Australian National University

Working Papers in
Trade and Development

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The Malaysian experience

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November 2017
Working Paper No. 2017/14

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Abstract: This paper examines prerequisites for a successful inter-state economic corridor development program in a country with a federal system of government through an in-depth study of the design, implementation and the developmental impact of the Northern Corridor Economic Region (NCER) in Malaysia that encompasses the states of Penang, Kedah, Perak and Perlis. The analysis suggests that the NCER has the potential to leverage on the core strengths of the state of Penang— global connectivity, mature business eco-system with a strong presence of multinational enterprises, and sizeable talent pool—in order to redress the widening inter-regional and urban-rural development divide. However, so far, the achievements have not matched the expectations primarily because of an inherent institutional limitation of the program: failure to constitute the Northern Corridor Implementation Authority (NCIA) with adequate power and operational flexibility to achieve the overarching goal of shared growth while ensuring compliance from all stakeholders.

Keywords: Economic corridor, Regional development, Malaysia

JEL codes: O18, O21, O53

Acknowledgements

The authors would like to thank Edmund Terence Gomez, Hal Hill, Jayant Menon, Rana Hasan, Yasuyuki Sawada and the three anonymous referees for constructive comments and suggestions, and Avinaash Narayanan for drawing the map of Malaysian economic corridors.

Forthcoming in *World Development*

Economic Corridors and Regional Development: The Malaysian Experience

1. INTRODUCTION

Economic corridors have gained popularity over the past three decades as a vehicle for sub-regional economic development, although the use of 'corridor' as a concept of spatial and urban planning has a long history, dating at least as far back as the 1880s (Premius and Zonneveld, 2003). This is on account of their potential for promoting equitable growth among regions across countries that share common borders, as well as among regions within countries with significant regional income disparities. The term 'economic corridor' has also been used by economic geographers to refer to economic connectivity between major metropolitan centres (Rimmer, 2014). However, the first appearance of this term in economics was in the Asian Development Bank (ADB)'s policy documents relating to the Greater Mekong Sub-Region (GMS) development program launched in 1992.

The GMS program involved development of three main cross-border economic corridors[1] among the GMS countries as part of a large infrastructure project designed to improve transport links to remote and landlocked locations in these countries (ADB, 2017; Brookings Institution, 2013). The ADB has taken initiatives to replicate the GMS example in a number of other ADB-member countries under the South Asia Sub-Regional Economic Cooperation (SASEC) Program and the Central Asia Regional Economic Cooperation (CAREC) Program. The ADB is also involved, together with Japan International Cooperation Agency (JICA) and the Department of International Development in UK, in a large economic corridor development project launched by the Indian Government in 2013 (Brookings Institution, 2013; Mithra et al., 2016). Economic corridor development in Asia gained added impetus from the China's initiative to set up the China–Pakistan Economic Corridor (CPEC) designed to link western China to the Arabian Sea though Pakistan as a cornerstone of its 'One Belt, One Road' initiative Under this project, China is set to invest more than $55 billion in energy projects and trade-related infrastructure development in Pakistan over a 5-10 year period through its Xinjian Production and Construction Corporation (Sial, 2014; Sender and Stacey, 2017).

Economic corridors (under the alternative title of 'Spatial Development Initiatives', SDIs) became a critical feature in the planning for reconstruction in post-apartheid of South Africa (Rogerson, 2001; Soberbaum and Taylor, 2001). The SDI program launched in 1998 aimed to redress the apartheid legacy of a racially dominated spatial economic structure.[2] More recently, the African Development Bank and other Africa-focused developmental organizations have been promoting economic corridors as a key pillar of their development programs (AfDB, 2016; Mulenga, 2013; Page, 2012). The Economic Commission for Africa (ECA) has formed an African Corridor Management Alliance with the aim of transforming regional transport corridors into economic corridors and the setting up of new economic corridors (ECA, 2017).

Notwithstanding this policy emphasis, a well-developed knowledge base relating to the development potential, and the preconditions for designing and implementing economic corridor programs, and assessing their impact is lacking. This paper contributes to the fledgling literature in the area. We outline an analytical framework for studying the development impact of economic corridors and then undertake an in-depth case study of the experience of Malaysia that has adopted economic corridor development as part of its national development strategy to redress regional economic disparities and the rural-urban divide. Of the five regional corridors that Malaysia has identified, we focus on the Northern Corridor Economic Region (NCER) which encompasses the four northern states of Peninsular Malaysia (Penang, Kedah, Perlis and Perak). It is at a more advanced stage of implementation and also fits within the general idea of an economic corridor development strategy. In addition to its contribution to the literature on the design and governance of economic corridors, this study of the experience of NCER is also relevant for informing the current policy debate on sub-regional development in Southeast Asia, since it is within the geographic confines of the Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT) (ADB, 2012, Napathorn & Kuruvilla, 2017).

The rest of the paper is organized as follows. Section 2 sets out an analytical framework dealing with the policy context and the key elements of an economic corridor. Section 3 provides an overview of the Malaysian economic corridor program followed by a justification for the choice of NCER for the purpose of this study. Section 4 examines the economic characteristics of the four states of NCER and the potential role of Penang as the gateway for the three hinterland states, Kedah, Perak and Perlis. The purpose, scope and the modalities of NCER development program are set out in Section 5. Section 6 deals with the implementation of the NCER program. Section 7 undertakes as assessment of the NCER programs, focussing

on its achievements, prospects, and constraints to accomplishing its stated objective of redressing the development divide between Penang and the agricultural hinterland of NCER. The concluding section presents the key findings and policy inferences.

2. ANALYTICAL PERSPECTIVE

The mainstream policy advocacy for integrating developing countries within the global economy focussed mainly (if not solely) on trade liberalisation (Krueger, 1997). It was hypothesised that the opening up of an economy to trade and investment would automatically lead to increase in trade, and spur further growth and development. As trade barriers were significantly dismantled through unilateral and multilateral reforms, it became evident that trade liberalisation alone would not yield the anticipated outcome without complementary trade-related infrastructure, the technical capacity to produce and distribute goods while maintaining quality standards, and without removing various behind-the-border barriers to resource allocation and trade (Bougheas et al, 1991; Limao and Venables, 2001; Radelet and Sachs, 2008; Martincus, et al, 2017). This paradigm shift in policy thinking provided the impetus for the growing popularity of economic corridors as a vehicle for outward-oriented economic development.

Economics corridors have also attracted attention from the growing emphasis on 'aid for trade' initiatives. Donors have increasingly recognised that increased aid flows in the form of pure budgetary support and infrastructure development may have unintended negative effects on developing countries. The often-cited unintended consequence is the so-called Dutch disease: appreciation of the real exchange rate thwarting the growth of tradable production in the economy (Stiglitz and Charlton, 2008; Vijil and Wagner, 2012; Portugal-Perez and Wilson, 2012). In such cases, there is a need to imbed infrastructure funding within broader development programs, including trade facilitation, and measures that increase competitiveness in the economy. Economic corridor initiatives meet this requirement, as they combine the 'hardware' (infrastructure) and 'software' (legal and regulatory framework) needed for improving cross-border connectivity and the development potential.

The ongoing process of global production sharing—cross-border dispersion of production processes within vertically integrated global industries—makes a strong case for economic corridors as a vehicle for trade for aid initiatives. Parts and components, and final assembly within global production networks (GPNs)[3] have been the most dynamic components

of world manufacturing trade over the past three decades (Yeats, 2001; Athukorala, 2014a). Successful participation of a country in GPNs will occur only if the costs of 'service links' associated with production sharing among countries/regions outweigh the gains from the lower costs of production in the country (Jones and Kierzkowski, 2004). The term service links refers to arrangements for connecting/coordinating activities into a smooth sequence for the production of the final good. Service links relate to transportation, communication, and other related tasks involved in coordinating the activity in a given country with what is done in other countries within the production network.

There is no standard definition of the 'economic corridor'. By distilling characteristics commonly accepted in various economic corridor programs and related policy documents, the following definition is used to guide the ensuing analysis in this study:

> The economic corridor is an integrated framework of economic development within a designated geographical area, which places trade-related infrastructure at the core, but goes further to encompass interconnected issues of public policy, regulations and operational practices required for stimulating economic growth and development within the designated area.

The definition encompasses three key elements of a corridor development program: infrastructure development, trade facilitation (logistic) reforms, and improving the investment climate. Policy priorities can, of course, vary among economic corridors at a given time, or over time, depending on national development priorities and initial economic conditions of the constituent countries/regions.[4]

Infrastructure development involves revamping/developing transport routes that physically link the areas/regions, and establishing multimodal and intermodal transport facilities. In order to achieve the objective of integrating the designated region within the national economy and globally, it is important to give priority to developing a 'gateway' as the focal point of the region-wide transport infrastructure.

