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The Middle-income Trap Debate: Taking Stock, Looking Ahead¹

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Introduction

The term “middle-income trap” (henceforth MIT) is a relatively new phrase invented by Gill and Kharas (2007) in their *East Asian Renaissance* report. It has since become a powerful buzzword in the international development community. Whether or not a country is in the “middle-income” level depends on the definition provided by the World Bank.² But the debate over the “trap” is another matter. Despite using the same phrase, the MIT literature varies considerably in the definitions provided, cases studied, underlying causes of the trap analyzed, and policies suggested. The objective of this paper is twofold. First, it attempts at classifying this burgeoning area of research. Based on its theoretical and policy differences, the existing MIT literature can be categorized into three groups: that is, (1) getting education and institutions right; (2) changing export composition by following comparative advantage; and (3) changing export composition by defying comparative advantage. Second, it examines the validity of these three groups through catching-up experience of selected newly industrializing economies (NIEs) in East Asia. Conceptual grounds for future policymaking and potential research agenda are discussed in the concluding section.

I. One Term, Two Definitions, and Three Solutions

Generally, the term MIT refers to the situation in which countries, despite attaining middle-income status for certain periods, have, or seem to have, failed to grow further into high-income level. However, there is no accepted definition of what the MIT is. One group of

² According to the country’s GNI per capita in 2012, countries have been classified as follows: low income, \$1,035 or less; lower middle income, \$1,036–\$4,085; upper middle income, \$4,086–\$12,615; and high income, \$12,616 or more. Note that the Bank’s measures and categories have been adjusted time and again.

literature sees the trap as “growth slowdowns”, for example, Eichengreen *et al.* (2013) define MIT countries as those who had undergone average GDP growth of at least 3.5% for several years, and then stepped down by at least 2% between successive seven-year periods (in the same vein are Felipe *et al.* 2012; Aiyae *et al.* 2013). Another group puts the MIT into the broader debate over economic “catching up” of developing countries in relation to such developed countries as the US or Japan (e.g. Lin and Rosenblatt 2012; Lee 2013).

The literature is even more divergent when it comes to the analysis of, and the solution to, the trap, which can be classified into three groups: that is, (1) getting education and institutions right; (2) changing export composition by following comparative advantage; and (3) changing export composition by defying comparative advantage. Table 1 summarizes their differences in the major causes of the MIT analyzed, the role the state should play, and some exemplary works in each body.

Table 1. A summary of three bodies of MIT literature

	Major causes of MIT	The role the state should play	Exemplary works
(1) Getting education and institutions right.	Inadequate quality of education and institutions.	<i>Minimum.</i> To make the right incentive systems; investing more in education and institutions.	Jimenez et al. (2012) Jitsuchon (2012) Tran (2013) Aiyar <i>et al.</i> (2013)
(2) Changing export composition by <i>following</i> comparative advantage.	Inadequate capabilities to produce and export higher-technology products.	<i>Facilitating.</i> To support industries in which a country possesses comparative advantage.	Felipe <i>et al.</i> (2012) Eichengreen <i>et al.</i> (2013) Lin and Treichel (2012)
(3) Changing export composition by <i>defying</i> comparative advantage.	Inappropriate and insufficient role of the state in enhancing capabilities to produce and export higher-technology products.	<i>Proactive.</i> To focus on capability accumulation and deliberate attention to advancing industrial upgrading.	Ohno (2009); Paus (2012); Prime (2012); Caldenteu (2012); Sánchez-Ancochea (2012); Abugattas-Majluf (2012); Lee (2013)

Notes:

- (1) The review here is limited only to those that explicitly use the term “middle-income trap”. Seemingly related works, such as those on middle-income countries or the East Asian development, are not included if they have not used that specific term.

- (2) Most of the existing literature does *not* deny the importance of education, institutions, and exports. The classification here is based on: (a) the different *emphases* each work places on the main cause of the MIT; and (b) the extent to which the state should be involved in remedying the problems.

1.1 Getting education and institutions right

Studies in this group analyze middle-income countries with special reference to their quality of education and institutions. For example, Jimenez *et al.* (2012, p. 16) explore Thailand and Malaysia in comparison to Korea, and argue that human capital formation is fundamental to sustaining per capita income growth, as it equips workers with marketable skills. The list of MIT problems in Jitsuchon (2012, p. 16) is longer and summarized as "Thailand's institutional weaknesses". In addition to poor educational quality, an incomplete market in skills training, a low level of research and development (R&D) activities and spending, and flawed tax structure are included. A more comprehensive study through probit regressions covering 138 countries from 1955 to 2009 was conducted by Aiyar *et al.* (2013). High-quality institutions – defined as: strong rule of law; small government; and light regulation – are among significant factors contributing to change in growth slowdowns of middle-income countries.

