors shaping MIT, including demographic shifts, human capital and innovation, growth trajectory, economic structure and productivity, and the institutional factor. The third part contains the summary and conclusions. The list of references amends the body of the paper.

Terms and definitions

According to the World Bank, *middle-income countries* had a per capita gross national income of \$1,136 to \$13,845. The 108 countries in this category are diverse by size, population, and income level. They account for nearly 40% of the global world product, more than 60% of people living in extreme poverty, and more than 60% of global carbon dioxide emissions (World Bank Group, 2024).

In traditional economics, the term '*trap*' usually denotes a *stationary state* that is difficult to jump out of without the help of auxiliary tools and where economic development presents a stagflation-like state that is difficult for governments to regulate through simple fiscal or monetary policies, requiring unconventional methods to break out of the trap (Cai, 2012). MIT first appeared in a published journal in 2007 under the paper 'An East Asian Renaissance: Ideas for Economic Growth' and received more academic attention and research over the years (Gill & Kharas, 2007). According to the Scopus literature database with the keywords 'middle-income trap', 683 papers discussed the topic from 2007 to the present, and 200 papers were available when the keywords of 'China' were added to the search bar. This paper contains references to 35 relevant literature sources.

There needs to be a *consensus on defining* either the middle-income status or the middle-income trap. Most publications discussing this issue need to provide a precise definition. Instead, they present the trap situation's main actual and possible traits. Scholars use different methods to describe the absolute and relative approaches (Glawe & Wagner, 2016).

For the *absolute approach*, a range of economic indicators is usually used for measurement. Eichengreen, who represents this approach, classifies middle-income traps regarding *absolute economic statistics*. He identifies a point in time at which the rate of economic growth (GDP growth rate) is identified, across which the growth rate of the economy drops from above 3.5% to below 2% and continues for a significant period, with per capita income remaining constant at the middle-income level (Eichengreen et al., 2014). The number of people living in countries with incomes higher than the US totals less than 25 million (World Bank Group, 2024).

Felipe divided the middle-income level into three groups: *low middle income*, *upper middle income*, and *high middle income*, assuming that different range groups have various standards for getting into MIT. Situations when per capita income is between \$2,000 and \$7,250 last more than 28 years; at the \$7,250 and \$11,750 level, more than 14 years can be regarded as MIT (Felipe, 2012). Over the past 34 years, only 34 countries succeeded in breaking out of it.

Advocates of the *relative approach* defined MIT in contrast to developed economies.

The US is a standard measure of economic growth and development level, and other countries are catching up with the US. Bulman developed his paper based on previous research: the relative income of the US is used as the reference measure. He pointed out that an economy will be diagnosed as getting into MIT with 10-50% of the US per capita income level lasting about 49 years (Bulman et al., 2017). Woo used the Catch-up index to define the economy, which is 20%-55% and lasts at least 50 years as an indicator of getting into MIT (Woo, 2012). A typical middle-income country's GDP is about one-fifth of that of the US. The absolute and relative approaches to MIT with their indicators are close to convergence theories and concepts (Györfy, 2021). They can be perceived as a specific variant of convergence. They are also close to the variety of capitalism theories.

Csath (2022) distinguishes between the *growth* and *development trap*, arguing that avoiding the growth trap does not necessarily imply avoiding the development trap simultaneously. A country not threatened by MIT may get into the development trap. By definition, the GDP indicator does not say anything about the quality of economic growth. In crisis situations, factors such as resilience and adaptability do nothing with GDP growth. Csath (2022) defines the former as a situation where a country's development indicators are deteriorating or stagnating (Csath, 2022).

Unlike scholars who admit the existence of MIT, some experts *denied the existence of the middle-income trap*. Im & Rosenblatt (2015) calculated the transition matrix to analyse the transition probability from the middle-income to the high-income level using the relative methods. They denied the existence of a middle-income trap because the likelihood of an upper-middle-income to a high-income transition is the same as the likelihood of a lower-middle-income to upper-middle-income transition. The exact likelihood indicates that the transition from one income level to another takes almost the same time. Based on these definitions, the next chapter discusses the causes of MIT according to some important characteristics.

Causes and factors shaping the MIT

Demographic factors, human capital and innovation

Middle-income countries are heavily affected by the *demographic shift*, especially those experiencing the MIT. In a foundational analysis, Cai argues that these countries lose their conventional advantage of low-cost labour due to slower population growth and ageing demographics. This change makes it more difficult to sustain economic growth since it lowers the labour pool and raises dependency ratios (Cai, 2010). Bloom & Canning (2004) point out that an ageing population reduces the number of economically active people and increases the strain on social services, especially healthcare and pension systems. The demographic decline may impede productivity growth and worsen financial hardship. To sustain growth momentum, nations undergoing this transition must raise worker productivity and human capital (Bloom & Canning, 2004). Similarly, Lee and Mason study the demographic dividend and note that nations must *move from labour-driven growth to capital- and knowledge-driven economies* when the working-age population declines. Their findings highlight how important it is to provide funding for innovation and education to combat the decline of the labour force and maintain competitiveness in an increasingly globalised market (Mason & Lee, 2006). As the demographic dividend slowly disappears, China faces a significant challenge. The current economic transformation is focused on improving education, research, and technology and promoting innovation and entrepreneurship (Yuan & Gao, 2020).

