

Chapter 2.

Macroeconomic performance and framework conditions for innovation in Malaysia

This chapter provides an overview of Malaysia's macroeconomic performance. It begins with an examination of Malaysia's rapid growth and structural change in the context of its long-term economic trajectory since its independence. It next looks at the significant challenges the country has been facing since the 1997 Asian financial crisis, in particular due to the weakening of two of the main sources of growth: capital accumulation and productivity. The chapter then considers the current state of framework conditions for innovation.

Malaysia is one of Asia's great success stories. It has succeeded in developing into an upper middle-income country, and is now close to passing the high-income threshold. It has shown robust growth over most of the period since its independence, while transforming the structure of its economy and integrating into the global economy, not least through foreign direct investment (FDI) and participation in global value chains (GVCs). However, while Malaysia has been growing robustly for an extended period of time, growth has not always been smooth. The period of high growth in the 1990s was brutally interrupted by the Asian financial crisis of 1997, and with lasting effects. While the Malaysian economy recovered from the crisis, economic growth has not since achieved pre-crisis levels. Following the Asian financial crisis, Malaysia also lost some ground to other Southeast Asian economies with economic growth averaging 4.6% over the decade 2000-09. Malaysia was hit hard again by the global financial and economic crisis, with gross domestic product (GDP) dropping significantly in 2009, albeit less severely than a decade earlier. Current official forecasts are in the range of 4-5%. This is well below the average growth rate recorded during the four decades since Malaysia's independence, and is also below the growth target of 6.5% per year set in 2010 in the New Economic Model for the period 2011-20 (NEAC, 2010).

Furthermore, per capita income gaps *vis-à-vis* advanced countries are still high. There are clear signs that the dynamism of the Malaysian economy has considerably lessened over time. Two of the main sources of growth, capital accumulation and productivity, have shown signs of exhaustion further to the 1997 Asian financial crisis. The contribution of labour productivity to per capita GDP growth has dropped, from 3.7 percentage points (1990-00) to 2.1 percentage points (2000-12). The growth of multi-factor productivity – which measures the overall efficiency of the use of factors of production – was relatively weak in 2000-13, notably when seen in an Asian context. The rate of investment has also dropped drastically since the pre-crisis 1990s. The rates of investment achieved in the post-crisis years could not have sustained growth at the rates achieved before the crisis. Finally, Malaysia has also shown weaknesses in its export performance, indicated in some loss of market shares.

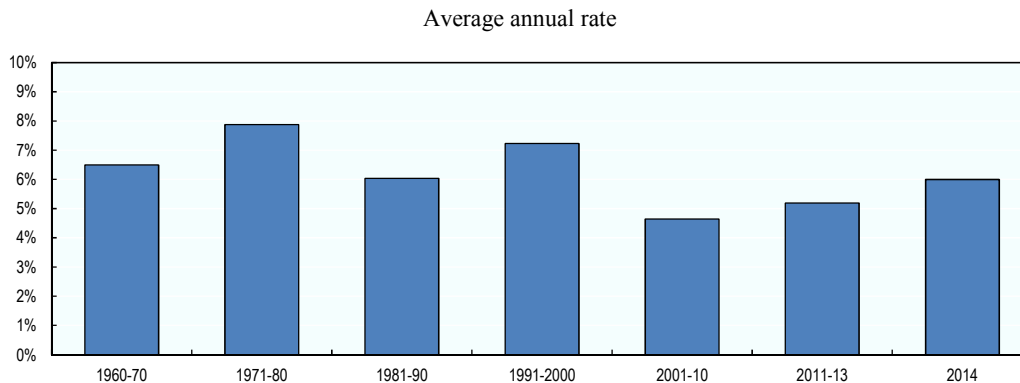
Economic performance and structural change

Economic development

Since its independence in 1957, Malaysia's economic performance has for the most part been impressive, with the result that Malaysia long ago entered the group of middle-income countries. Over an extended period of time Malaysia achieved robust annual growth in GDP, exceeding 7% in the 1970s and 1990s (Figure 2.1). Malaysia's economic growth even passed the 10% benchmark in some years. Since the end of the 1990s, the GDP trend growth has been around 5% per year (punctuated by the recession in 2009). Short-term official forecasts for 2016 are in the range of 4-5%.

With a gross national income (GNI) of USD 11 120 per capita (using current USD) in 2014,¹ Malaysia places well in the upper middle-income range, not distant from the high-income threshold.² Apart from Singapore (a city state and *entrepôt* economy with specific characteristics) and Brunei Darussalam (an economy largely based on oil resources), Malaysia has achieved the highest level of GDP per capita among the ten Association of Southeast Asian Nations (ASEAN)³ countries, ahead of Thailand and Indonesia (Figure 2.2).