A gateway is a metropolis with access through seas ports, airports and/or teleports to the rest of the world. A strategically located gateway fosters competitiveness of the economic corridor by reducing the trade cost of delivery of goods and services. Much of the policy making and planning relating to the corridor need to focus on developing both gateway and corridor infrastructure to streamline interactions with global logistic service providers so that the local focus meshes with global structure (Rimmer, 2014).

Improving access for the rest of the corridor to the gateway is not just a matter of building physical infrastructure, but must combine physical infrastructure building with trade facilitation reforms. These involve harmonising polices and regulations relating to the movement of people, freight and related services, and improving the investment climate. Administrative procedures that apply to goods in transit and key ancillary services, notably trucking, are also directly relevant. Trade facilitation reforms are much more important for cross-border economic corridors than corridors across different regions within a given country ('within country corridors'). Setting up efficient transit systems to allow goods to move to and from landlocked member countries becomes more complicated when it comes to resolving administrative matters between landlocked countries and their transit neighbours (Arvis et al., 2011).

Improving the business environment to promote entrepreneurial capabilities requires a multi-faceted approach encompassing skill development, supporting private-private partnerships, ensuring labour markets are free to facilitate the movement of labour across the regions, and promoting industrial clusters. It is important to 'embed' policies and programmes in a process of consultation and coordination with the private sector, both to assist in the design of appropriate policy interventions and to provide feedback on the implementation of these interventions. Policies/programs need to be carefully designed by taking into account the potential network effect of investments along specific priority locations to facilitate to agglomeration. This, in turn, requires improving the technology and skills of potential supplying firms, and facilitating the movement of labour across firms and among different localities.

The emphasis on economic corridors as a development tool is closely related to the case for creating economic clusters. There is close complementarity between spatial industrial policy and economic corridor development. Firms tend to cluster in close geographical proximity to each other to benefit from reduced transport costs, shared inputs, and productivity spillover from learning and technology transfer. Through clustering firms can reap gains from agglomeration economies, namely, firm-level productivity gains that come from spatial concentration of economic activity (Krugman 1991; Newman and Page, 2017). There is also the possibility of developing cross-border special economic zones (SEZs) to facilitate this process. Regional SEZs can be developed around key trade infrastructure in an economic corridor. Available evidence suggests that setting up regional SEZs can exploit the

complementarities between infrastructure and new investments within a region (Arvis et al., 2011; Page, 2012).

A contentious issue in the debate on the role of economic corridor as a spatial development tool is the possible trade-off between economic growth and equity outcomes (Nogelas, 2014; Rigg & Wittayapak, 2009; Rogerson, 2001; Soberbaum and Taylor, 2001; World Bank 2009). As discussed, spatial integration and agglomeration of economic activity has the potential to set the stage for the expansion of aggregate output. But economic expansion could also involve undesirable side effects of spatial inequalities and marginalisation of some communities, for two reasons. First, symptoms of peripherally within the wider economy can arise because of overconcentration of infrastructure development and other activities within the designated area. Second, spatial disparities can also emerge within the designated area of the corridor because of investment priories dictated by market forces. Concentration of growth in sub-regions closer to trade routes and with other specific spatial advantages could create economic enclaves with little positive spillover effects on the rest of the corridor region. These economic enclaves could even crowd out growth in some sub-regions through 'resource pull' effects.

The policy challenge is, therefore, to design and implement the corridor program for achieving a win-win outcome of matching overall growth with economic and social cohesion. A well-designed infrastructure development program can play a pivotal role in achieving this objective. In particular, regional road arteries well connected to rural feeder roads and improvement in rural infrastructure could help spread of economic activity from the growth poles within the corridor. However, there is no assurance that all peripheral regions and marginalised communities will equally benefit equally from regional integration through infrastructure alone. There is a compelling case for embodying infrastructure development with an overall participatory and people-centred development strategy, which involves active participation of civil society actors. The form, scope and modalities of the required policy framework and the governance mechanism, of course, depend on the nature of the socio-cultural and political setting and the stage of development of the countries/regions concerned (Rigg & Wittayapak, 2009; Soberbaum & Taylor, 2001, World Bank, 2009).

An important issue discussed relating to the policy mix for achieving a win-win outcome is whether it is necessary to supplement providing an enabling environment for private sector initiatives (as discussed above), with promoting specific industries/firms with direct

incentives based on government discretion ('industry policy') (Page, 2012; Mitra et al. 2016). There is, of course, a sound 'economic' case for industry policy if entrepreneurs are not forthcoming to benefit from the newly created enabling environment due to market failures, including information gap, especially if the expected firms have the potential to generate economic externalities. To be effective, such direct intervention needs to be time bound and take the form of well targeted subsidies rather than overall (sweeping) industry protection (Corden 1997).

3. ECONOMIC CORRIDORS IN MALAYSIA

(a) *The case for economic corridors*

Malaysia is widely considered as a development success story: a multi-ethnic nation that has achieved rapid growth while at the same time reducing poverty and improving equity through affirmative action policies. Since Independence in 1957, Malaysia has transformed itself from a low-income country to an upper middle-income country. Economic growth has been accompanied by rising living standards and improvements in the distribution of income, ameliorating the twin problems of poverty and racial imbalances (Faaland et al., 2003; Athukorala and Menon, 1999; Lim, 2011).[5] However, there have been concerns, that the urban-rural (and hence inter-state) and inter-ethnic income disparities have widened from about the late 1990s against the original objective of eliminating the identification of race with economic function and geographical location (Wee, 2006, Zin, 2012; Thillainathan and Cheong, 2016). It has also been contended that had growth been accompanied by a more equitable distribution of income, domestic demand would have had a far more important role in fuelling growth, and would have reduced the economy's reliance on exports as the engine of growth (Ariff, 2012). The corridor development strategy may be viewed as an attempt to address concerns over the widening rural-urban and inter-regional development divide.

(b) *Five economic corridors*

The idea of corridor development as a vehicle for achieving balanced growth was first mooted in the Ninth Malaysia Plan, 2006-2010, and launched in 2006 (Government of Malaysia, 2006: 28). In the Mid-Term Review of the Ninth Plan (Government of Malaysia, 2008), five corridors were announced. As presently constituted, they are: Northern Corridor Economic Region (NCER) covering the states of Perlis, Kedah, Penang and Perak in northern Peninsular

Malaysia, with Georgetown as its centre; Iskandar Malaysia (IM) located in the south of the southern state Johor on Peninsular Malaysia, with Johor Bahru as its centre; East Coast Economic Region (ECER) encompassing the east coast states of Kelantan, Terengganu, Pahang in Peninsular Malaysia, and the district of Mersing in Johor, with Kuantan as its urban centre; Sarawak Corridor of Renewable Energy (SCORE), positioned in central Sarawak, with Kuching as the urban centre; and Sabah Development Corridor (SDC), that includes the entire state of Sabah, with Kota Kinabalu as its centre. The five corridors envelope almost 70% of the country's landmass (Figure 1).