As for policy suggestions, Jitsuchon (2012, p. 19) proposes that the Thai government should not interfere with the market but should "devise the right incentive system so that economic agents would want to pursue their own prosperity...Providing public research infrastructure and tax benefits for implementing innovation and R&D activities is an example". For Aiyar *et al.* (2013, p. 32), reforms should cover "[p]rudential regulation to limit the build-up of excessive capital inflows..., measures to enhance regional trade integration, public investment in infrastructure projects, and deregulation in areas where red tape is stifling private activity". In short, the state should concentrate on making the right incentive systems and investing more in education and institution building.

1.2 Changing export composition by following comparative advantage

Rather than education and institutions, the second strand points to a country's export composition as being particularly critical to its catching-up success and failure. Some

studies in this group draw underlying theory from "old-school" development economics.

Felipe *et al.* (2012, p. 33) argue that development and growth should be seen as "a process of structural transformation of the productive structure, whereby resources were transferred from activities of lower productivity into activities of higher productivity". Using a data set of 124 countries from 1950 to 2010, they find that not all products have the same consequences for economic development. Successful catching up is found in the ones with a "diversified, sophisticated, and non-standard level export basket". For example, while Korea was able to gain comparative advantage in a significant number of sophisticated products, Malaysia and the Philippines were able to gain comparative advantage only in electronics. Specific to Latin American and the Caribbean countries, Lin and Treichel (2012) argue that they have been caught in the MIT because of their inability to upgrade from low to high value-added production. Although not following the above underlying theory, the econometric findings in Eichengreen *et al.* (2013, pp. 11–12) also underline the importance of export compositions, among other contributing factors: "Countries accumulating high quality human capital and moving into the production of higher tech exports stand a better chance of avoiding the middle income trap".

Policy suggestions vary in this group, but generally prefer the state to function as a facilitator who supports a country's transformation toward higher value-added exports. For example, Lin and Treichel (2012) assert that the government should play a crucial role in helping firms overcome information, coordination, and externality problems. Elsewhere, Lin (2012, p. 397) maintains that: "The best way for a developing country to achieve sustained, dynamic growth is to follow comparative advantage in its industrial development and to tap into the potential of advantages of backwardness in industrial upgrading".

1.3 Changing export composition by defying comparative advantage

Similar to the second group, this body of literature emphasizes exports and production structures. Nevertheless, it explicitly supports the active role of the state in acquiring indigenous technology for latecomers, even against the country's comparative advantage

when necessary. Put otherwise, for this group, comparative advantage is not a matter of concern, particularly comparative advantage in trade determined by initial endowment conditions (see discussion in Lee 2013).

For example, Ohno (2009) maps out four stages of catching-up industrialization: that is, (1) having simple manufacturing under foreign guidance; (2) developing supporting industries but keeping production under foreign management; (3) internalizing skills and knowledge by accumulating industrial human capital; and (4) acquiring the capabilities to create new products and leading global market trends. The MIT is defined as the “glass ceiling” between the second and third stages. Proactive industrial policy, with strong commitment to global integration and private-sector-driven growth, is accorded the key role in solving the problem (Ohno 2009, pp. 29–30).

Learned from the small-countries perspective,³ the special issue on the MIT in *Studies in Comparative International Development* emphasizes the competitive squeeze from the low and the high end, highlighting the intense pressures on middle-income countries in the current globalization process. In there, Paus (2012, p. 130) demonstrates that: “Sustained broad-based upgrading happens where there is a proactive government with an overall focus on capability accumulation and deliberate attention to advancing social capabilities in sync with the needs of private sector upgrading.”

II. Lessons from East Asian Catching up

Among various ways to assess the above three bodies of literature, this paper uses the East Asian catching-up process as the benchmark. While the “first-tier” NIEs, namely, Taiwan, Korea, and Singapore, offer a representative sample of those who succeeded in sailing over the trap to reach higher-income levels, the “second-tier” ones, namely, Malaysia, Thailand,

³ Five cases include Chile, Dominican Republic, Ireland, Jordan, and Singapore.

and the Philippines, represent those stuck in the trap.