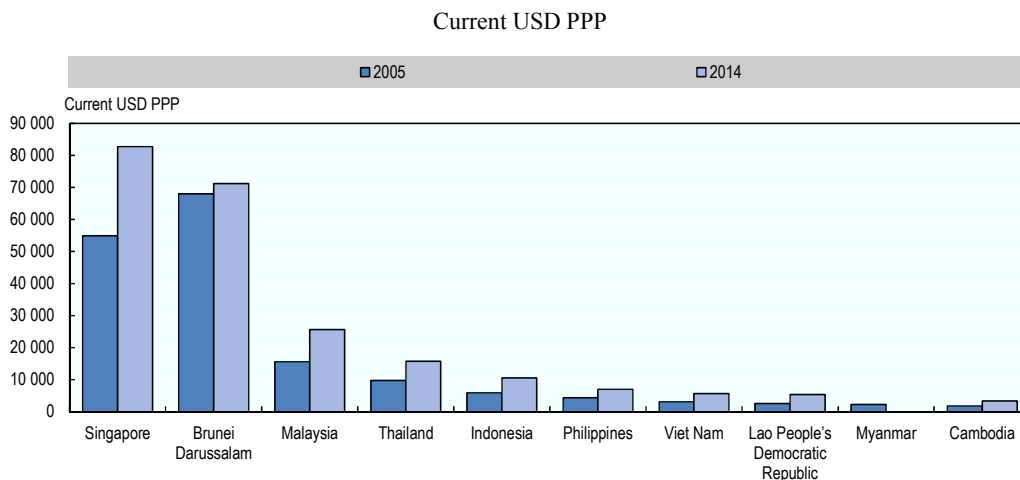
Figure 2.1. Growth of GDP, Malaysia, 1960-2014



Source: World Bank (2015b), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.

To achieve this level of per capita income, Malaysia – like other countries in East Asia – used export-led manufacturing based to a large extent on FDI to emulate the success of the first wave of “Asian Tigers”⁴ to build manufacturing capacity, which was at the core of its export-led model (Yusuf and Nabeshima, 2009). The government was instrumental in attracting multinational enterprises (MNEs) to locate in Malaysia, including by offering generous incentives, tax relief and subsidised investment loans.

Figure 2.2. GDP per capita of Southeast Asian countries, 2005 and 2014



Source: World Bank (2015b), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.

Wider social progress

Malaysia’s success is not confined to the economic dimension. It can also be demonstrated in a much broader set of indicators on areas impinging on many important aspects of life. This is reflected, for example, by Malaysia’s “high human development” according to the 2013 United Nations Development Programme’s (UNDP) Human Development Index (HDI).⁵ Among the 185 UN member countries listed in the HDI, Malaysia ranks 64th – like Libya and Serbia, above Turkey, Mexico and Brazil, and marginally below such countries as Argentina, the Russian Federation and Latvia.⁶ The

emergence of a middle class has strengthened domestic demand for more sophisticated consumer goods and services which, in turn, may help stimulate manufacturing capabilities and services innovation. Moreover, during the past half-century Malaysia has built world-class physical infrastructures (roads, air transport facilities, rail, energy and water supplies; see the section on framework conditions below) and major knowledge infrastructures (notably an extensive system of universities and research institutes) that bode well for the future. There has been very significant urbanisation with some problems of transport congestion but none of the slum development or heavy environmental damage seen in many other cities.

