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Lim, Guanle

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Managing Technological Development: A Study of Vietnam's Telecommunication Goods Industry

Guanie Lim*

Department of Geography, National University of Singapore, Singapore

To investigate Vietnam's prowess (or lack thereof) in technology, this paper examines the country's international trade competitiveness in the telecommunication goods industry. Comparing Vietnam's performance to those of its more advanced ASEAN-3 rivals (Indonesia, Malaysia, and Thailand), the paper argues that Vietnam has overcome its initial technological backwardness. It has leapfrogged Indonesia and Thailand in the regional telecommunication goods "race", but is still unable to match Malaysia's performance. Nevertheless, Vietnam's continued ability to climb the technological ladder depends on the efficacy of its industrial policy as well as the vitality of its overall science and technological base. To this end, Vietnam should implement a more robust industrial policy to fully realize its current advantage in the telecommunication goods industry. It should "push" its cohort of state-owned enterprises to climb the technological ladder by tying state support to their export performances. In addition, Vietnam needs to strengthen its overall science and technological base. It would do well by investing in research and development activities, and cultivating a larger share of tertiary graduates in engineering and other technological fields.

Keywords: International Competitiveness, Late Development, Southeast Asia, State-Owned Enterprise, Telecommunication Goods, Vietnam

Introduction

Since the *doi moi* (renovation) reforms in 1986, Vietnam has experienced a dramatic socioeconomic transformation. The Vietnamese gross domestic product (GDP) grew by 7.2% per year (on average) from 1986 to 2013. Observers have noted Vietnam's sterling economic performance, labelling it the "Next China" (Straszheim, 2008) and the "New Asian Dragon" (Schaumburg-Müller & Pham, 2010). Their positive image of the Vietnamese economy is similar to how the other (then) industrializing economies of Southeast Asia (Indonesia, Malaysia, and Thailand) were perceived by policymakers and business executives during their high growth era in the 1980s and early 1990s. Nevertheless, the praises stopped flowing in after these three countries (the ASEAN-3) were severely affected by the 1997 Asian Financial Crisis (AFC). The ASEAN-3 witnessed a sharp reduction in economic growth in the immediate years of the AFC, with Indonesia experiencing the deepest contraction. Overall, the ASEAN-3 has since recovered from the fallout of the 1997 AFC, but it must be emphasized that they have not registered a level of growth rivalling the pre-AFC period.

Although economists have suggested multiple reasons explaining the failure of the ASEAN-3 to grow as rapidly as the pre-AFC period (see Jomo, 2004; [Menon, 2014](#); Studwell, 2013), they generally agree that one of the key factors is the ASEAN-3's lack of prowess in technology. With a weak grasp of technology, the ASEAN-3 cannot move up the value chain as their economies mature and as foreign direct investment (FDI) dries up (Suehiro, 2008; [Yoshihara, 1988](#)). In other words, their meteoric economic performance during the pre-AFC period was driven almost exclusively by FDI from the more technologically advanced Western and Japanese multinational corporations (MNCs). These MNCs invested in the ASEAN-3 as they were primarily attracted by their low wage and pro-business environment. As more developing countries with even lower wage opened up their economies in the 1990s (e.g. Vietnam, Laos, Cambodia, and China), the MNCs diverted their investment from the ASEAN-3 (and in some cases, even shuttered their existing operations) to these new destinations.

With the above as a backdrop, it is important for Vietnamese observers to reflect on the fate of the ASEAN-3. This perspective is crucial as Vietnam might tread down the ASEAN-3's path of "technology-less" development should it fail to detect technological stagnation and take corrective actions. Concerned with such an outcome, this paper poses the

following research questions: Is Vietnam really mastering technology in its growth efforts? Are there fundamental differences between its growth story and that of the ASEAN-3? To answer these research questions, this paper investigates Vietnam's proficiency (or lack thereof) in technology by unpacking the country's competitiveness in the telecommunication industry for it is a relatively reliable indicator of technological progress. More specifically, the paper analyses Vietnam's international trade competitiveness of key products used in this particular industry relative to the ASEAN-3's. It is believed that extending a comparative approach to cover both Vietnam and the economically more mature ASEAN-3 will provide a more balanced overview on how a latecomer economy in Vietnam competes against more established regional economies. In spite of its latecomer status onto the regional telecommunication goods production network, the paper illustrates that Vietnam has surpassed Indonesia and Thailand, but is still unable to overtake Malaysia. Vietnam's continued ability to climb the technological ladder depends on the efficacy of its industrial policy as well as the strength of its broader science and technological base.

The paper begins with a survey of the literature on the role of technology in catching-up industrialization. It explores this issue by analysing the role of industrial policy, especially the manner in which it was implemented in the miracle economies of Japan and the first-tier newly industrializing economies (NIEs) (i.e. Korea, Taiwan, Singapore, and Hong Kong) as well as the less successful second-tier NIEs (represented in this paper by the ASEAN-3). It also examines the failure of the ASEAN-3 in grasping the technological expertise necessary in the production of increasingly more sophisticated goods as they underinvest in the development of human resources in technological fields. In the following section, the paper unearths these perspectives with reference to Vietnam, focusing on the country's telecommunication goods industry. The paper then offers a robust framework with which to analyse Vietnam's international competitiveness in the telecommunication goods industry, before presenting the results of Vietnam's competitiveness in the telecommunication goods industry vis-à-vis those of the ASEAN-3. This is followed by a discussion of these findings. The paper concludes with a summary of the main arguments, along with some policy advice.

Theoretical Perspective

Observing the major Southeast Asian economies in the 1980s, Yoshihara (1988) had warned that these countries risked becoming “technology-less” developing nations. Dissecting the business models of prominent Southeast Asian corporations, he argues that these corporations are almost completely dependent on Western and Japanese MNCs for technical support. For instance, Yoshihara argues that prominent Southeast Asian motor vehicle assemblers such as Malaysia’s Tan Chong Motors (partner of Nissan) and Indonesia’s Astra (partner of Toyota) are only *superficially* sophisticated in spite of their huge and capital-intensive operations. More specifically, they do not enjoy much autonomy as their inputs, factory design, and manufacturing workflow are ultimately under the supervision of their Japanese partners. These Southeast Asian firms also reap most of their revenue from their protected domestic markets, with minimal incentive to export their final products. Their lack of exports indirectly curtails the urgency to develop their own internal capabilities (such as striving for higher product standards in more advanced markets).