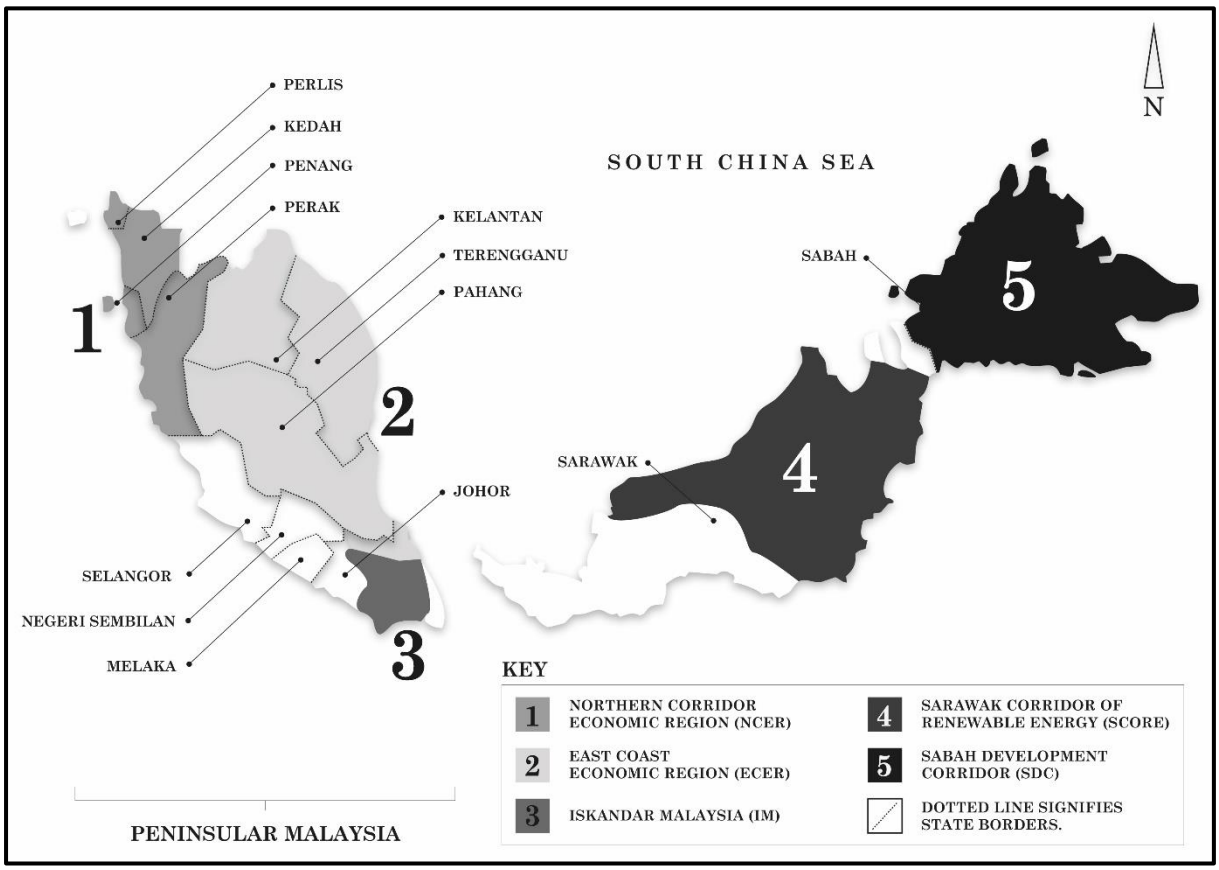

Figure 1: Malaysia: The Five Economic Corridors

(c) *Why the NCER for this study?*

Of the five designated corridors, SDC, SCORE and IM hardly fit the definition. The SDC covers the entire state of Sabah, while SCORE in Sarawak, and IM in Johor lack the inter-regional (inter-state) dimension as they cover only *a part* of each state. Furthermore, as regards IM, the original idea of developing it as gateway between Kuala Lumpur and Singapore for creating a manufacturing and trading hub appears to have fallen behind in the implementation process. Both Malaysia and Singapore could benefit from considerable economic synergies if IM would become integrated with Singapore economically through the free movement of people, capital and goods, However, several political difficulties related to the legacy of Singapore's bitter separation in 1965 from Malaysia, ethnic tensions and the affirmative action program pursued by Malaysia present a major challenge to realising these synergies (Baskaran 2009, Hutchingson, 2015). The driving force behind the development of IM, thus far, has been real estate development. The existing manufacturing base of Johor (with significant foreign investment, predominantly by Singapore-based firms) is not within the demarcated area (Rizo & Glasson, 2012).

The NCER and the ECER represent ambitious efforts at developing economic corridors that extend across several states. Of the two, the NCER is clearly the case worthy of study on account of a fundamental conceptual reason. The state of Penang has the potential to function as the natural gateway to this region which is made up of four states with different resource bases and at different stages of development. It therefore provides an ideal case study of the role of an economic corridor in linking the agricultural hinterland with the 'modern' sector of the economy. Moreover, NCER is at a relatively advanced stage in implementation, as compared to the ECER. The ECER, in contrast, is still at a relatively early stage (ECERDC, 2014), and the economic activities of the constituent states lack the variety and breadth of scope that is found in the NCER. Furthermore, its urban centre, Kuantan, has neither the maturity nor the connectivity that Georgetown in Penang has in order to function effectively.

(d) *Data sources*

This study is based on data pieced together from various secondary sources and information gathered from field research carried out in Malaysia in September 2016. The secondary sources include planning documents and policy reports made available by the Northern Corridor Implementation Authority (NCIA), the Malaysian Industrial Development Authority (MIDA), the Economic Planning Unit (EPU) of the Prime Minister's Department, news reports, websites of the relevant agencies, and unpublished returns to the Economic Census of 2005 and 2010, made available by the Malaysian Department of Statistics. As part of the field research, face-to-face interviews were conducted with senior officials of EPU, MIDA Office in Penang, NCIA, Penang Port Authority, Federation of Malaysian Manufacturers (Northern Branch), Penang Freight Forwarders Association, Penang Institute and Invest Penang.[6] The study also draws on a firm-level survey undertaken in 2010 for a study on the Penang export hub for the International Trade Centre (Athukorala 2014b).[7] Two site visits were also made: one to the rapidly developing Batu Kawan Industrial Estate on mainland Penang, and the other, the customs check point at Bukit Kayu Hitam on the Perlis (Malaysia) – Thailand border.

4. OVERVIEW OF THE NCER

The NCER was launched officially by the fifth Prime Minister of Malaysia, Ahmad Badawi at Kedah and Perlis on 30 July, 2007 and in Penang and Perak on 31 July 2007. As originally envisaged, the NCER encompassed the northern states of Perlis, Kedah, Penang and northern Perak (covering the districts of Hulu Perak, Kerian, Kuala Kangsar and Larut Matang-Selama). The geographical coverage was subsequently expanded in 2016 to include the whole state of Perak. The region now spans 32,559 sq. km with Penang (1,031 sq. km), Kedah (9,425 sq.

km), Perlis (795 sq. km) and Perak (21,308 sq. km). The policy blueprint for the socioeconomic development in the NCER region over an 18-year period, 2007-2025, was prepared by Sime Darby Berhad, the largest government-linked business conglomerate in Malaysia.

(a) *Economic profile*

Of the total Malaysian population of 31.1 million in 2015, 6.6 million (21.2%) lived in the NCER region. Among the four NCER states Perak was the most populated (2.5 million) followed by Kedah (2.1 million), Penang (1.7 million) and Pelis (0.3 million) (Table 1). The NCER region accounted for about 16% of total national output in Malaysia during 2010-15. Among the four states Penang accounted for the largest share (6.6%), followed by Perak (5.4%), Kedah (3.3%) and Perlis (0.5%) in that order (Table 2). In terms of per capita income, there are notable differences: Kedah is the poorest among the four. Penang's per capita income is about 16% higher than the national average. The per capita income of Kedah is only about 47% of the national average. The comparable figures for Perlis and Perak are 58% and 64%, respectively. Similar differences are revealed by the data on the rate of urbanization, and the incidence of poverty based on the national poverty line (Table 1). Penang also has the lowest incidence of poverty in the region and nationally. Poverty rates in the other states range from 3.5% to 6.0%.

Table 1. *NCER States in the Malaysian Economy: Population, urbanisation and poverty*

	Population, million			Urbanisation[a] (%)			Poverty[b] (%)		
	2005	2010	2015	2005	2010	2015	1999	2009	2012
NCER[c]	5.9	6.3	6.6	--	--	---	---	---	---
Kedah	1.9	2.0	2.1	39.1	39.8	40.3	14.2	5.3	1.7
Perak	2.3	2.4	2.5	59.1	59.3	59.3	6.8	3.5	1.5
Perlis	0.2	0.3	0.3	34.0	35.1	35.9	13.6	6.0	1.9
Penang	1.5	1.6	1.7	79.7	79.8	80.0	0.7	1.2[d]	0.6
Malaysia	26.8	29.0	31.1	62.0	63.0	63.8	8.5	3.8	1.7

Source: Compiled from *Statistical Yearbook*, DOS, (various years), and EPU (2014) (for poverty rates in 2009 and 2012).

[a] Unban population as a percentage of total population.

[b] Poverty head-count ratio based on the national poverty line.

[c] Northern Corridor Economic Region

[c] The increase is inconsistent with the views expressed by the Penang state officials.

Table 2. *NCER States in the Malaysian Economy: GDP and per capital GDP, 2010-2015*

	2010	2011	2012	2013	2014	2015	2010-15
Share of Malaysian GDP (%)							
Kedah	3.3	3.4	3.4	3.3	3.3	3.3	3.3
Perlis	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Perak	5.3	5.4	5.5	5.5	5.5	5.5	5.4
Penang	6.6	6.5	6.5	6.5	6.6	6.7	6.6
NCER	15.7	15.8	15.8	15.8	15.9	15.9	15.8
GDP per capita relative to the national average (%)							
Kedah	47.0	48.1	46.8	47.1	47.0	46.8	47.1
Perlis	60.1	57.9	58.4	58.4	56.9	55.8	57.8
Perak	62.9	63.9	64.6	64.8	64.8	64.9	64.4
Penang	117.5	112.7	112.9	115.1	117.5	119.4	115.9
Malaysia	100	100	100	100	100	100	100
Memo items							
Malaysia GDP (RM billion)[a]	821.4	864.9	912.3	955.3	1012.5	1062.7	938.2
Malaysia per capita GDP (RM)[b]	29212	31909	33466	34358	37007	38543	34082

Source: Compiled from Government of Malaysia (2016)

[a] At 2010 prices.