2.1 Education and institutions need to link with industrial targets

The first strand of MIT literature considers education and institutions as holding the key to reaching a higher-income level. Nonetheless, the East Asian experience tells us that both are no guarantor of successful catching up. In order to contribute significantly to economic growth, education and institutions need to be closely linked with specific industrial targets.

In contrast to conventional wisdom, a number of cross-country studies find the relationships between education and economic growth to be weak (Benhabib and Spiegel 1994; Pritchett 2001) or happen in the opposite direction, that is, from economic growth to higher quality and quantity of education (Bils and Klenow 2000). In the East Asian cases, the literacy rates and average years of schooling of most countries were below the Philippines in 1960.⁴ Even as late as 1994, the average years of schooling of Indonesia, Malaysia, and Singapore were still lower than that of the Philippines (Collins *et al.* 1996). But among them the Philippines is the least successful catching-up country. In the first-tier NIEs, education policy was designed to tailor the national development strategy, rather than simply increasing literacy rates or average years of schooling. For example, in Singapore, the human resource system was restructured in 1981 when the country decided to shift from import-substitution to export-oriented industrialization. The new system was aimed at specific industrial goals, and encompassed not only improving formal education but also upgrading abilities of existing workforce in the industry through training and vocational education (for the Skills Development Fund see Kuruvilla 1996). In contrast, while Thailand and the Philippines were able to create educated workers, their university–industry linkages have been porous and neglected, which, in turn, have impeded the utilization of labor forces and hampered economic development of both countries (Yusuf

⁴ In 1960 the Philippines had a literacy rate of 72%, while it was 71% for Korea, 68% for Thailand, 54% for Taiwan, and 53% for Malaysia (Sarel 1996).

and Nabeshima 2010; Mehta *et al.* 2007).

With regard to institutions, many of MIT literature, particularly Aiyar *et al.* (2013), is influenced by the so-called “good governance” institutions meant for minimizing the role of the state as well as rent-seeking activities.⁵ However, the first-tier NIEs were able catch up with advanced economies *despite* their institutions being highly deficient by modern standards – in such areas as democracy, bureaucracy and judiciary, property rights, western-style corporate governance, and financial institutions (Chang 2002).⁶ In Korea, for example, rent-seeking was rife throughout the high-growth period under the Park Chung Hee regime. In theory, the assumption that rents and rent-seeking are always counter-productive, and therefore should be eliminated at all costs is problematic because there are different types of rents. For example, the Schumpeterian rents, or the above average profit the firm earns due to innovation, are vital for ensuring that efficiency and growth are sustained. The implication is that it is how rents have been created and managed that matters more for consequent economic performance. Specific to the task of escaping from the MIT, growth-enhancing institutions are more relevant than good-governance ones (see Khan and Jomo 2000; Kang 2002).

2.2 Changing export composition against comparative advantage

Beyond education and good-governance institutions, the second strand of MIT literature revives the old tradition of development economics by reaffirming that *structural transformation* is the key to sustaining growth, and brings a fresh empirical insight by shifting the focus from export expansion to *export composition* as a prime indicator of

⁵ In Aiyar *et al.* (2013), better institutional quality denotes: less government ownership of enterprises; lower income tax rate; fewer regulatory restrictions on the sale of real property; and fewer trade taxes and non-tariff trade barriers.

⁶ Moreover, that “good governance” is a main determinant of economic performance has been challenged on various methodological grounds, especially the measurement errors and missing-variable considerations (Shirley 2008).

structural transformation.

The experience of East Asia is supportive of the above statements. First, since the Industrial Revolution, long-term growth requires a country's structural transformation in which resources are transferred to higher-value-added sectors (i.e. from agriculture to industries and services), production is diversified continuously, and labor productivity is increased significantly. Successful catching up of first-tier NIEs is also the result of such transformation, yet in a faster and more intense manner than any other developing region (Felipe 2009; Szirmai 2012). Second, export expansion alone is not sufficient for sustaining growth. What separates export-led industrialization in Latin America and East Asia is export composition. The study by Palma (2009) finds that between the 1960s and the 1990s, the capacity to move into the "high-tech" products of Latin American countries was far lower than that of the East Asian ones.⁷ Even though in the 1990s Latin American countries managed to reach East Asian levels of market penetration in OECD markets (matching export expansion), they did so only in their traditional export products, while NIEs were able to remarkably increase the share of high-tech products in their exports to the same markets (different export composition). In other words, exports can be used both as a tool of development and as a test of a country's success (see also Hausmann *et al.* 2005).