Yoshihara and his colleagues (e.g. Suehiro (2008)) were chiefly interested in the catching-up industrialization strategies and the learning process of the latecomer economies and their work has substantial overlap with the literature theorizing the “developmental state”, which also emerged during the same era (i.e. the 1980s). The term “developmental state” was first coined by Chalmers Johnson (1982) in his study on the Japanese post-World War Two economic miracle before it was applied to various fast-growing economies. Like [Yoshihara \(1988\)](#), developmental state scholars are predominantly interested in exploring the “formula” undergirding the rapid growth of the fast-growing economies of Asia, especially the first-tier NIEs (i.e. Korea, Taiwan, Singapore, and Hong Kong). Other fast-growing economies such as the second-tier NIEs (e.g. the ASEAN-3 and China) are covered at a comparatively later stage as they only attained higher growth rates some years after the success of the first-tier NIEs (see Amsden, 2003; [Bekana, 2014](#); [Doner et al., 2005](#); [Routley, 2014](#); [Shin, 2005](#); [Wade, 2003](#)). Given the diversity of the countries studied, developmental state scholars differ in the precise concept of a developmental state and the conditions which allow such an entity to emerge ([Routley, 2014](#)). Nevertheless, there is a general agreement that economic development is a paramount concern for the developmental state and its elites cultivate pro-growth state-society relations and deploy the relevant bureaucratic measures to achieve such a goal (see Hsieh, 2011; Ohno & Ohno, 2012). One of the most important bureaucratic tools

available to the developmental states is the deployment of a set of *industrial policy* to promote technological growth and economic progress. In his survey of the Southeast Asian economies (especially the ASEAN-3), Ohno (2009) argues that the lack of a concerted industrial policy to promote indigenous technological upgrading in manufacturing activities has been one of the most critical factors contributing to their backwardness in technology-intensive economic activities. The most important ingredients of a successful industrial policy are instead found in the miracle economies of the first-tier NIEs. According to Ohno (2009), the core components of a successful industrial policy are centred on the manufacturing sector. More specifically, selected domestic firms must be encouraged to undertake manufacturing activities, especially those in high-technology industries, with the support of the state (e.g. the disbursement of subsidized inputs and a protected domestic market relatively free from the presence of foreign MNCs). In addition, state support must be conditioned upon export performance ([Wong & Cheong, 2014](#)). Export discipline refers to a policy of continually testing and benchmarking domestic manufacturers that are given subsidies and protection by forcing them to export a significant portion of their end products, with the ultimate aim of toughening them up to face global competition. The capacity to export is a reliable barometer of a manufacturing firm's technological progress as it informs government bureaucrats whether the firms which they have nurtured are approaching global standards, or whether they have squandered the support provided by the state. Furthermore, the first-tier NIEs culled those firms which do not meet their expectations. This usually involves the withdrawal of support to the underperformers ([Amsden, 2003](#); [Shin, 2005](#); [Wade, 2003](#)). In some cases, the underperformers are forced to merge with more successful business rivals. Through this "carrot and stick" approach, the first-tier NIEs groomed some of the most technologically advanced firms (e.g. Korea's Hyundai and Taiwan's Acer), which subsequently became renowned MNCs. More recently, China has implemented a similar set of industrial policy in some selected industries such as automobile and telecommunication. Although it might appear premature to declare China's success in these fields, the emergence and rise of Huawei and ZTE – China's telecommunication giants that grew rapidly under a growth model that is similar to post-World War Two Korea and Taiwan – can only strengthen the appeal of such a policy, at least within the context of the telecommunication industry ([Fan, 2011](#)).

To bridge their manufacturing weakness, the ASEAN-3 resorted to a “quick fix”. Instead of marshalling resources to promote industrial policy in targeted manufacturing industries, they invited foreign MNCs to invest in their economies. Relying on their relatively low wage level and pro-business environment, a significant portion of the FDI was directed towards processing operations within relatively advanced manufacturing sectors. Beginning in the 1970s, Malaysia is the first ASEAN-3 country to promote this FDI-lead development. This openness towards FDI kick-started Malaysia’s electronics sector. At that time, Singapore was the only Southeast Asian country to recognize the growth potential of the electronics sector. This first-mover advantage has helped Malaysia gain a foothold in the telecommunication goods industry as it enjoys a substantial overlap of human capital with the broader electronics sector. In particular, Malaysia’s northern state of Penang has established itself as a vibrant and export-oriented hub for telecommunication MNCs (see Best, 2007; Lim, 2014; [Wong & Cheong, 2014](#)). However, Malaysia has failed to take advantage of its first-mover advantage, especially since the turn of the century. It has failed to move up the value chain – not only losing the low wage advantage to other emerging economies with even lower wage, but also struggling to justify a higher wage for employees as Malaysian firms struggle to evolve beyond the point where they possess the competence to develop and market new technology ([Menon, 2014](#); [Rasiah, 2012](#)). This situation has driven some of the existing MNCs to downsize and/or relocate their existing operations in Malaysia to lower wage destinations. Henderson and Phillips (2007) assert that Malaysia’s situation could deteriorate should it fail to upgrade its human capital (e.g. through increasing the supply of engineers and technicians) rapidly enough. In addition, Rasiah (2012) argues that Malaysia needs a more robust industrial policy to marshal resources for its manufacturing sector, particularly to wean off the country’s technological dependence on foreign MNCs (see also [Lim, 2015](#)). Compared to Malaysia, Indonesia and Thailand are even more reliant on FDI in the manufacturing sector. Indonesian and Thai bureaucrats, like their Malaysian counterparts, also place relatively little emphasis on implementing industrial policies to “push” domestic firms to climb the technological ladder. Such structural weakness was masked by the high growth rate of the 1980s and early 1990s, which in turn is driven predominantly by the influx of FDI. Despite early warnings by some economists (e.g. [Suehiro, 1989](#); [Yoshihara, 1988](#)), this weakness was only pinpointed more vividly in the immediate years following the AFC. According to [Tran \(2013a\)](#), this weakness is compounded by their meagre allocation of resources towards research and development (R&D) activities and the low share of tertiary

graduates in engineering, manufacturing, and construction. Unlike Korea (illustrated in this paper as a representative of the first-tier NIEs) which successfully developed a robust technological foundation in its run-up to high income status in the 1990s, the manner in which Indonesia and Thailand (and Malaysia, albeit to a smaller extent) consistently neglect these two important features of their economies have resulted in a low quality workforce in technological fields such as engineering and other natural sciences. Coupled with their already weak industrial policy, such a deficiency further hampers their ability to overcome their technological reliance on foreign MNCs. This point will be adumbrated in the following section, along with some comparison between Korea, the ASEAN-3, and Vietnam.