[b] At current prices.

Penang is the most industrialized among the four states with manufacturing directly contributing to over 46% of GDP compared to the NCER average of 31.6% and national average of 23.2% during the period 2010-2015. The neighbouring state of Kedah is more industrialised (with a manufacturing share in GDP of 27%) as compared to Perlis (9%) and Perak (18%) (Table 3). Kedah, Perak and Perlis are predominantly agricultural, with abundant land, rich natural resources, and ample prospects for further development (Faaland et al., 2003).

Table 3: *Sectoral composition of GDP, 2010-15 (%)*

	2010	2011	2012	2013	2014	2015	2010-15
Kedah							
Agriculture	16.7	16.9	16.0	15.6	15.0	14.3	15.7
Mining & quarrying	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Manufacturing	27.3	27.9	28.0	27.7	27.6	27.5	27.7
Construction	2.7	2.5	2.6	2.2	2.2	2.2	2.4
Services	52.8	52.2	52.7	53.8	54.4	55.2	53.6
Total	100	100	100	100	100	100	100
Perlis							
Agriculture	28.2	26.0	25.3	24.0	23.5	23.4	25.0
Mining & quarrying	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Manufacturing	8.6	9.5	9.4	9.4	9.5	9.5	9.3
Construction	3.5	3.2	2.9	2.9	2.9	3.0	3.1
Services	57.8	59.8	60.5	61.6	61.8	61.7	60.6
Total	100	100	100	100	100	100	100
Perak							
Agriculture	19.3	19.3	18.5	17.5	16.6	15.6	17.7
Mining & quarrying	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Manufacturing	17.5	18.1	17.7	17.8	17.9	18.0	17.8
Construction	2.2	2.0	2.9	3.3	3.3	3.3	2.9
Services	60.7	60.1	60.5	61.0	61.8	62.7	61.2
Total	100	100	100	100	100	100	100
Penang							
Agriculture	2.3	2.3	2.3	2.3	2.2	2.1	2.2
Mining & quarrying	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Manufacturing	48.1	47.1	46.1	45.8	46.0	46.3	46.5
Construction	2.5	2.5	2.9	2.7	2.7	2.7	2.7
Services	46.6	47.5	47.9	48.5	48.2	48.1	47.8
Total	100	100	100	100	100	100	100
NCER							
Agriculture	11.9	12.0	11.5	11.0	10.5	9.9	11.1
Mining & quarrying	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Manufacturing	32.1	31.9	31.3	31.1	31.4	31.6	31.6
Construction	2.4	2.4	2.8	2.8	2.8	2.8	2.7
Services	53.0	53.2	53.7	54.4	54.6	55.0	54.0
Total	100	100	100	100	100	100	100
Malaysia							
Agriculture	10.1	10.2	9.8	9.5	9.2	8.8	9.6
Mining & quarrying	10.9	9.9	9.5	9.2	9.0	8.8	9.5
Manufacturing	23.4	23.5	23.2	22.9	23.0	23.0	23.2
Construction	3.4	3.4	3.8	4.0	4.3	4.5	3.9
Services	51.2	52.0	52.5	53.2	53.5	53.8	52.8
Total	100	100	100	100	100	100	100

Source: Compiled from Government Malaysia (2016)

Penang has a much more diversified manufacturing base as compared to the other three states (Tables 4). Electronics, electrical goods, and other related products account for a larger share of manufacturing in Penang whereas processed food and other resource based products are more important in the other three states. Interestingly, electronics has become a significant product in manufacturing in these states as well. This seems to reflect the spread of production networks to the other states from Penang. However, Penang still accounts for over 90% of total electronics and electrical components produced in the sub-region.

The manufacturing sector in Penang accounts for a third of manufacturing employment in the NCER (Table 5). Labour productivity in manufacturing in Penang is much higher compared to the other three NCER states. This seems to suggest that Penang has a relatively well-developed skill base, which NCER can potentially draw on for regional development. Wage per worker in Penang is also much higher, presumably because workers are higher skilled but it also indicates there is room for a region-wide spread of relatively more labour-intensive production processes away from Penang, provided other required preconditions (logistics, infrastructure and skill development etc.) are met.

Table 4: *Composition of Manufacturing output (value added) in NCER Sates: 2010 (%)*

MSIC[a] code	Industry	Kedah & Perlis	Penang	Perak	NIEC
10	Food and food products	9.2	12.2	17.0	13.0
11	Spirits & soft drinks	0.2	0.9	1.3	0.8
13	Textile & coir products	0.2	0.1	0.3	0.2
14	Clothing	1.4	1.9	0.9	1.4
16	Wood & wood products	4.6	0.9	2.0	2.3
17	Paper & paper products	0.9	6.4	1.4	3.4
18	Printing	0.5	1.7	0.7	1.4
20	Basic chemicals, soap and detergents	8.4	10.9	3.9	7.8
21	Pharmaceuticals & medicaments	2.4	0.9	0.6	1.2
22	Tires, other rubber and plastic products	10.7	7.1	14.6	10.7
23	Ceramics and clay products	13.8	2.6	10.0	9.3
24	Iron and steel products	0.4	1.3	3.1	1.7
25	Fabricated metal products	4.1	2.6	3.7	11.2
26	Electronics[b]	25.8	33.8	26.8	20.4
27	Batteries and lighting equipment	3.1	0.5	0.1	1.0
28	Office machinery & machine tools	0.9	4.5	2.4	2.8
29	Motor vehicles and parts	6.6	0.4	0.7	2.2
30	Other transport equipment	2.0	1.1	4.3	2.4
31	Furniture	1.1	1.3	0.8	1.1
32	Stationary	0.4	0.8	0.3	0.5
33	Machinery repair	0.5	0.4	0.3	0.4
	Other	2.9	7.6	4.9	5.4
	Total	100	100	100	100

Source: Compiled from unpublished data of the Economic Censuses of 2005 and 2010, purchased from the Department of Statistics (DOS), Malaysia.

[a] Malaysian Standard Industry Classification.

[b] Including measurement and testing equipment.

Table 5. *NCER Sates and Malaysia: Manufacturing Employment, Labour Productivity and Wages, 2005 and 2010*

	Employment		Labour productivity[a] (RM)	Wage per worker[b] (RM)
	Number	Share in National total (%)		
2005				
NCER	291985	26.0	253071	17414
Kedah & Perlis	70160	6.2	185278	15004
Penang	119480	10.6	359113	20294
Perak	102345	9.1	175748	15705
Malaysia	1123915	100	330017	18059
2010				
NCER	299132	23.38	301779	22322
Kedah & Perlis	68956	5.39	334424	21214
Penang	108183	8.46	362284	26175
Perlis	121993	9.53	229671	19532
Malaysia	1279447	100.00	409928	22281

Source: Compiled from the unpublished data of the Economic Censuses of 2005 and 2010 purchased from the Department of Statistics (DOS), Malaysia.

[a] Value added per workers at current price

[b] Includes other remunerations.

(b) *Potential for sub-regional development*

The driving idea behind the formation of the NCER was to leverage on the growth momentum of more developed regions in Penang to lift the growth and incomes of poorer regions located in Perlis, Kedah and Perak. In particular, the NCER expects to leverage on three core strengths to bridge the development divide between Penang and the other three states: physical connectivity, a mature business eco-system, and a pool of skilled and industry-ready workforce (Sime Darby, 2007).

Connectivity

Penang port is situated along the Straits of Melaka, one of the busiest shipping lanes in the world. It is well placed to act as the logistic hub for the NCER region and Southern Thailand and is already the third biggest seaport in Malaysia (based on total throughput).

During the colonial era, Penang was the first port of discharge of ships sailing from Europe and India to the Straits of Malacca. This historical advantage has been undermined by the growing size of vessels used in world shipping. Large vessels carrying containers of 18,000 twenty-foot equivalent units (TEUs) require a depth of 14.5 to 16 metres. Penang port's current depth is around 11metres in the Northern Channel and about 12 metres at berth, and this can handle only 5,000 TEU vessels. Dredging to increase the depth to 14.5 metres would cost RM300 million. Such a large investment is not justified because Penang port is geographically not well-placed to compete with Port Klang in Selangor for attracting larger vessels.

However, catering for intra-Asia trade and serving as a feeder port for cargo from the NCER and Southern Thailand does not require a deeper port that can accommodate larger vessels. What is required is increased efficiency in terms of reducing turnaround time of vessels, facilitating berthing without delay and unloading and loading cargo quickly. With recent gains in efficiency under private ownership, Penang is now included as a direct Port of call by carriers like China-based COSCO and Singapore-based Pacific International Lines (PIL) that used to make Port Klang their direct port of call and rely on smaller boats to ship cargo to Penang. Traditional carriers from Taiwan (Wan Hai Lines, Evergreen Line and Yan Ming) continue to make Penang a direct port of call. In 2015 alone, five new shipping lines were registered in Penang while the number of vessels calling at the port saw a 15 percent increase compared to the previous year.