However, to what extent the role of the state is needed in changing the country's export composition remains controversial. Even though overly deviating from comparative advantages is deteriorating, it is almost impossible for a backward economy to accumulate capabilities in new industries without defying comparative advantage and actually entering the industry before it has the "right" factor endowments. Theoretically speaking, the concept of comparative advantage, which underlies Lin's policy advice, is based on *unrealistic* assumptions including: (a) the "no" conditions, such as no externalities; no increasing returns to scale; no factor mobility between countries; no technological change;

⁷ High-tech products are defined as products with high content of R&D (see Palma 2009).

and (b) the “necessary” conditions, such as the perfect competition in all markets in both countries (Fine and Waeyenberge 2013). Empirically, high-speed structural transformation in first-tier NIEs was due to various mixtures of proactive state intervention aimed at upgrading their industrial structures. Korea, for example, set up the state-owned steel mill, POSCO, and initiated Heavy and Chemical Industrialization program, which promoted shipbuilding, automobiles, machinery, in the early 1970s when its per capita income was only 5.5% that of the US (see detailed discussion in Lin and Chang 2009). Of course, changing export composition and going against comparative advantage can do more harm than good if industrial and technology policies are not well implemented, the issue to which we now turn.

2.3 Industrial and technology policies with yardstick and exit strategy

The third strand of MIT literature gives strong weight to industrial and technology policy. Even though the East Asian experience supports this argument, the fruits of such policy vary considerably across time and space. Political factors aside,⁸ the lack of explicit yardstick and exit strategy in policy design deserves close attention, as it draws a fine line between the first- and second-tier NIEs.

First and foremost, despite typically being referred to as the “East Asian model”, there is neither industrial policy template nor a recipe for a magic bullet. Variation across the theme does exist. For example, in terms of trade policy, Singapore is much less interventionist than Japan and Korea. But Singapore and Taiwan are far more interventionist than Japan and Korea when it comes to the role of state-owned enterprises. The tools and mechanisms are designed differently to suit their socio-political specificities, as summarized in Table 2.

⁸ Yet, the deeper causes of second-tier NIEs’ mediocre catching up lie in their political and institutional deficiencies, for example, the Philippines’ oligarchic structure (see Hamilton-Hart and Jomo 2003).

Table 2. Variation in policy and institutional characters of selected first-tier NIEs

	Korea	Taiwan	Singapore
Policy			
Infant industry protection	Very strong	Very strong	None
Export promotion	Very strong	Very strong	Strong, but mostly indirect
State-owned enterprises (SOEs)	Used in some critical industries	SOEs ran most key upstream industries	SOEs ran many key industries
Large private-sector firms	Strongly promoted	Discouraged (most large firms were SOEs)	Not promoted (large firms were either SOEs or TNCs)
Local contents	Stringent local content rules, creating support industries	Strong pressures for raising local content and subcontracting	None
Transnational corporations (TNCs)	Strongly discouraged outside selected sectors	Discouraged outside selected sectors	Aggressive targeting and screening of high value-added TNCs
R&D	Private-sector-led	Government-led	Government-led
Institutional characters			
Centralization in policymaking	Very strong	Very strong	Strong
Government–private sector relationship	Top-down direction	Mixture of antagonism, benign neglect, and central control	Local private sector unimportant
Role of private-sector associations	Important, but controlled by the government	Important, but controlled by the government	Local private sector unimportant

Source: Lall (2004, Table 2) and Chang (2006, Table 3).

With regard to the yardstick, the first-tier NIEs used *export performance* and the *discrepancy* between domestic costs and international prices to guide subsequent government policies for the targeted industries (Amsden 1989; Wade 1990; Lall 2004). The recipients of policy support in Taiwan were threatened with a penalty if the prescription were not followed. Taiwan’s control instruments include quantitative import restrictions and export licensing, foreign investment screening, approval for capital goods imports for new plants (until 1980), no non-governmental borrowing of foreign funds, and restrictions on entry to certain sectors. Korea strongly deployed the tight performance monitoring

system, set by industry associations in concert with the government. Its punitive measures included: withdrawal of subsidized credit and import licenses; income tax audits; even prison sentences could be put in place for some serious issues. Moreover, the Korean state usually set up SOEs to accomplish the task that it could not make the private firms do. Singapore is less punitive than Taiwan and Korea, given its FDI-led strategy. However, firms would be granted potential rewards only when their activities matched the country's specific targets at a given time.