Notwithstanding the utility of the above body of scholarship, most of this work has covered only the first-tier NIEs as well as the second-tier NIEs (to a smaller extent). In other words, there is scant research on how other third-tier NIEs behind the pecking order (such as Vietnam) assimilate the success story of the former developing countries which have modernized their economies, especially in the context of technological catch-up. This paper fills this intellectual lacuna by analysing Vietnam, the fastest-growing economy in Southeast Asia in the post-AFC era and one of the world's most progressive transition economies that avoided a socioeconomic collapse (which took place in various centrally planned economies in the years following the dissolution of the former Soviet Union). In so doing, this paper extends the finding of existing studies such as those of Wong and Cheong (2014) and Ohno (2009). It also actively compares the performance of Vietnam against the ASEAN-3 (core members of the second-tier NIEs) as well as Korea (a member of the first-tier NIEs) for such a comparison sheds light on Vietnam's gap between these two groups of countries. In addition, existing scholarship on the developmental state can occasionally focus too heavily on the national economy. This national economy-centric outlook, while useful, can unintentionally lead to the oversight of the complexity that exists within particular industries. This point is insightfully illustrated by Hsieh (2011) in her study on the divergent development pathway taken by the bicycle industries of Korea and Taiwan. To address this research gap, this paper focuses on Vietnam's telecommunication goods industry as it allows one to gain insights into the dynamics of a relatively medium- to high-technology industry. Much like the manufacture of other types of labour-intensive goods, latecomer economies like Vietnam can capture more high-technology (and high value-added) production if it can

shift its comparative advantage from the labour-intensive portions to more capital- and technology-intensive portions of the industry.

An Overview of Economic Development and Catching-Up in Vietnam

Vietnam is one of Southeast Asia's quintessential latecomer economies as it spent most of the post-World War Two decades fighting for independence, and only became unified in 1975. Shortly after reunification, it was embroiled in a resource-draining border conflict with both Cambodia and China. This does not mean that Vietnam is a weaker developmental state than its more sophisticated neighbours – it has achieved some degree of economic progress and there is also a noticeable increase in the living standard for a large proportion of its population since the 1986 *doi moi* reforms were instituted. The Vietnamese political elites have looked to the more successful first-tier NIEs (especially China and Korea) in crafting economic policies ([Ishida, 2013](#); [Masina, 2006](#)). In spite of some success in boosting agricultural productivity and in internalizing some low- to medium-technology industries such as apparel and motorcycle manufacturing (see [Fujita, 2013](#); [Thomsen, 2009](#)), it can be argued that these gains result more from Vietnam's capitalization of a series of sector-specific window of opportunities rather than the deployment of well-calibrated policy tools to facilitate technological upgrading. Reflecting the broader message of the previous section, [Ohno \(2009\)](#) asserts that Vietnam needs a more robust and better planned industrialization strategy to transform its economy. Otherwise, Vietnam might very well miss the structural transformation needed for a sustained growth rate, treading down the ASEAN-3's path of "technology-less" development.

Although Vietnam has not articulated an overarching industrial policy such as Korea's (especially in its late 1960s Heavy-Chemical Industry Drive), it is clear that much of its industrialization effort, especially in strategic sectors, is propelled by the state-owned enterprises (SOEs). This is in turn a legacy of Vietnam's socialist roots (see also [Chan & Wang, 2013](#)). Notwithstanding the underperformance of some of the SOEs and the state's efforts to reform them, [Sakata \(2013, p. 7\)](#) argues that the SOEs are still expected to play a leading role in building a "socialist-oriented market economy". Moreover, the ultimate aim of SOE reform is to concentrate the state's resources to enhance the capacity of large and capable SOEs to compete against other firms in the domestic and international market. The SOE reform is realized through the issuance of the Council of Ministers' Decree No. 388 in

1991, which indicated two main directions for SOE reform – dissolution and consolidation of small and underperforming SOEs, and the equitization of capable SOEs by converting them into joint stock companies ([Sakata, 2013](#)). In other words, Vietnam does have an industrial policy – albeit one that is rather loosely structured – and its key players are the SOEs. However, Vietnam’s industrial policy is not as well-designed as those of post-World War Two Korea and Taiwan. Therefore, Vietnam’s industrial policy has to be more targeted and there must also be a stronger political will to discipline the SOEs if Vietnam were to catch-up to its counterparts in the developed world (see also [Gainsborough, 2013](#); [Pincus, 2015](#)). Supporting this assertion is the somewhat disappointing performance of the SOEs. While some Vietnamese SOEs have indeed tightened their grip on modern technology and grown their businesses (to be illustrated in the subsequent paragraphs), many of them are still plagued by inefficiency and mismanagement (see [Lim, 2016](#); [Masina, 2006](#); [Painter, 2005](#); [Pincus, 2015](#)). More specifically, a lack of state supervision and poor corporate governance standard has opened up opportunities for the SOEs to invest in risky and speculative non-core projects such as real estate and finance, diverting resources away from their core activities. For example, the Vietnam Shipbuilding Industry Group (Vinashin), one of Vietnam’s largest SOEs, collapsed under a debt of US\$ 4.5 billion. According to World Bank (2011), key elements that led to the fall of Vinashin include weak corporate governance, a lack of effective oversight, limited accountability, and the excessive power of senior management to operate and expand the business (into non-core, speculative ventures) without clear accountability.

Notwithstanding the weaknesses surrounding its industrial policy, Vietnam has managed to generate economic growth rather effectively (see also [Beeson & Pham, 2012](#)). In a fashion similar to that of the more successful developmental states (essentially, the first-tier NIEs), Vietnam has performed relatively well in the realm of science and technological investment. Indeed, Vietnamese performance rivals and even betters the ASEAN-3 in certain aspects. To illustrate this point, Table 1 illustrates the R&D expenditure of the ASEAN-3, Vietnam, and Korea (a benchmark of the first-tier NIEs). It shows that Vietnam has allocated 0.2% of its GDP towards R&D expenditure in 2002 as well as 2011. In spite of a general lack of information on Vietnam’s budget for R&D activities, it must be mentioned that a R&D expenditure worth 0.2% of GDP, while modest, is close enough to match those of Thailand and Indonesia for a substantial portion of the period surveyed (from 1996 to 2014).

Nevertheless, Vietnam's annual R&D expenditure is far behind the amount spent by the Malaysians. More generally, one can observe that the gap separating Vietnam and the ASEAN-3 from Korea is even larger. Although it is unrealistic to expect Vietnam to spend as much as or even more than the more sophisticated ASEAN-3 in the short run, it must be emphasized that the same indicator for Korea in the early 1980s (the start of its high growth era) had already reached 1% and continued to rise in the subsequent years (see Tran, 2013a). Therefore, despite its rather favourable position relative to the ASEAN-3, Vietnam still needs to increase spending on its R&D efforts in the near to medium term. In other words, Vietnam's short term goal must be surpassing the ASEAN-3, but its medium and long term goal should be emulating the Koreans.

Table 1: Research and Development Expenditure (% of Gross Domestic Product) (1996–2014)

Year/Country	Indonesia	Malaysia	Thailand	Vietnam	Korea
1996	-	0.2	0.1	-	2.4
1997	-	-	0.1	-	2.5
1998	-	0.4	-	-	2.3
1999	-	-	0.3	-	2.3
2000	0.1	0.5	0.3	-	2.3
2001	0.1	-	0.3	-	2.5
2002	-	0.7	0.2	0.2	2.4
2003	-	-	0.3	-	2.5
2004	-	0.6	0.3	-	2.7
2005	-	-	0.2	-	2.8
2006	-	0.6	0.2	-	3.0
2007	-	-	0.2	-	3.2
2008	-	0.8	-	-	3.4
2009	0.1	1.0	0.3	-	3.6
2010	-	1.1	-	-	3.7
2011	-	1.1	-	0.2	4.0
2012	-	1.1	-	-	4.0
2013	0.1	-	-	-	4.2
2014	-	-	-	-	-

Source: United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and World Bank database.