One of the key reasons why countries fall into MIT includes *insufficient investment in human capital and a need for more innovation*. Low-income countries have a smaller pool of skilled labour and utilise them less efficiently than developed countries. Low-income economies thrive by imitating high-income countries' innovations and using cheap labour.

However, as salaries climb, firms must adopt an innovation-driven growth strategy. Many countries need more *educational institutions, R&D infrastructure, and innovation ecosystems* to compete with developed economies (Eichengreen et al., 2013). Dabús also emphasised the *significance of education and technology*, believing that tightening human capital hinders innovation in science and technology and the development of other industries (Dabús et al., 2016). Tung & Hiang (2024) used panel data to prove this, with a sample of 29 emerging economies between 1996 and 2019. The anticipated results indicate that *national R&D spending positively impacts economic growth* from both direct and indirect viewpoints (Tung & Hoang, 2024). Aytekin and Uçak also used data from ten countries from 1996 to 2017 to show that an *increase in research and development (R&D) expenditure leads to an increase in exports of high-tech products* (Aytekin & Uçak, 2019). According to Glawe & Wagner, countries that do not develop highly trained labour forces or promote technological innovation struggle to move up the global value chain, remaining locked in low- to medium-productivity industries (Glawe & Wagner, 2016). Only by serving the industrial design targets can the changes in education and institutions be applicable (Kanchoochat, 2015).

China is developing an innovation-oriented and service-based economy, which is increasingly essential for avoiding MIT and achieving long-term growth (Dong et al., 2018). Chinese scholars are more interested in labour structure and division across industries, which involves education and innovation strategies. According to Cai & Wang (2010), altering the labour structure becomes crucial when labour prices rise and the demographic dividend fades. Raising labour productivity and skills through education and training is critical to sustaining economic growth (Cai & Wang, 2010). China's 'Lewis Turning Point' has already occurred, with growing labour costs and the demographic dividend progressively evaporating.³ China could offset the effects of a shrinking workforce by raising labour productivity and encouraging skill training (Cai, 2015; Cai, 2012; Fang, 2016). This viewpoint emphasises *the importance of education* in improving the workforce's competitiveness. Similarly, Justin (2011) advocated that China's industrial upgrading be based on its current competitive advantages, with labour structure shifts directing resources into industries with higher value-added content. This strategy necessitates *the alignment of educational systems and innovation agendas*. Lin's "New Structural Economics" concept considers the broader macroeconomic background, arguing that the government should promote developing industries and foster technological innovation (Lin, 2011). Chinese experts offer practical macroeconomic policy proposals for escaping the middle-income trap by connecting the division of labour, educational breakthroughs, and innovation-driven growth (Yifu Lin, 2012).

Growth trajectory, economic structure, and productivity

Economic transformation is another important element of escaping MIT. At the middle-income stage, economies often see diminishing benefits from previously growth-driven industries, particularly manufacturing and agriculture (Felipe, 2012). Moving up the value chain necessitates a switch to more knowledge-intensive industries such as technology, finance, and high-tech manufacturing. Matthess and Kunkel (2020) connect the production, supply, and distribution sectors through digital networks. Using a comparative approach, the differences between *structured and digitalised economies* in developing and developed countries are examined to see the impact of digital technology on the upgrading of economic structures. With digital technology as the main driver of Industry 4.0, service design can influence all aspects of the product lifecycle, making production, delivery, consumption, and investment more sustainable (Jiang, 2020). Countries not developing these industries typically endure slower productivity development and need help to remain competitive.

Enhancing *total factor productivity (TFP)* and *a growing labour force* would help China avoid the middle-income trap (Ngo & Nguyen, 2020). TFP growth is often recognised as an

important indicator of a country's ability to innovate and adopt new technologies. It is vital to transition from a low- to a high-income economy. Increasing TFP will require more efficient allocation of resources, greater technological adoption, and a shift from imitation-based growth strategies to indigenous innovation (Zhu & Kotz, 2011). Engel & Taglioni (2017) concluded that *extending the value chains* is also a good means of avoiding MIT (Engel & Taglioni, 2017).

As Györffy (2021) pointed out, Porter's stages of competitive development (1990) can also be applied to interpreting the MIT. The first stage is factor-oriented development, followed by the second stage covering the investment-driven pattern, whereas the third stage is focused on innovation (Porter, 2009). The individual stages represent different models of competitiveness. Györffy (2021) also quoted Aiginger (2018), who distinguished two types of competitiveness. Low road competitiveness is associated with low costs (wages and taxes) and subsidies for attracting FDI inflow, which aim to create jobs and GDP growth (Aiginger, 2018). High-road competitiveness is based on quality, sophisticated products, a high level of productivity supported by innovation, quality education, and a favourable business environment, which aims to improve the quality of life.