Currently, Penang port serves largely as a feeder port for bulk cargo from Southern Thailand mainly in the form rubber and rubber based products. There is further potential to attract goods from the northern province of South Thailand right up to Surat Thani beyond its current reach that stops at Hat Yai close to the northern border of Peninsular Malaysia. Goods from the NCER include solar panels produced in Penang, rubber gloves and condoms from Kulim, and tyres from Taiping. There is virtually no cargo from northern Ipoh or Perlis.

Potential drivers of demand for the port include commodities from the newly established Batu Kawan Industrial Park and the completely knocked down (CKD) auto parts imported for automotive assembly in the north.

The international airport in Bayan Lepas, Penang, is the second largest airport for air cargo in Malaysia (after Kula Lumpur), and the third busiest passenger airport after Kuala Lumpur and Kota Kinabalu. Penang airport enhances Penang's role as a major production centre within the global production network (see next sub section). It has been serving as a major outlet for high-value-to weight electric and electrical goods (predominantly parts and components) from the surrounding Free Trade Zone (FTZ) industrial areas. Over 80% of the total electronics and electrical goods exported from Penang takes the form of air cargo. It is also the outlet for high-value-to-weight electronic components from Kulim High-Tech Park in Kedah, which is situated 44 km away.

Mature Business Eco-System

Penang is home to a mature export hub within global production networks and it has grown, widened and deepened over four decades (Narayanan, 1999; Athukorala 2014b & 2017). Multinational enterprises (MNEs) in electronics component assembly started arriving in Penang in the early 1970s. There are now over 200 branch plants of MNEs in Penang, which directly employ over 250 thousand workers The list of MNEs include major global players such as Intel, Motorola, AMD, Osram, Fairchild, Avago and Hitachi. The MNE-local firm partnership has strengthened over time, resulting in the growth of a large pool of local tooling and equipment manufacturing firms. Starting as small backyard workshops, several local firms have achieved the status of full-fledged services providers with substantial R&D and design capabilities. A number of them have become global players with production bases in foreign locations.

A number of large electronics MNEs have shifted their regional and global headquarter functions to Penang. Most MNEs that have shifted final assembly of consumer electronics and electrical goods out of Penang perform the related trading and service activities from Penang. Some of them now use their Penang affiliates as an integral part of their global training and skill enhancement programs. The production base has also begun to diversify from electronics into a number of other electronics-related dynamic product lines. These include medical services and equipment, light emitting diodes, photovoltaic design and development, and aircraft parts.

This process has been greatly aided by the deep-rooted nature of their production bases backed by a pool of skilled workers developed over time. Given the relatively higher wages (Table 6) and increased rental cost (due to 'space' constraint in the small island of Penang), there is potential for expanding the manufacturing base to the mainland and neighbouring states through further infrastructure and human capital development. The presence of firms in Penang that needed to relocate some tasks of their operations, in response to increasing wages and rental costs on the island, provided the impetus for the establishment of the Kulim High-Tech Park in the state of Kedah in 2002. By 2015 it had attracted investments of nearly RM32 billion and generated over 30,000 high-income jobs.[8] Most of the managers and technical personnel in the Park are from Penang. This suggests that an advanced technical and business support ecosystem, an outcome of agglomeration economics of over four decades of successful integration into global production networks, is now available in Penang to enable new private sector participation.

Sizeable Talent Pool

More than four decades of growth of manufacturing and related activities in Penang has also created a ready pool of talent. Reflecting the canonical Marshallian technological externalities of industrial agglomeration (Krugman, 1991; Figita et al., 2001), based on the

initial expansion of electronics (mainly semiconductor assembly) industry, a broad range of engineering-based expertise has developed to support the expansion of new growth sectors such as LEDs, automotive, aerospace, machinery/automation, medical devices and biotechnology/ engineering-driven agriculture in the region. Many of the businesses in Penang are now familiar with the reliable delivery standards expected by MNEs

By the late 1980s when skill shortages began to hamper expansion of the electronics industry in Penang, Penang Development Corporation worked with MNEs to establish the Penang Skill Development Centre (PSDC). Starting with its first training programme in July 1989, PSDC played a pivotal role in meeting manpower requirements of the export hub. At the beginning, its prime focus was on creating a large pool of technicians to meet the immediate needs of rapidly expanding electronics firms. Over the years, the breath and scope of the organization have expanded and it has been successfully conducting a vendor development program, known as the Global Supplier Development Program (GSDP), to assist local companies to become global suppliers by developing their capabilities through training and by forging linkages with MNEs. PSDC has attracted worldwide attention as an example of successful public-private partnership in human capital development. Its officials have gone to many developing countries to help establish similar organizations (UNIDO, 2009; Ruffing, 2006).

5. THE NCER CORRIDOR MODEL[9]

(a) *The case for a supra-state authority*

Getting state agencies to coordinate their efforts to achieve key common objectives can theoretically deliver the results envisaged by the NCER. However, in practice the task of achieving coordination between the planning agencies of four states, even if they are ruled by the same political party, can be formidable due to jealousies about state rights and autonomy.

When one or more states within the corridor are controlled by an opposition party, the challenges to achieving consensus are magnified further. Therefore, a supra-state authority, the Northern Corridor Implementation Authority (NCIA), was created to enable collective decision making and implementation of the corridor program. The NCIA was tasked with fostering the growth of the corridor as a whole, while minimising the tendency of member states to prioritize state needs over the overall needs of the region, and fostering private sector engagement in implementing the NCER programs. It receives both financial resources and infrastructural support from the federal government and federal agencies (Government of Malysia, 2008; Sime Darby, 2007; Lim, 2007).

The NCIA draws its authority from an act of Parliament, the NCIA Act 2008 (Act 687). Under the Act, it has power to require and obtain particulars and information as may be specified by the Authority from all government entities, companies and corporations, and other bodies and persons operating within the NCER. It also can make recommendations to the State and local authorities on local government functions and services, including local planning, control, and regulation, and also the approval and control of all buildings and building operations. NCIA also assists/facilitates investments by assisting investors in meeting investment requirements and acquisition of the necessary approvals. Additionally, it acts as the principal coordinating agent to monitor the progress of such projects.

The NCIA operates under the Economic Planning Unit (EPU) of the Prime Minister's department, which is the coordinating/monitoring body of the economic corridor program. The NCIA Council is headed by the Prime Minister and its members are the Deputy Prime Minister, the Chief Secretary to the Federal government, Chief Ministers of the four states, a representative of Sime Darby and other key individuals appointed by the federal government. The Chief Executive of the NCIA serves as the Secretary to the Council. Apart from the Chief Ministers of the four states, all other members are from the federal government or appointees

of the federal government. Thus, the NCIA already has an in-built bias that potentially ensures federal government dominance.

A Public-Private Partnership unit (UKAS) was created in the Prime Minister's Department to encourage private sector participation as prime movers in the implementation of the program. UKAS is the core agency that has been given the responsibility to coordinate the Privatisation and Public-Private Partnership (PPP) projects which are eligible for funding from a facilitation fund operated by UKAS. The NCIA, on its part, helps identify such companies or projects and assists them in gaining access to these funds.

(b) *Implementation of the NCER Blueprint*

The implementation of the NCER blueprint is divided into three phases. The first phase (2007-12) was to lay the foundation through constructing "priority infrastructure" and securing anchor investors. The second (2013-15) was to be devoted to broadening and deepening private sector involvement in the region and fostering foreign and domestic business networks and linkages. And the third phase (2016-2025) was earmarked to achieve regional market leadership through sustainable market-led growth. Given the delay involved in initiating the implementation process, the NCIA has combined the first and second phases into one. In this section, however, we discuss the implementation process under two phases, Phase 1: 2007-2014 and Phase II: 2015-2025.

During Phase 1, the Federal government spent RM 4.5 billon to build the Second Penang Bridge. Work started in 2007 and was completed in March 2014. This 24-kilometre bridge links the industrial area of Batu Kawan in Seberang Perai on the mainland of Penang state with Batu Maung on Penang Island, close to the airport. It helped the expansion of the

Batu Kawan Industrial Park (BKIP), inaugurated by the Penang state government a year earlier, by providing direct access to the firms located therein in to to Penang airport and facilitating manpower movement between the two parts of the state. The state government is now planning to develop a second industrial estate nearby because the 1500-acre area of BKIP is fully occupied.

The second bridge project had already been initiated in 2007 when Penang was still under the rule of the federal governing party. The project received the support of the opposition party that came to power in 2008. But it still required federal funds to complete the project. The NCIA added weight to the state government's request and helped in acquiring the necessary federal level approvals. Such support becomes crucial when federal and state governments do not see eye-to-eye politically. The first Penang Bridge was also widened and this project (started before the launch of the NCER) was completed in 2008. It involved adding a 2-metre-wide lane for motor cycles and a 3.5-metre-wide lane for other vehicles on both sides.