In terms of education, Beresford (2004) argues that Vietnam's socialist orientation has encouraged the state to invest heavily into the public services e.g. schooling. This in turn provides the country with a reasonably well-educated workforce, at least up to the secondary school level, to compete with its richer ASEAN-3 rivals. Echoing Beresford's (2004) thesis,

Table 2 illustrates that Vietnam has a larger percentage of tertiary education students enrolled in the engineering, manufacturing, and construction programmes compared to the ASEAN-3. Despite a lower level of income and industrialization, Vietnam has clearly outperformed its Indonesian and Thai rivals. Its share of tertiary graduates in engineering and related programmes has even exceeded that of Malaysia (the most sophisticated economy within the ASEAN-3) since 2011. However, Vietnam's success pales in comparison to that of Korea, which has 34.8% of its graduates enrolled in engineering and related programmes in 2000. Although this proportion has since decreased, it must be noted that Korea's percentage of tertiary graduates in engineering and related programmes was consistently above the 30%-threshold during its high growth era of the 1980s and early 1990s (see also Tran, 2013a). Table 2 also shows that the Korean emphasis in tertiary education on engineering and related programmes was evident right up until the middle of the 2000s when the proportion of Korean graduates enrolled in such programmes began to dip below the 30%-threshold.

Table 2: Percentage of Students in Tertiary Education Enrolled in Engineering, Manufacturing, and Construction Programmes (%) (2000–14)

Year/Country	Indonesia	Malaysia	Thailand	Vietnam	Korea
2000	-	-	-	18.1	34.8
2001	-	-	-	-	34.5
2002	-	23.8	-	19.7	32.3
2003	-	-	-	19.8	30.8
2004	-	21.4	-	-	31.7
2005	-	18.4	-	-	30.3
2006	-	22.0	-	-	28.9
2007	-	24.2	-	23.5	27.8
2008	-	23.4	-	20.1	27.1
2009	-	23.8	-	20.3	26.6
2010	-	23.0	-	21.0	26.3
2011	16.1	23.0	9.9	23.9	26.7
2012	-	21.9	-	23.6	26.7
2013	8.7	21.1	-	24.1	26.8
2014	8.7	22.3	8.5	-	-

Source: United Nations Educational, Scientific and Cultural Organization (UNESCO) database.

At least relative to the ASEAN-3, Vietnam boasts a somewhat functional industrial policy (centred on its SOEs) and a competitive overall science and technological foundation (represented in this paper by acceptable levels of resource allocation towards R&D activities

and tertiary graduates enrolled in engineering, manufacturing, and construction programmes). Both assets have in turn cultivated some genuinely competitive SOEs in the telecommunication industry such as Viettel, and to a smaller extent the Vietnam Posts and Telecommunications Group (VNPT) (see Pham, 2011; Pincus, 2015). Ngo's (2013) research focuses on the development of the Vietnamese telecommunication industry in the post-*doi moi* era. Analysing the political economy and industry structure of Vietnam's telecommunication industry, she argues that Viettel's success can be explained by government protection, effective rent management, and credible threats of foreign competition. In return for government protection such as subsidized inputs and a protected domestic market, Vietnamese SOEs such as Viettel are required to upgrade Vietnam's (previously) backward telecommunication infrastructure. In terms of capability building and technological upgrading, the state has effectively disciplined these SOEs to concentrate on learning and technological upgrading, enhancing their overall competitiveness. The state also demonstrated a strong political will to "punish" underperforming SOEs when it broke VNPT's monopoly in 1995 by introducing more competition in the industry. One of the firms which received an operating license is Viettel, a latecomer SOE that has subsequently outshone the initially better-endowed VNPT (see [Ngo, 2013](#)). More importantly, Viettel is expanding into the highly competitive (and lucrative) telecommunication goods industry. Rather than operating solely as a telecommunication service provider with minimal manufacturing expertise (seen in the behaviour of Malaysia's Axiata and Indonesia's Telkom Indonesia), it has entered the global "race" to build telecommunication goods. Competing with technologically sophisticated MNCs such as Nokia, Samsung, and Huawei, it appears that Vietnam might eventually groom an internationally competitive telecommunication goods "national champion" that is prolific in providing services as well as manufacturing related goods. Lee and Gereffi (2013) label Vietnam a "rising star" economy in the export of mobile phones (a subcategory of telecommunication goods), arguing that Vietnam has captured the market share of its higher wage competitors such as Brazil and Malaysia. While Vietnam's exports remain much smaller in size compared with those of the leading exporters, Vietnam is likely to emerge as a major exporter in the next five to ten years, if it can maintain export growth.

However, a large proportion of Vietnam's exports in telecommunication goods are orchestrated by foreign MNCs which have invested in the country. This is particularly so

after the relocation of their former or existing operations from the neighbouring coastal regions of China to Vietnam, in response to the Chinese labourers' increase in wage demands (Lee & Gereffi, 2013). Recognizing the country's weak position in this industry, Viettel has established its own R&D institute to develop and produce software and components for its mobile phones and other telecommunication devices. On top of catering to Vietnam's relatively large domestic market (of 90 million people), Viettel cross-sells its telecommunication goods in the overseas markets which it has penetrated. Furthermore, a cluster of smaller telecommunication goods and service provider has emerged, capitalizing on the success of the Vietnamese telecommunication SOEs such as Viettel and VNPT (to a smaller extent). Working closely with the SOEs, many of these smaller firms are exposed to the "learning curve" as they supply goods and services to the SOEs. One of these firms is Bkav Corporation, a technology firm which specializes in the provision of network security, software, and telecommunication devices. In 2015, Bkav launched its own brand name smartphone, the BPhone. The BPhone is particularly notable because it is powered by its own operating system (Do, 2015; VietNamNet, 2015). In addition, Bkav engineers designed the outlook of the device, and integrated some of Bkav's existing technologies and applications into the smartphone. Following the lead of Viettel, Bkav is not only targeting Vietnam's domestic market, but also those abroad.

In summary, the emergence of Vietnamese telecommunication SOEs highlights the importance of a robust industrial policy as well as a firm science and technological foundation. Echoing the thesis of the developmental state scholars, Vietnam's contemporary success in the telecommunication goods industry has some resemblance with the first-tier NIEs. Like the first-tier NIEs, the Vietnamese have strategically encouraged their SOEs to undertake manufacturing activities in the telecommunication goods industry through the disbursement of state support. There is also some element of export discipline as the Vietnamese state has displayed a willingness to discipline underperforming SOEs. Nevertheless, it is difficult to evaluate Vietnam's telecommunication goods industry without evaluating its trade competitiveness in the international arena. The following section explores this issue in greater depth.