World Bank Group (2024) highlights three drivers of economic growth: investment, infusion⁴ and innovation, which middle-income countries should consider when moving to a more sophisticated, high-quality development trajectory. In China, this includes moving away from traditional, labour-intensive industries such as textiles and basic manufacturing toward more sophisticated ones such as electronics, automotive, and biotechnology. This structural transformation improves efficiency and strengthens China's position to compete in higher-value segments of global supply chains (Rodrik, 2014).

The institutional factor

A nation's political and social institutions are crucial in determining whether it could escape MIT (Robinson & Acemoglu, 2012). In general, the success of switching to high-quality growth depends mainly on *the quality of institutions*. A good-functioning political and economic institutional system encourages competitiveness, creativity, and economic openness. Therefore, in economic transformation, it is necessary to combine the original system, unite the regions through digitisation, form a complete administrative system, improve the efficiency of economic development and market position, connect individual markets with domestic and foreign markets, and improve the efficiency and competitiveness of overall operations (Stroiko et al., 2022).

Doner and Schneider (2016) argue that countries at MIT are confronted with two major *institutional and political challenges*. First, the precondition of upgrading productivity through investing in human capital innovation is *efficient institutional capacity*, which they need more. Second, building these institutional capacities requires solid *political capacity*, which is missing in most middle-income countries for various reasons, such as the fragmentation of potential support coalitions, corruption, and clientelism (Doner & Schneider, 2016). According to this approach, the major constraint of escaping MIT is political rather than economic. In this respect, democratisation does not necessarily result in economic success (Garrett, 2004). Györffy (2021) also attached outstanding importance to the role of institutions in the transition to a knowledge-intensive and high-quality growth model and breaking path dependency.

Within the framework of China, *institutional reform* ought to concentrate on optimising resource distribution, decreasing bureaucratic interference, and advancing superior economic development via market-driven changes (Lin, 2011). China must thus intensify its efforts to uphold the rule of law, fight corruption, and advance government transparency. Zhou examines the incentive effect of *market-oriented changes* at the local government's level, emphasising China's "official championship" system. He also examines how market-oriented reforms might support local economic development by providing officials with performance incentives and

analysing local governments' motivations to pursue economic growth (Zhou, 2004). Institutional reforms have significantly improved China's distribution of resources. However, the nation's economic transformation is still incomplete, and furthering and maintaining market-oriented reforms will be necessary to ensure that growth in the future is sustainable (Fan et al., 2019).

Summary and conclusions

The common feature of the publications on MIT is that they identify the roots and causes behind the slowdown or the stop of previously dynamic economic growth in countries with diverse per capita GDP. The generalised conclusions include a one-sided focus on investments, demographic decline, outdated economic structure resulting in low value-added production capabilities, low productivity and TFP, increasing labour costs, modest R&D capacities, weak innovation and educational/knowledge background, etc. The role of qualitative factors, not necessarily economic ones, such as political and social institutions, is also touched. Csath (2022) submitted a paradigmatic shift in the body of knowledge of MIT to substitute the term growth trap with the term development trap with implications for extending the scope of the discussion to additional indicators.

The transition from a cost-based, investment-driven growth to a more sophisticated, high-quality, innovation-based and knowledge-intensive model with the prospect of higher value-added production and higher productivity level or from a low-road competitiveness to a high-road competitiveness or from a factor-, than investment-oriented development to an innovation-driven one is somewhat tricky. The publications surveyed touch upon various elements and viewpoints of this transition. World Bank Group (2024) offered the most comprehensive proposal with two subsequent transitions. In the first phase, middle-income countries should complement investments with an infusion focusing on imitating and diffusing modern technologies. In the second stage, innovation should be added to the investment and infusion to become innovators based on their emerging domestic innovation capacities.

The term MIT needs a sound theoretical background. It does not cover the qualitative components of economic growth and development. With economic structures becoming more complex, equating a country's development with its per capita GDP is inaccurate. It should be amended by other measures such as World Development Indicators, value-added, socioeconomic mobility, and emissions intensity (World Bank Group, 2024). The sources of the overviewed literature also propose several indicators for analysing MIT. They include the Human Development Index (HDI),⁵ growth of GDP and per capita GDP, productivity, TFP, economic structure, IT infrastructure, wages, and educational expenditures. Output—or impact-based indicators should be added to input-based ones, such as the proportion of people with IT skills and the proportion of firms using IT systems about IT infrastructure and educational attainment rates and knowledge levels, to measure the results of educational expenditures.

The MIT issue is rather complex, and it was impossible to elaborate on all of its components; this is the major *limitation* of this paper. For example, the overview of policy responses based on international experience is missing. The *future research direction* is straightforward. Relying on this conceptual paper's significant elements and conclusions, we will undertake a comprehensive analysis with an economic model and a set of quantitative and qualitative indicators to map China's transition to a high-quality growth model. We will consider the state of the international environment where this transition occurs and China's unique socioeconomic context with the interplay between political, social, and economic factors. In addition to GDP and per capita GDP, the report will cover a wide range of indicators, helping to gain a more appropriate and precise picture of China's transition process. Our approach will comprise the overcoming of MIT and the more general concept of the switch to a new development trajectory.

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