The international airport in Penang was upgraded, with work starting in 2008 and being completed in 2012 at a cost of RM250 million. The airport now can handle 6.5 million passengers per annum, up from 5 million in 2001. However, the airport is currently "bursting at its seams" and in need of further expansion. The state complains that the federal government is not sharing its sense of urgency in the matter, possibly because a new airport is being considered in Kulim (Lim, 2016).

The Federal government spent RM12.5 billion on the Electrification of Double Track Project (EDTP), which involved electrification of the railway line that runs through the four NCER states and this was completed in in July 2015. The project involved the laying and

electrification of a 329 km-long double track near the existing single track that runs from Ipoh in Perak to Padang Besar in Perlis.

The main focus in the second phase of the NCER program has been on the predominantly Malay states of Perlis and Kedah and the newly added regions of Perak. Despite budgetary cuts, the allocation for corridor development in the recently launched Eleventh Malaysia Plan, 2016-2020 (Government of Malaysia, 2016) remains substantial. The emphasis on Kedah and Perlis was made explicit in the Plan. The proposed major investment initiatives are discussed below.[10]

Kedah Rubber City Project

Located in the heart of the natural rubber belt that lies in close proximity to the Malaysia-Thai border, this project aims to promote natural rubber-based industries. A sum of RM320 million was allocated in the federal Budget 2016 for the project. When fully operational in 2025, the 1,500-acre (607ha) City hopes to attract RM10 billion in investments and generate between 15,000 and 20,000 jobs. Attractive incentive packages are offered to investors in the form of five-year corporate tax exemption (with the possibility of extending it for another five years), import duty exemption on machinery, as well as subsidy for the training of workers.

The Kedah Science and Technology Park

The state government of Kedah, with financial support from the NCIA, is planning to develop a second industrial park, the Kedah Science & Technology Park (KSTP), on a 1,950-acre site in Bukit Kayu Hitam. It aims to provide "world class facilities and support services" such as well-equipped high-end research laboratories, business incubation centres and technology business incubators, and research institutions with shared facilities, led by industry. The emphasis will be on collaboration between academia, government and industry to lead

research and commercialisation projects. It is expected that the park will create 23,244 jobs by 2030 (Hasri, 2016).

Chuping Valley Development Area

Based in Padang Besar, Perlis, the project aims to promote three clusters (Solar energy generation, Green Manufacturing and Halal Industries) encompassing an area of 2,482 acres. The Solar energy generation cluster aims to leverage on the fact that Perlis exhibits higher levels of solar radiation. The Green Manufacturing initiative aims to attract activities using or emphasising green materials (or technologies) in manufacturing, electrical and electronics and automotive industries, and property development. The Halal industries initiative expects to capitalise on the future growth for halal products, which is projected to grow at 16.3 per cent, between 2013 and 2020. The project is expected to create 12,674 jobs by 2025.

Perlis Inland Port project (PIP)

The PIP, spanning 200 hectares, is a RM1.5 billion project that will serve as an additional infrastructure node to the existing Padang Besar Cargo Centre on the Malaysia–Thailand border. It includes railway lines and roads linked to the Chuping Valley area, a container yard that can store up to two million TEUs of containers, a warehouse with reefer container facilities, yard checkpoints, clearing houses, and a web-based port computer system linking it to seaports. The project aims to attract more South Thai cargo to use Padang Besar as their cross-border gateway and also to serve new industries in the Rubber City in Padang Terap. On completion, the PIP is expected to become the largest inland (dry) port in the peninsula with its impact being felt not just in Perlis but also in Kedah, with its Rubber City in Padang Terap.

Greater Kamunting Conurbation

The purpose of this project is to strengthen economic sectors such as tourism, manufacturing and agriculture in Kamunting and Taiping, in Perak, with the provision of new infrastructure and human capital building initiatives with private sector participation. It is expected to create 90,263 jobs by 2030.

7. ASSESSMENT

This section is in three parts. The first analyses the available data to assess the performance of the NCER. This is followed by a discussion on the limitations of the NCER economic corridor development program. The final part examines the political-economy challenges faced by the NCIA.

(a) *Achievements*

According to the Economic Planning Unit (EPU), the federal government committed a total of RM307 billion for the implementation of the five economic corridors. Of this, only RM174.5 billion (57%) was utilised. The NCIA stands out among the five corridor authorities for fully utilizing the federal funds (RM51.7 billion) allocated to it (Table 6). Of the total new employment created within economic corridors (427 thousand), the NCER accounted for 63.5 thousand (or nearly 15% of all employment).

Table 6: *Investment and Employment in Malaysian Economic Corridors, 2011-14*

	Investment[a], RM Billion		Employment ('000)
	Committed	Realised	
Iskandar Malaysia	90.4	47.1	320.1
Northern Corridor Economic Region (NCER)	51.7	51.7	63.5
East Coast Economic Region (ECER)	55.4	22.9	23
Sabah Development Corridor (SDR)	96.7	44.5	15.2
Sarawak Corridor of Renewable Energy (SCORE)	12.9	8.3	5.3
Total	307.1	174.5	427.1

Source: Economic Planning Unit (2016), Eleventh Malaysia Plan, 2016-2020 (based on data provided by Regional Corridor Authorities).

[a] The data relate to private investment supported by NCER .

According to the NCIA, it has attracted investments worth about RM113 billion (including RM71.63 billion of federal funds[11]) into the region in the first phase. This includes individual efforts by the Agency and efforts in cooperation with state and federal agencies (Hasri, 2016). In the latest press statement, the Chief Executive of the NCIA announced that from the period of its formation in 2008 until the end of 2016, it had accumulated investments of RM79.92 billion in the NCER and created 103,600 job opportunities. The objective is to increase the accumulated investment to RM87.3 billion by end of 2017. It further indicated that the combined GDP of the four states grew at an average annual rate of 5.8% between 2010 and 2014, as compared to 3.5 per cent during the 2005-2009 period.[12] This intertemporal comparison of growth rates needs to be treated with caution because the 2005-2009 period coincided largely with the global financial crisis that resulted in sluggish growth in Malaysia because of a severe contraction in trade and FDI inflows (Hill, 2012).

Several problems arise in trying to assess the impact of NCIA programmes. First, the available data are inadequate for assessing the growth and equity outcomes of these efforts because the projects are not identified in detail. Without project-level data it is difficult to delineate the impact of the NCIA initiatives from the general process of economic/industrial development in the region. Second, the NCIA does not seem to maintain investment and employment data at the level of each state, even though the prime objective of this economic corridor project is to narrow growth and income disparities among the four constituent states and between urban and rural areas within each state.

The available data for the period 2010-15 (Tables 1 and 3) do not capture the impact of the NCIA-initiated projects in the NCER. The share of the four NCER states in total national

GDP has remained virtually unchanged at 15.7% percent during this period. A similar pattern can be seen in the data relating to income shares of each of the four states and their per capita income, relative to the national average. Data relating to the sectoral composition of GDP of the four states also do not indicate any structural change in the economies of the four states. These patterns are perhaps understandable because of the natural time lag involved in realising gains from long term investment projects and percolating within the region and beyond.

It should be noted that the impacts of some NCIA supported initiatives like widening the original bridge and building a second bridge linking Penang to the mainland are observable, though not yet reflected in aggregate statistics. Traffic jams on the first bridge have been reduced significantly and has resulted in a smoother vehicular flow to and from the island and reduced the time of moving people, goods, and services within the NCER. The new second bridge facilitated the expansion of the new Batu Kawan Industrial Estate and several townships around it by providing direct access from Penang Island. Plans are also afoot to develop a second industrial area nearby. The expanded airport, though in need of further expansion, brings in nearly 7 million visitors a year, boosting tourism in the state and the region.

The available data from household surveys also indicate that growth in the region has been associated with notable improvements in income distribution. The poverty rate declined from 2.83% in 2007 to 0.45% in 2014, and the median monthly household income increased from RM2,112 to RM3,797 (Hasri, 2016). What is unclear, however, is the extent to which NCIA initiatives contributed to this improvement.

(a) *Limitations of the NCER programs*

In an overall assessment of the NCER initiatives, a heavy infrastructure bias is clearly evident. Actions related to the other two components (logistics reforms, and business/entrepreneurial

development with private sector involvement), however, appear to have been relegated to Phase II or beyond.