Analytical Framework

This section describes the research methodology in the analysis of Vietnam's telecommunication goods industry.¹ While the above section has provided a backdrop regarding Vietnam's industrialization process and its emerging capability in the telecommunication industry, it is even more important to analyse the industry's international trade competitiveness. This paper utilizes the international competitiveness index (ICI), pioneered by [Tran \(2013a, 2013b\)](#) in the analysis of major Southeast Asian economies. The ICI is a robust framework which incorporates a country's dynamic comparative advantage, providing insights on the trade performances of particular economic sectors.

The ICI (*i*) is defined as:

$$i = (X-M)/(X+M)$$

where *X* and *M* stand for the export and import values, respectively, of a product.

According to [Tran \(2013a, 2013b\)](#), the development process of an industry can be examined by tracing the changes in its ICI. The typical trend of the index is illustrated in Figure 1. In the early stage of development, there are almost no exports, and the domestic market is supplied mainly by imports. In this scenario, the index will equate to minus one. As the industry matures and substitutes its imports, the index approaches zero, where there are no more imports, but exports have not started yet. If the international competitiveness of the industry is further strengthened, exports would continue to expand and the index would approach one when there are almost no imports. For an industry with deep intra-industry trade, the index is usually very close to the zero line.

Figure 1 also shows a successive catching-up process of industries that have different factor intensities (the newer industries tend to be more capital- and/or technology-intensive as well as utilize more skilled labour). The sustained growth of a country is realized if it can successfully shift its comparative advantage from a mature industry (Industry 1) to a newer industry that is more capital-, technology-, and/or skill-intensive (Industry 2), and then prepare the conditions to move to a newer industry (Industry 3) that is even more capital-, technology-, and/or skill-intensive than the previous industry (Industry 2). A country can fail to sustain this industry switching process, for instance, when Industry 2 loses its comparative advantage at a point earlier than anticipated (shown by the dotted line in Figure 1). This

situation can happen when it is overtaken by a more aggressive latecomer economy or when there are other drastic changes in the international market. As a result, the country is incapable of sustaining growth through the generation of new comparative advantage over time (represented by Industry 3).

Figure 1: Pattern of International Competitiveness of a Sustained Economy

Note: ICI = International Competitiveness Index.

Source: Tran (2013a, 2013b).

In Tran (2013a), the competitiveness of the ASEAN-3 was analysed according to the skill-intensity of their manufactured goods. For both low skill- and high skill-intensive goods, it was discovered that all three economies were either stagnating or losing their competitiveness altogether. Indonesia's situation is the most serious as the ICI of both types of goods have declined sharply since 2006. It risks becoming a net importer of low skill- and high skill-intensive goods should this trend continues, a scenario Yoshihara (1988) had predicted more than twenty years ago. In another study, Tran (2013b) conducted an ICI analysis with reference to the bilateral trade patterns between China and Vietnam. It was discovered that the Vietnamese cannot compete against Chinese goods in low, medium, and

high skill-intensive goods. This situation, if left unattended, could negatively impact Vietnam's industrialization strategy.

Notwithstanding the insights generated by the above studies, it must be noted that such analysis has taken place at an aggregate level (i.e. low, medium, and high skill-intensive goods). In other words, the analysis is not focused on any specific types of goods within the three categories according to their skill-intensity. To contribute to this knowledge gap, this paper aims to deepen the ICI analysis of Vietnam vis-à-vis the ASEAN-3, examining only goods from their telecommunication industry. It is believed that a more in-depth study of the telecommunication goods will shed more light on Vietnam's competitiveness in this industry. Similar to Intarakumnerd and Fujita (2008) who analysed the motorcycle industry of Thailand and Vietnam, a more detailed examination on the types of goods will provide scholars with a clearer understanding of Vietnam's international competitiveness vis-à-vis that of the ASEAN-3. The comparative approach undertaken is also useful for it illustrates the progress of Vietnam in the telecommunication goods industry vis-à-vis the economically more mature ASEAN-3. To supplement the ICI framework and to provide a more complete picture, the paper also extracts information gathered from technical reports covering the telecommunication industry, official statements published by the relevant ministries of Vietnam, company websites (if available), and Vietnamese as well as international business newspapers. The use of such secondary sources is crucial to make sense of the relatively obscure activities of Vietnamese firms, especially the SOEs.

Results and Discussion

Figure 2 shows the ICI of the telecommunication goods industries of Indonesia, Malaysia, Thailand, and Vietnam. From 2000 to 2014, Malaysia has recorded a trade surplus, unlike the other countries in Figure 2. This trade surplus has been achieved with the telecommunication goods industry occupying a relatively large share in the country's total merchandise trade (see Figure 3). Overall, Malaysia is the clear regional leader over Indonesia, Thailand, and Vietnam within the telecommunication goods industry. Notwithstanding a positive ICI from 2000 to 2007, Indonesia has failed to take advantage of its early lead in the telecommunication goods industry. Since 2007, Indonesia has been languishing as a net importer with a drastic and prolonged drop in its ICI. More worryingly for Indonesia, its ICI has also shown very little signs of improvement since that period.

Meanwhile, Thailand's ICI of the telecommunication goods industry has stagnated at a level close to the zero-mark, barring an early and brief period (2003 and 2004) in which it became a net exporter. Like Malaysia, Thailand's telecommunication goods industry also occupies a relatively large share in the country's total merchandise trade (see Figure 3). For Vietnam, it has experienced a rapid improvement in its ICI since 2008. This improvement has taken place after a relatively long period of poor ICI performance.

The ICI of these countries must be viewed vis-à-vis the contribution of the telecommunication goods industry towards their total merchandise trade (see Figure 3). It can be seen that Malaysia's percentage of merchandise trade of telecommunication goods has slipped from a peak of 44% (in 2000) to a low of 30% (in 2014). Nevertheless, Malaysia's percentage of merchandise trade of telecommunication goods is still above those of its other Southeast Asian rivals. Thailand's telecommunication goods industry has also tracked the movement of its Malaysian counterpart, evidenced by a net 8% decline (from 26% in 2000 to 18% in 2014) in the telecommunication goods industry's share of total merchandise trade. Indonesia's telecommunication goods industry, despite a good ICI score from 2000 to 2007, has remained relatively small – recording an average share of only 9% of total merchandise trade from 2000 to 2014. This suggests that the telecommunication goods industry is not a priority for Indonesian economic policymakers. Lastly, Vietnam's percentage of merchandise trade of telecommunication goods has spiked, and consistently breached the 10%-threshold of total merchandise trade since 2008. Prior to 2008, Vietnam's percentage of merchandise trade of telecommunication goods has remained low.

Figure 2: International Competitiveness Index of the Telecommunication Goods Industries of Indonesia, Malaysia, Thailand, and Vietnam (2000–14)

Source: Calculated from United Nations Commodity Trade (UN Comtrade) online database (HS codes 85, 90 and 91).