The intensity of the above carrot-and-stick measures is in marked contrast to industrial policymaking made in second-tier NIEs. In Malaysia, technology transfer was not involved any *ex post* monitoring and appraisal, while the *ex ante* screening was poorly managed, as exemplified in the case of Proton, the "national car" project. Despite having been granted substantial protection through high tariffs and excise duties since 1983, Proton has yet to develop engine manufacturing capability because the Malaysian government has had no rigorous mechanisms to monitor and improve performance in order to adjust tariffs downwards according to levels of efficiency (see Doraisami and Rasiah 2001). In Thailand, effective policy was found only in the local contents restriction in automobiles used between 1974 and 2000, and measures to support scale economies in petrochemicals in the 1980s. But Thailand's industrial policies have neither been designed with clear performance requirements nor been implemented in a long-term manner. In the Philippines, the performance of its manufacturing sectors has been relatively poor, although emerging from a well-developed human capital base in the 1950s. Unlike the above-mentioned countries, which pursued export orientation at the same time they nurtured domestic export industries, the Philippines adopted aggressive tariff reduction and investment liberalization at a significantly faster pace, even faster than required by international commitments, while its industrial and technology policies were rather generic without clear-cut industrial targets (see Jomo 2003; Felipe 2009).

III. Looking Ahead: Criteria for Targeting

This paper has explored the existing research on MIT and classified it into three groups, labeled by their policy statements: that is, (1) getting education and institutions right; (2) changing export composition by following comparative advantage; and (3) changing export composition by defying comparative advantage. Examined through the East Asian experience, it then argued that education and good-governance institutions cannot guarantee successful catching-up; both have to be designed to tailor specific industrial targets. Transforming the economic structure and export composition should be considered as the crux of sustainable growth. In doing so, the role of the state rather goes beyond a comparative-advantage-following strategy, with well-designed industrial and technology policies playing a crucial role in the process.

Two conceptual points should give grounds for the thinking of future policymaking. First, industrial and technology policymaking should be posited on the same level as other types of policymaking, be it education, health, or social policies, in the sense that it will certainly be confronted with problems and difficulties in terms of implementation. But the tasks of policymakers are to minimize such problems and maximize benefits through processes of policy evaluation and refinement. Second, targeting should not imply an automatic negative connotation. The debate over the “functional” intervention versus “selective” intervention is almost meaningless at the operational level. Those who support functional intervention of the state may draw the line of intervention at education, R&D, and infrastructure that benefits all industries equally. Nonetheless, almost all interventions in reality *inevitably* favor some sectors and actors over others, and therefore have discriminatory effects that amount to targeting.⁹ Accordingly, designing a systemic

⁹ For example, granting R&D subsidies implicitly favor R&D-intensive high-tech sectors. Building railways (instead of roads) implicitly favors the steel industry (more than the auto industry). Among a few policies that could be regarded as “general” are basic education and healthcare (Chang 2011).

selective policy *ex ante* should be a more productive and accountable enterprise than deploying it with blind prejudice.

Building upon the above two conceptual grounds, future research should move on to seek out potential *criteria for effective targeting*. One recent example in this thread is found in Lee (2013), which argues that leapfrogging is more likely to happen in the sectors characterized by rapid technological change. The success of Taiwan and Korea, Lee argues, is largely due to their overarching strategy toward “short-cycle”, technology-based sectors.¹⁰ Short-cycle technologies mean the sector not only has less reliance on existing technologies but also has a greater opportunity for the continued emergence of new technologies. For example, Korea’s catching up with Japan in high-definition TVs would not have been successful if in the 1980s Korean electronics companies did not target the emerging digital technology-based products more aggressively than Japanese companies, which decided to continue manufacturing the then dominant analogue products.

In summary, the exploration into criteria for targeting like Lee’s technological cycle time should be one of the crucial themes of future MIT research. After all, however, the discussion herein is confined to merely economic issues and almost all about growth. In a broader development perspective, growth is a less worthwhile, and often conflicting, mission if it does not lead society to a more equal distribution of wealth (see Wilkinson and Pickett 2010). For a developing country to go beyond the middle-income stage, a national development strategy should encompass strong redistributive elements. Otherwise, the trap could extend from an economic realm into political and social ones.

¹⁰ Lee (2013) measures the cycle time of technologies by the mean citation lag, which is the time difference between the application year of the citing patent and that of the cited patents.

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