The privatisation of Penang port and the double tracking of railway from Padang Besar on the Thai border have raised the potential for increasing the volume of shipments from Southern Thailand through Penang port. However, this potential has not been fully exploited because of the failure to combine port and road development with initiatives to improve customs clearance procedures at the entry point at Bukit Kayu Hitam on the Perlis-Thai border. Currently, it is not uncommon to see an over four- kilometre long queue of trucks waiting for clearance at the checkpoint on normal working days, making it impossible to complete more than a trip a day. Another policy impediment to increasing shipment is the 0.005 cents, per kilo, border tax recently imposed by Malaysia on canned seafood shipments from Thailand. This has resulted in diverting Thai shipments from Penang to the ports in Bangkok and Songkhla, in Thailand. These cross border logistic issues are also directly relevant for the operation of the dry port currently under construction in Perlis. An official of Penang Port whom we interviewed was of the view that there was potential to attract goods to Penang port from the northern province of South Thailand right up to Surat Thani, well beyond its current reach of Hat Yai, by improving customs clearance procedures at Bukit Kayu Hitam.

As for business and entrepreneurial development, a major limitation of the initiatives so far is the absence of efforts to *directly* address the rural-urban divide, to uplift living standards of people in the agricultural hinterland in Kedah, Perlis and Perak. The programs implemented so far, as well as those proposed for the second phase, seem to have been driven by the traditional view that agriculture needs to take a backseat in the process of economic development and real incomes can only be raised by moving rural workers to modern sector pursuits. The only proposed initiative that may have a direct effect on raising rural income levels relates to promoting halal food. There is, of course, potential to expand the halal food

industry, but halal food products account for only a small share of world trade in processed food. Attention should also shift to processed food as a whole, including those falling under the halal category.

In recent decades there has been a dramatic transformation in the international division of labor within the global agro-food system (Diaz-Bonilla and Reca, 2000; Athukorala and Jayasuriya 2003; Page 2012). The relative importance of 'classical' export commodities traded mostly in raw form (coffee, tea, sugar, cocoa and so on) has sharply eroded as a result of rapid expansion of trade in products such as fruits and vegetables, poultry, fish and dairy products, which are exported in processed form.[13]

Processed food production is a class of economic activity in agriculture that more closely resembles manufacturing rather than the sector to which it is assigned in economic statistics. It requires capabilities to keep products fresh and deliver them from farm to processing plants and then to shop shelves with proper packaging and labeling, while meeting international food safety standards (Fujita, 2008; Page, 2012).

The new export opportunities in processed food trade deserve special attention when considering export development policy options for agricultural resource-rich countries for a number of reasons. First, final stages of food processing are labour-intensive and hence the expansion of the processed food sector can have a strong positive effect on employment generation in the rural economy. Second, in terms of potential *net* export earnings and thus the impact on national income (GNP), processed food appears superior to 'conventional' manufactured exports because these products have a naturally greater domestic input content. Thirdly, processed food industry has a strong rural base. In sum, the expansion of processed food exports is a powerful vehicle for linking the rural economy in a positive way with the ongoing process of economic globalization.

Neighboring Thailand is one of the main success stories of processed food exports in the developing world. Processed food accounted for over one-fifth of Thailand's merchandise exports (Athukorala and Jayasuriya 2003: 1401). Given the similarities in terms of agricultural resource endowments, and climatic conditions, the agricultural hinterland of the NCER appears to have significant potential for emulating the Thai experience.[14]

All four NCER states also have unexploited potential for expanding sea food processing. The International Organization of Tuna Council (IOTC) has approved Penang port as an outlet for tuna exports. However, exports of tuna still account for only a small share of products exported from Penang port. Trawlers from Taiwan and China are engaged in tuna fishing in the surrounding seas. Their catch is exported in canned form because of the high refrigeration cost of keeping fish fresh during the long voyage to China and Taiwan. The NCER states therefore have potential to develop a fish processing industry. There is also potential to use 'mining ponds' (water-filled abandoned tin mines) in Perak for fish farming, instead of being used largely as illegal land-fill sites.

The Kedah rubber city project is largely driven by the availability of natural rubber as an input for rubber based products. There is no evidence to suggest that the role of entrepreneurship and market links, and potential competition from Thailand have been taken into account in designing the project. In resource-based industries the availability of a strong raw material base is not the sole determinant of the development of downstream industries, simply because raw materials can be transported, in this era of falling shipping costs, to production locations elsewhere that meet the other pre-conditions required for competitive industrial production.

Thailand already has well-established rubber-based manufacturing industries (tyre, gloves, condoms, rubber-based apparel, and rubber wood furniture). Drawing on these existing capacities, Thailand began work on its own Rubber City in Southern Thailand, the first phase

of which is expected to be fully operational in 2017. The Thai Rubber City (TRC) will focus on midstream and downstream activities, and will be an integrated centre for rubber products such as tyres, rubber gloves and compound rubber. When the Malaysian Rubber City was first planned it was hoped that it could capture rubber-based businesses from South Thailand. With similar facilities available in South Thailand there is little reason to expect that Thai businesses will now be drawn to Kedah.

(b) *Challenges facing NCIA*

There are clear political impediments to reaping the gains from the complementarity between Penang and the hinterland states. A major factor is the inability of the NCIA, as presently structured, to draw out the full participation of Penang state agencies. In order to develop this point some understanding of the federal system of government as practiced in Malaysia is necessary.

In the Malaysian version of the federal system, the most important powers remain concentrated in the hands of the federal government (Hutchinson, 2015).[15] The states, in contrast, have sole jurisdiction over land matters within its boundaries which become a powerful tool only in determining the *location* of investments and other infrastructural development. Furthermore, Malaysia has adopted the adversarial system of parliamentary democracy where the government and opposition compete rather than cooperate. The instances when non-partisan positions have been espoused are virtually non-existent.

The economic corridors are Federal government initiatives, as are the statutory bodies like the NCIA that were created to oversee corridor development and implement corridor related projects. This top-down coordination structure poses a potential coordination and implementation problem when the corridor model encompasses four states, one of which is controlled by an opposition party. To illustrate, if all states were governed by the same political

party, the giving of assistance and submission of information as envisaged by Section 7 (c) of the Act may proceed fairly smoothly. Thus, the NCIA would only require enough powers to persuade states to concede a little of their interests for the larger good of the region. However, even in a situation where the state and federal governments are controlled by the same party, the rather broad requirement, particularly on foreign companies, to disclose such "particulars and information as may be specified by the Authority" regarding their activities or proposed activities in the NCER, except in the most general terms, seems to be a problematic request, without further safeguards. Plans on future expansion or projects are often kept close to their chest by corporations to forestall attempts by competitors to undermine them. This clause appears not to recognize this. It is then not surprising that the NCIA has not sought to enforce this provision that merely embellishes its authority on paper.

Matters become more complicated when federal and state governments are controlled by rival parties, as in the case of Penang, a key state in the NCER. Under such circumstances cooperation may not be so freely forthcoming. Such an eventuality was probably never foreseen when the original blueprint was designed with Penang as the regional integrated logistic hub of the NCER (Sime Darby, 2007; Lim, 2007). Approximately half of the federal funds allocated to NCIA (RM 71.62 billion) during 2009-2015 was channelled to Penang, with the rest being divided between the other three states. Since then, the emphasis has shifted to development projects in the other three states. The NCER explained this shift by pointing out that Penang is already well developed in terms of industrial maturity and physical connectivity, while the other three states are not. The alternate view that emerged from discussions with individuals connected with Penang state and business community representatives is that federally–controlled public funds are being used to bring development to states that are controlled by the federal government. They evinced a lack of knowledge of, and participation in, several initiatives in the region with possible long-term ramifications on Penang. One

example is the plan to build the Kulim International Airport at Sidam Kiri (in the state of Kedah), just 46km away from Penang at a cost of RM1.6 billion. The Eleventh Malaysia Plan had already contained the less expensive alternative to expand Penang airport by building two new runways, and an integrated air cargo facility with the required maintenance, repair and overhaul facilities at a cost of RM600 million (Lim, 2016).[16] But this plan now appears to be on the back burner.

The task of the NCIA in ensuing effective participation of all states in implementing its programs is made difficult/complicated by its own structure. Apart from the Chief Minister, no other state official sits in the council of the NCIA. Neither is there formal representation of state officials in the NCIA Board. Without giving the states an official stake in the planning and operations of the NCIA, it is difficult to see how it can harness the enthusiastic participation of state agencies—more so from an opposition controlled state like Penang. This is evident from the fact that Penang state officials were apparently not involved in the attempts by the NCIA to attract investments in Penang; neither are they being actively engaged when decisions affecting the state are made. This is in marked contrast to the close cooperation between the NCIA and the state agencies of Kedah and Perlis, for example.[17] Without the active participation from state agencies in Penang, the NCIA can never fully tap the potential benefits of the NCER.

Clearly, the NCIA is either unable or is reluctant to fully exert the powers conferred upon it by the NCIA Act in its dealings with an opposition controlled state. By concentrating its efforts in the other three states, it may well be following the path of least resistance. If this is so, the full benefits from the complementarity between Penang and the hinterland states may not be reaped.