Figure 3: Percentage of Merchandise Trade of the Telecommunication Goods Industries of Indonesia, Malaysia, Thailand, and Vietnam (%) (2000–14)

Source: Calculated from UN Comtrade online database (HS codes 85, 90 and 91).

Overall, Malaysia is the most competitive telecommunication goods manufacturer as it has, barring an early Indonesian lead, consistently attained a higher ICI than the rest of the countries in Figure 2. However, Malaysia has failed to capitalize on its first-mover advantage. In Figure 2, one can see that Malaysia has failed to lift its ICI above the 0.2-mark between 2000 and 2014. Although Malaysia has maintained its lead over the other major Southeast Asian economies, there is still a danger of losing this lead if there is no concerted attempt to upgrade its human capital (through increasing R&D activities and enlarging the share of tertiary graduates in engineering, manufacturing, and construction programmes) rapidly enough, a point raised by Henderson and Phillips (2007). One of such warning signs can be seen in the decreasing contribution of the telecommunication goods industry in the country's total merchandise trade (see Figure 3). Apart from upgrading its human capital, Malaysia also needs a more robust industrial policy to address this issue. The previous policy of attracting FDI is no longer effective as Malaysia has lost its initial low wage advantage to other emerging economies with even lower wage. A more practical solution involves helping firms

move up the value chain by developing and marketing more complex (and more profitable) products. This observation echoes the research of Rasiah (2012) and Lim (2015).

Meanwhile, both Indonesia and Thailand have recorded an overall negative ICI in their telecommunication goods industries. Their positive performances in the early years have proven to be unsustainable (see Figures 2 and 3). These two countries are far behind the pecking order in this regional “race”. They have lost out to not only Malaysia (a first-mover within the Southeast Asian telecommunication goods industry), but also Vietnam (a latecomer in the regional telecommunication goods industry). This finding strengthens Yoshihara’s (1988) and Tran’s (2013a) research – both Indonesia and Thailand possess a weak science and technological base. Among other factors, this weakness is in turn caused by a meagre allocation of resources towards R&D activities and the low share of tertiary graduates in technological fields. Although Malaysia also suffers from a similar problem, the magnitude of the problem confronting Indonesia and Thailand is much more severe. In addition, Indonesia and Thailand lack an overarching industrial policy to “push” its firms to climb the technological ladder and to capture more value from the telecommunication goods industry.

Lastly, one observes that Vietnam has greatly increased its competitiveness over the period studied, particularly from 2008 to 2014. In spite of its latecomer status, it is clear that Vietnam’s telecommunication goods industry has made great strides both in the ICI as well as in the contribution towards total merchandise trade. Part of this increase is due to MNCs relocating from the neighbouring coastal regions of China to Vietnam, a point raised by [Lee and Gereffi \(2013\)](#). Another factor undergirding Vietnam’s improving ICI is the decision by the Vietnamese telecommunication SOEs (especially Viettel and VNPT) and their cohort of domestic contractors (e.g. Bkav) to expand into the manufacturing of telecommunication goods. Some of the more noteworthy technological advancement is Viettel’s 2010 introduction of the first Vietnamese-made universal serial bus (USB) dongle to promote service in 3G technology. In 2012, Viettel deepened its technological expertise by rolling out the V8403, the first smartphone designed and produced by the SOE. Prior to this, Viettel’s mobile phones have been predominantly manufactured by China’s Huawei but rebadged and sold under Viettel’s brand name (VietNamNet, 2013). Producing affordable models with relatively high quality specifications, Viettel has managed to capture market share amongst budget-conscious users, especially in the rural areas of Vietnam. As there is an inherent limit

to the size of the budget-conscious consumer market, Viettel has to find alternative buyers outside of its domestic market. To this end, a large proportion of its phones are exported to the nine foreign markets – Laos, Cambodia, Haiti, Mozambique, East Timor, Cameroon, Peru, Burundi, and Tanzania – in which it has an active presence (Tan, 2016). Viettel’s ability in climbing the technological ladder has trail blazed a path for its main domestic rivals e.g. VNPT to also establish their R&D centres and manufacturing operations (VNPT Technology, 2015). Indeed, there is a growing realisation that the activities of these SOEs are helping to stimulate high-technology clusters in and around Hanoi, Vietnam’s capital. Some of these clusters have also been earmarked as good investment destinations by foreign MNCs – the Bac Ninh and Thai Nguyen provinces are well-regarded by Korea’s Samsung and it has since established one manufacturing plant apiece in both provinces (Cho, 2015). This finding reinforces Ngo’s (2013) thesis about the positive impact of Vietnamese industrial policy targeting the telecommunication industry. It also implies that the telecommunication industry has produced some internationally competitive SOEs despite the generally mediocre performance of Vietnamese SOEs across most economic sectors. It underlines the research of Pham (2011) and Pincus (2015), highlighting the need to identify the successful SOEs from the less successful ones. This finding is especially important as it might be worthwhile to unpack the critical factors contributing to the former’s success, and apply them on the weaker SOEs. More broadly, Vietnam’s success in grooming a cohort of capable telecommunication SOEs suggests that the essence of the developmental state (i.e. state-led growth and the deployment of relevant bureaucratic measures) remains valid, a point shared by Routley (2014). Furthermore, this finding dispels the “conventional wisdom” that globalization has curtailed the autonomy of states (especially small ones) in managing the economy, illustrating instead the centrality of the state. It remains a crucial player not only in formulating strategic priorities (such as industrial policy), but also in creating a proper institutional setting (such as science and technological ecosystem) to nurture growth.

Nevertheless, it might be premature to term Vietnam a success story as its ICI has crossed the zero-mark only in 2013 and 2014. Considerable effort has to be undertaken to consolidate and deepen this achievement. Learning from the experience of the ASEAN-3, Vietnam should devote resources to strengthen its overall science and technological base. It would do well by avoiding the reluctance of the ASEAN-3 to invest in R&D activities, and cultivate a larger share of tertiary graduates in engineering and other technological fields.

Fortunately for Vietnam, its educational attainment compares very favourably to that of the ASEAN-3. Therefore, Vietnam does not need to drastically revamp its existing educational establishment (see Beresford, 2004). Nevertheless, Vietnam's short term goal should be focused on surpassing the ASEAN-3, but its medium and long term goal should be emulating the Koreans. In addition, the country needs a more robust industrial policy to reinforce its strength in the telecommunication goods industry, a key takeaway from the developmental state literature. Because of its socialist roots and the pre-eminence of the SOEs, it is only pragmatic for Vietnam to plan such an industrial policy around the SOEs. A feasible policy prescription is to expedite the technological learning of the Vietnamese telecommunication SOEs and their cohort of domestic contractors by encouraging them to export their products in a more vigorous manner, thereby forcing them to compete directly against products from other MNCs. Using Viettel as an example, it garners a large proportion of revenue from its overseas operations (of which the export of manufactured products is a significant contributor). As of 2015, 13% of Viettel's total revenue (US\$ 11 billion) is derived from its overseas markets and its senior management is earmarking a larger increase in overseas revenue as the firm bolsters its presence outside of Vietnam (Nhan Dan, 2016). To more effectively stimulate Viettel in increasing its revenue from foreign markets, the state could and should provide it with performance-based incentives (e.g. tax breaks on components used for the research, design, and production of manufactured goods) and other support schemes (e.g. allocating more university seats for the training of scientists and engineers). If the targeted overseas revenue is attained, then Viettel can continue to receive such support. However, this support must be curtailed (or at least, reconsidered) should Viettel fail to reach the target. To provide credible threat to Viettel and to ensure a level playing field, the state should also provide a comparable incentive package to the other telecommunication SOEs. Further down the pecking order are the smaller (but not less important) contractors such as Bkav – they too need an export-oriented support scheme to stimulate industrial upgrading and technological learning. Reinforcing the arguments of Ohno (2009) and Wong and Cheong (2014), one of the prime factors undergirding the manufacturing success of the first-tier NIEs in high-technology industries is the way in which their governments encouraged them to climb the technological ladder by tying state support to their export performances. This “carrot and stick” approach generates healthy pressure, stimulating entrepreneurship rather than producing wasteful outcomes. At least within the telecommunication goods industry, Vietnam need not “start from scratch” as it has inherited a group of internationally

competitive SOEs (as well as their smaller goods and service providers). In addition, the emergence of China's Huawei and ZTE as telecommunication MNCs in their own right – both firms grew rapidly under a growth model that is similar to post-World War Two Korea and Taiwan – further strengthens the appeal of such a policy.

Conclusion

This paper has argued that Vietnam has overcome its initial technological backwardness in the telecommunication goods industry. Vietnam has leapfrogged Indonesia and Thailand in the regional telecommunication goods “race”, but is still behind Malaysia. However, Vietnam's continued ability to climb the technological ladder depends on the efficacy of its industrial policy as well as the vitality of its overall science and technological base.

The paper has also illustrated the “technology-less” development which has long plagued Indonesia, Malaysia, and Thailand, all of which are more advanced economically than Vietnam. Within the context of this paper, this weakness is reflected in their inability to raise their international competitiveness in the telecommunication goods industry. While Malaysia has outperformed Indonesia, Thailand, and Vietnam largely because of its first-mover advantage, it is incapable of extending its lead. Like Indonesia and Thailand, Malaysia's overall science and technological base remains weak (albeit stronger than those of Indonesia and Thailand). This weakness is in turn caused by a meagre allocation of resources towards R&D activities and the low share of tertiary graduates in technological fields. These three countries also lack an overarching industrial policy to “push” their firms to climb the technological ladder and to capture more value from the telecommunication goods industry.

What then are the policy implications of this paper? To buck the trend of the “technology-less” development of its Southeast Asian rival economies, Vietnam needs to strengthen its overall science and technological base. It should invest in R&D activities, and cultivate a larger share of tertiary graduates in engineering and other technological fields. In addition, Vietnam should implement a more robust industrial policy to fully capitalize its current advantage in the telecommunication goods industry. It can “push” its cohort of telecommunication SOEs and their domestic contractors to climb the technological ladder by tying official support to their export performances, especially in manufacturing activities. Such a policy has helped the first-tier NIEs such as Korea to move up the value chain in

various high-technology industries. More recently, it has also brought about a reasonable degree of success in China, another latecomer economy which has mimicked the growth strategy of the first-tier NIEs.

More generally, Vietnamese success in overcoming its initial primitiveness reflects the utility of the developmental state thesis, even in the era of accelerated globalization in which states are commonly advised to not intervene in the market economy. Vietnam's active deployment of its SOEs and cultivation of its science and technological ecosystem has directly contradicted such "conventional wisdom". Furthermore, one can even stress that, partly because of its socialist roots, Vietnam has devoted considerable resources into the public domain, represented most vividly in this paper by the SOEs as well as the educational and R&D establishment. For the other developing countries aspiring to catch-up to the rest of the industrialized world, this paper has highlighted the need to design their own country- and industry-specific development strategy, which is compatible with their particular socioeconomic conditions, while learning from the experience of countries such as Vietnam (and the rest of the developmental states).

Notes

1. As the provision of telecommunication service across national borders is difficult to quantify on an annual basis, this paper would focus only on the provision of telecommunication goods.

References

- Amsden, A. (2003). *The rise of "the rest": Challenges to the West from late-industrializing economies*. Oxford: Oxford University Press.
- Beeson, M., & Pham, H. H. (2012). Developmentalism with Vietnamese characteristics: The persistence of state-led development in East Asia. *Journal of Contemporary Asia*, 42(4), 539-559.
- Bekana, D. M. (2014). Which is the elixir as a development policy: Washington consensus liberalization or the restrictive Beijing model? An analytical review. *Journal of Comparative Asian Development*, 13(1), 131-173.
- Beresford, M. (2004). Lessons from the Asian crisis for the sustainability of Vietnamese economic development. In M. Beresford & A. N. Tran (Eds.), *Reaching for the dream: Challenges of sustainable development in Vietnam* (pp. 51-94). Copenhagen: Nordic Institute of Asian Studies.
- Best, M. (2007). Cluster dynamics in Malaysian electronics. In K. S. Jomo (Ed.), *Malaysian industrial policy* (pp. 249-276). Singapore: NUS Press.
- Chan, R., & Wang, Y. (2013). The quest for legitimacy in a transitional economy: A comparison of private hospitals in China and Vietnam. *Journal of Comparative Asian Development*, 12(1), 60-83.
- Cho, J. -Y. (2015, January 28). Samsung made in Vietnam: 50% of Samsung mobile phones made in Vietnam. Retrieved from <http://www.businesskorea.co.kr/english/news/industry/8785-samsung-made-vietnam-50-samsung-mobile-phones-made-vietnam>
- Do, A. -M. (2015, May 26). Here's Vietnam's first homegrown smartphone. Retrieved from <https://www.techinasia.com/vietnams-homegrown-smartphone/>
- Doner, R. F., Ritchie, B. K., & Slater, D. (2005). Systemic vulnerability and the origins of developmental states: Northeast and Southeast Asia in comparative perspective. *International Organization*, 59(2), 327-361.
- Fan, P. (2011). Innovation, globalization, and catch-up of latecomers: Cases of Chinese telecom firms. *Environment and Planning A*, 43(4), 830-849.
- Fujita, M. (2013). *Exploiting linkages for building technological capabilities: Vietnam's motorcycle component suppliers under Japanese and Chinese influence*. Tokyo: Springer.
- Gainsborough, M. (2013). *Vietnam: Rethinking the state*. London: Zed Books.
- Henderson, J., & Phillips, R. (2007). Unintended consequences: Social policy, state institutions and the 'stalling' of the Malaysian industrialization project. *Economy and Society*, 36(1), 78-102.
- Hsieh, M. (2011). Similar opportunities, different responses: Explaining the divergent patterns of development between Taiwan and South Korea. *International Sociology*, 26(3), 364-391.