8. SUMMARY AND POLICY INFERENCES

The four-member states of the NCER have the potential to combine their relative strengths for mutual gain. Kedah, Perak and Perlis are predominantly agricultural hinterland states, endowed with abundant land and rich natural resources which remain to be fully exploited. Penang, with its strategic location and successful development through global economic integration over the past four decades, has the potential to perform the role of the gateway and knowledge hub in the economic corridor in order to bridge the development gap among the constituent states.

It is not possible to make a precise assessment of the outcome of the NCIA operations in the region due to the paucity of data and the obvious time lag involved in the materialisation of the expected outcomes of the investment projects. Nevertheless, even at this stage, two important insights come to the fore.

One insight is that the mere presence of critical ingredients necessary for a successful corridor development – gateway port and airport, logistic infrastructure and industrial clusters—cannot guarantee success unless there are planned efforts to integrate them into a composite whole to serve the key developmental objectives of the region. The NCER has a major gateway port and airport in Penang. Considerable resources have been spent on transport (logistic) infrastructure that links the key member states. There are also industrial clusters of differing levels of maturity located in at least three of the four states. Yet, these are individual initiatives independent of one another. What is not yet evident are efforts (or at least plans) to build on these existing advantages in order to integrate them into a unified whole to serve the key objectives of corridor development in the Northern Region. Such efforts might include strengthening the connectivity of the gateway port and airport to the planned new growth nodes in various parts of the hinterland through multi-modal linkages; exploiting existing industrial

clusters to reap the benefits of agglomeration; and ensuring affordable housing and good transport networks are available in the growing new urban centres so as to leverage on the synergies between urban and industrial development.

The second insight is that merely recognising that only a supra-state authority can effectively oversee the integrated development of the corridor is not enough; equal attention must be given to its composition/structure and powers so that it can do its duties effectively. The NCER is an example of how the need for an overall implementing authority was recognised but not enough attention was paid on constituting it in a manner that will make it effective. While any regional development initiative that cuts across borders, be it of states or nations, requires a supra-state (or national) authority to not only coordinate planning and implementation, but also to help align individual state (or national) interests to match the overarching goal of shared growth, the body must be so constituted that it gets the co-operation of member states and be vested with powers to command compliance from all stakeholders. In the case of the NCIA, the governing body of the NCER, although it has sufficient authority by way of the NCIA Act and the fact that the Prime Minister heads it, the Authority is unable to attract the full participation of member states, particularly of the opposition-governed state of Penang. This provides some clues on how the supra-state authority should be structured.

It is prudent to appoint a well-qualified and well- respected professional individual to head the NCER Council with sufficient legally backed powers to serve the objectives of the authority, instead of the Prime Minister with his onerous other responsibilities. Even more critically, the planning and implementation arm must have adequate representation of personnel from key planning bodies from all member states. There must also be a clear delineation of projects that states will implement and those implemented via the authority. Ideally, the authority should engage in initiatives that bring direct benefits to the region as a whole rather than to any particular state. This would mean identifying projects that have

substantial, positive spill-over benefits. Investments in large infrastructure providing road, rail, air or sea links would fall within this category. Developing industrial clusters that are aligned with the competitive advantage of given states would also be in line with this objective, provided they are linked with other areas that can provide ancillary support services, even if it means facilitating moving people, good or services across borders.

The other important but difficult task is to ensure that economics and the welfare of people take priority over politics in deciding on the type initiative, and where it should be located. The Malaysia Industrial Development Authority (MIDA), a federally constituted body tasked with attracting and directing investors to areas where they are best likely to grow profitably, is an excellent example of how federal bodies can act without being influenced by political expediencies. While MIDA and NCIA have very different objectives, the point being made here is that the former exercises its powers without bias. Admittedly, MIDA, unlike the NCIA, is not tasked with the implementing of projects but it does and can wield substantial powers to influence the direction and destination of new investments. MIDA has an economy-wide focus, basing its decisions solely on what a state can offer, in approving or promoting foreign direct investment in the country. Therefore, there have never been complaints about some states being ignored in favour of others.

The NCIA is basically a federal institution by design in which state governments and state-level stake holders have only a limited role to play, while all projects are federally funded on an individual basis. This arrangement vests an undue amount of influence in federal hands and hampers the operational freedom of the NCIA. It is difficult for NCIA to design policies and program to effectively exploit the growth and development potential of the states in order to redress development gaps and the rural-urban divide as envisaged in the original economic corridor proposal. This goal can only be accomplished by freeing the NCIA from excessive federal control—either real or perceived. If this issue is not addressed, the NCIA will be

relegated to another extraneous institution that merely duplicates what can already be done by the individual states. This, we believe, is a concern of national importance because the economic corridor program is here to stay due to its political-economy significance. It was a key theme in the past three national five-year development plans, and the latest (Eleventh) plan has increased substantially the total federal funding commitment to economic corridors, notwithstanding budgetary constraints.

NOTES

[1] These are the East–West Economic Corridor, running from Da Nang in Viet Nam through Lao PDR and Thailand to Myanmar; (ii) the North–South Economic Corridor running from Kunming in Yunnan province, in China, through the Lao PDR, Myanmar and to Bangkok; and from Nanning in Guanxi province of China, to Hanoi and Hai Phong, in Viet Nam, and (iii) the Southern Economic Corridor, which runs through the southern part of Thailand, Cambodia, and Viet Nam (ADB, 2017)

[2] Nelson Mandela, the then president of South Africa, viewed the planned SDIs as 'important stations for boarding the development train' (Rogerson, 2001, p 325).

[3] It is common in the recent literature to use the terms 'global value chain (GVC) and GPN synonymously. But it is important to distinguish between the two for analytical reasons. GVC is a broader concept (popularised by economic geographers and international political scientists) that refers to the governance structure relating to the vertical sequence of activities, from the production of a good to its final delivery to the consumer, over geographic space and across national boundaries. It is applied to both primary products and manufactured goods. GPN is specifically about interrelations among a set of firms specialising in different segments of the production process of a given product as a single economic group, within vertically integrated global industries.

[4] These three elements generally apply to both inter-country and within-country economic corridors, but logistic reforms are obviously more complicated in the case of the former because of national sovereignty issues.

[5] By the standards of the four Asian countries (Japan, South Korea, Taiwan, and China), which have recorded the quickest progression from poverty to wealth that the world has seen, Malaysia's development record is obviously not stellar, particularly given its better resource endowment (Studwell, 2013). But it is important to note that Malaysia's record has been matched by few developing countries outside East Asia and by only one of the so-called 'resource rich' developing countries in the world (Botswana).

[6] The full list of interviewees is available on request. We gratefully acknowledge their valuable inputs.

[7] Information collected from the from the Invest Penang (the investment promotion arm of the Penang Development Corporation) and The Penang Institute for the present study suggests that there has not been notable changes in the structure, ownership and performance of the manufacturing sector in Penang over the past five years.

[8] http://www.kulimhitechpark.com/kedah-to-set-up-more-technology-parks/

[9] Unless otherwise indicated, the discussion in Sections 5 and 6 are based on materials collected, and interviews conducted, during our fieldwork.

[10] Based on Hasri, (2016), interviews conducted with the senior officials of the Northern Corridor Implementation Authority (NCIA) and the Economic Planning Unit (EPU) in the Prime Minister's Department, and information from the websites of NCER and EPU.

[11] This sum includes the initial RM51.7 billion government allocation.

[12] Malaysian Digest, 25th Jan. 2017. See http://www.malaysiandigest.com/frontpage/29-4-tile/655159-ncia-to-achieve-accumulated-investment-of-rm87-3-bln-by-end-2017.html.

[13] A widely used alternative term is 'high-value foods'

[14] Whether the existing land tenure system is a constraint to promoting the production of high-value food production is an important issue which is beyond the scope of this study. For an authoritative analysis of the tenure system in Malaysia, see Faaland et al., 2003, Appendix A.

[15] These include, among others, the power to collect all major taxes, determine the allocation of development funds to states, provide defence, security and transport infrastructure. Moreover, only the Federal government has the power to borrow funds from external sources.

[16] Penang's fear that the proposed airport at Kulim would undermine Penang's airport was expressed publicly by its Chief Minister: http://www.thesundaily.my/news/1079080.

[17] This is evident from the fact that each of the major initiatives in Kedah, Perlis and Perak has been reported in the press as joint initiatives of the NCIA and the respective states. See, for example, https://www.nst.com.my/news/nation/2017/05/239294/kedah-unveils-two-mega-projects-set-transform-state; http://www.thestar.com.my/news/nation/2017/03/28/chuping-valley-industrial-hub-to-change-face-of-perlis/; https://www.nst.com.my/news/nation/2017/07/261768/blueprint-20-develop-peraks-economy

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