- Intarakumnerd, P., & Fujita, M. (2008). Coping with a giant: Challenges and opportunities for Thai and Vietnamese motorcycle industry from China. *Science, Technology & Society*, 13(1), 35-60.
- Ishida, A. (2013). State enterprise groups in Vietnam following accession to the WTO. In S. Sakata (Ed.), *Vietnam's economic entities in transition* (pp. 23-58). New York: Palgrave Macmillan.
- Johnson, C. (1982). *MITI and the Japanese miracle: The growth of industrial policy, 1925-1975*. California: Stanford University Press.
- Jomo, K. S. (Ed.). (2004). *After the storm: Crisis, recovery and sustaining development in four Asian economies*. Singapore: NUS Press.
- Lee, J., & Gereffi, G. (2013). *The co-evolution of concentration in mobile phone global value chains and its impact on social upgrading in developing countries*. Capturing the Gains. Manchester.
- Lim, G. (2014). The internationalisation of mainland Chinese firms into Malaysia: From obligated embeddedness to active embeddedness. *Journal of Current Southeast Asian Affairs*, 33(2), 59-90.
- Lim, G. (2015). China's investments in Malaysia: Choosing the "right" partners. *International Journal of China Studies*, 6(1), 1-30.
- Lim, G. (2016). Firm entry modes and Chinese business networks: Malaysian investments in Vietnam. *Singapore Journal of Tropical Geography*, 37(2), 176-194.
- Masina, P. (2006). *Vietnam's development strategies*. New York: Routledge.
- Menon, J. (2014). Growth without private investment: What happened in Malaysia and can it be fixed? *Journal of the Asia Pacific Economy*, 19(2), 247-271.
- Ngo, N. T. H. (2013). *Technology adoption in rent seeking economies: The case of Vietnam* (Unpublished doctoral dissertation). University of London School of Oriental and African Studies, London.
- Nhan Dan. (2016, April 27). Viettel targets US\$1.5 billion revenue from eight foreign markets. Retrieved from [http://en.nhandan.com.vn/business/companies/item/4235602-viettel-targets-us\\$1-5-billion-revenue-from-eight-foreign-markets.html](http://en.nhandan.com.vn/business/companies/item/4235602-viettel-targets-us$1-5-billion-revenue-from-eight-foreign-markets.html)
- Ohno, I., & Ohno, K. (2012). Dynamic capacity development: What Africa can learn from industrial policy formulation in East Asia. In A. Norman, K. Botchway, H. Skin & J. Stiglitz (Eds.), *Good growth and governance in Africa: Rethinking development strategies* (pp. 221-245). Oxford: Oxford University Press.
- Ohno, K. (2009). The middle income trap: Implications for industrialization strategies in East Asia and Africa. Tokyo: GRIPS Development Forum.
- Painter, M. (2005). The politics of state sector reforms in Vietnam: Contested agendas and uncertain trajectories. *The Journal of Development Studies*, 41(2), 261-283.
- Pham, T. T. (2011). *A case study of international strategy on Viettel group* (Unpublished master's dissertation). National Taiwan University of Science and Technology, Taipei.
- Pincus, J. (2015). Why doesn't Vietnam grow faster? State fragmentation and the limits of vent for surplus growth. *Journal of Southeast Asian Economies*, 32(1), 26-51.
- Rasiah, R. (2012). Is Malaysia's electronics industry moving up the value chain? In H. Hill, S. Y. Tham & H. M. Z. Ragayah (Eds.), *Malaysia's development challenges: Graduating from the middle* (pp. 194-212). Oxford: Routledge.
- Routley, L. (2014). Developmental states in Africa? A review of ongoing debates and buzzwords. *Development Policy Review*, 32(2), 159-177.
- Sakata, S. (2013). Introduction: The changing status of economic entities in Vietnam. In S. Sakata (Ed.), *Vietnam's economic entities in transition* (pp. 1-22). New York: Palgrave Macmillan.

- Schaumburg-Müller, H., & Pham, H. C. (Eds.). (2010). *The new Asian dragon: Internationalization of firms in Vietnam*. Copenhagen: Copenhagen Business School Press.
- Shin, J. -S. (2005). Substituting and complementing models of economic development in East Asia. *Global Economic Review: Perspectives on East Asian Economies and Industries*, 34(1), 99-118.
- Straszheim, D. (2008). Is Vietnam the next China?, from http://www.forbes.com/2008/06/12/vietnam-china-inflation-oped-cx_dhs_0612viet.html
- Studwell, J. (2013). *How Asia works: Success and failure in the world's most dynamic region*. New York: Grove Press.
- Suehiro, A. (1989). *Capital accumulation in Thailand, 1855-1985*. Tokyo: Centre for East Asian Cultural Studies.
- Suehiro, A. (2008). *Catch-up industrialization: The trajectory and prospects of East Asian economies*. Singapore: NUS Press.
- Tan, Q. (2016, May 16). Vietnam's Viettel harbours global ambitions. Retrieved from <http://www.channelnewsasia.com/news/business/vietnam-s-viettel/2788562.html>
- Thomsen, L. (2009). Internal business organisation in the private garment industry in Vietnam: The roles of ethnicity, origin and location. *Competition & Change*, 13(1), 29-50.
- Tran, V. T. (2013a). The middle-income trap: Issues for members of the Association of Southeast Asian Nations. *ADB Working Paper Series*, 421, 1-31.
- Tran, V. T. (2013b). Vietnamese economy at the crossroads: New *doi moi* for sustained growth. *Asian Economic Policy Review*, 8(1), 122-143.
- VietNamNet. (2013, May 13). How Vietnamese brand smartphones made? Retrieved from <http://english.vietnamnet.vn/fms/science-it/73930/how-vietnamese-brand-smartphones-made-.html>
- VietNamNet. (2015, June 3). Is BPhone a product of Vietnam? Retrieved from <http://english.vietnamnet.vn/fms/science-it/132353/is-bphone-a-product-of-vietnam-.html>
- VNPT Technology. (2015, July 7). Overview. Retrieved from <http://vnpt-technology.vn/node/201?language=en>
- Wade, R. (2003). *Governing the market: Economic theory and the role of government in East Asian industrialization*. New Jersey: Princeton University Press.
- Wong, C.-Y., & Cheong, K.-C. (2014). Diffusion of catching-up industrialization strategies: The dynamics of East Asia's policy learning process. *Journal of Comparative Asian Development*, 13(3), 369-404.
- World Bank. (2011). *Vietnam development report 2012: Market economy for a middle-income Vietnam*. Hanoi.
- Yoshihara, K. (1988). *The rise of ersatz capitalism in South-East Asia*. New York: Oxford University Press.