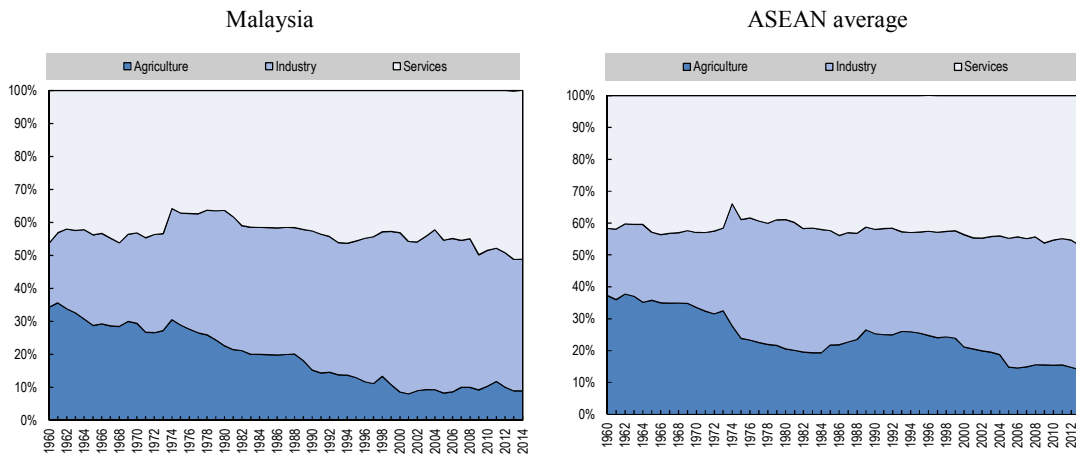
Structural change

Malaysia's economic success would not have been possible without a profound transformation of its economy. Since independence, Malaysia has moved from an economy based on primary commodities to one driven by manufacturing and, increasingly, services. Throughout the colonial period, and for some time after independence, Malaysia's economy was based on a number of resource-based industries: tin mining and processing, rubber, cocoa, timber and rice. Later on, as a dedicated government effort to diversify, new resource-based industries were encouraged and developed rapidly, notably oil and gas,⁷ as well as palm oil. Post-independence development has maintained the growth of these industries. The most important change was the development of manufacturing, especially in electronic and electrical (E&E) products, which became the motor of Malaysia's export-led growth. Government policy to attract MNEs through favourable framework conditions, specific incentives and the provision of infrastructure was an important factor contributing to this success. The government's industrialisation programme of the first half of the 1980s favoured, with mixed success, large-scale and capital-intensive projects including in steel, machinery and equipment, petrochemicals, cement and automobile manufacturing.

As a result, industry value added increased from 19% of GDP in 1960 to 40% in 2014, largely mirrored by a decline in the share of agriculture from 34% to 8.9%, while the share of services has recorded a mildly increasing trend since the first half of the 1970s, to 51% today (Figure 2.3). Malaysia has undergone a more profound structural transformation than the ASEAN region, which follows similar secular trends. The share of employment in agriculture in Malaysia (13% in 2012) is significantly lower than in ASEAN countries (apart from Singapore, for obvious reasons), which concur with the argument that the potential for the reallocation of labour from agriculture to other sectors has become limited (Box 2.1). This argument plays an important role in assessing scenarios of Malaysia's future economic development.

Between 1960 and 2000, Malaysia's manufacturing sector recorded a strong expansion, from 8% of GDP to a peak of 31%. By 2014, the manufacturing share declined to 23%, however. Seen over the past 35 years, Malaysia differs markedly from developments observed in other countries and world regions. In Southeast Asia overall, the expansion of the share of manufacturing in GDP was less pronounced than in Malaysia but lasted until the mid-2000s, when it also started to decline (Figure 2.4). In line with considerations of economic theory, in the European Union the relative weight of manufacturing showed a declining trend during the 1980s, and an accelerated pace since 1990. The same applies to the United States; advanced Asian countries also followed that pattern. A number of countries in Latin American and other world regions underwent a process that has been termed "premature deindustrialisation" (see, for example, OECD, 2014b).

Figure 2.3. GDP by sector, Malaysia and ASEAN countries, 1960-2013



Source: World Bank (2015b), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.

Box 2.1. Intersectoral reallocation of labour in the development process

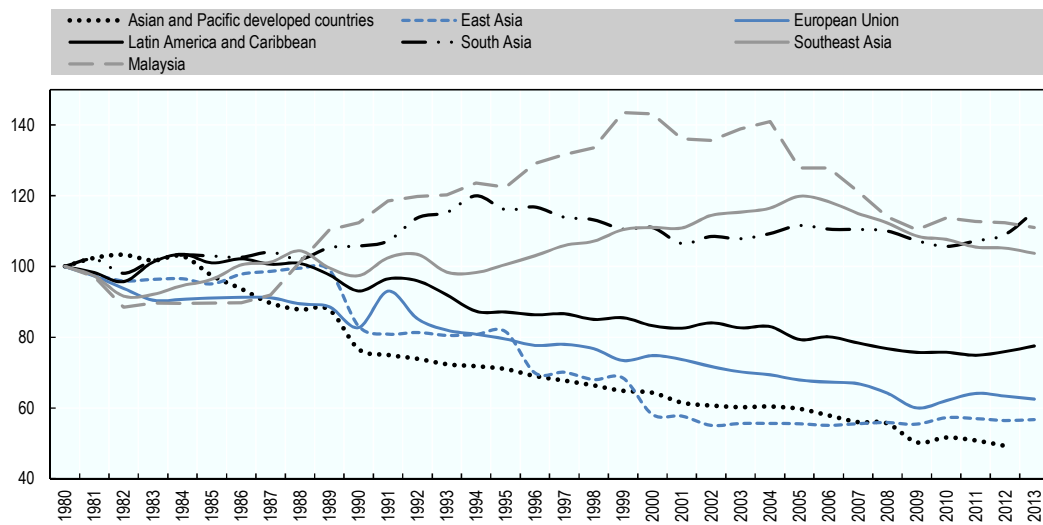
In the early stages of industrial development, it is structural change – the evolution of the sectoral composition of the economy – that provides most of the initial gains in total factor productivity. The transfer of labour and resources from low-productivity employment in subsistence farming and small-scale rural industry to urban industry and services results in a leap in factor productivity. This continues until much of the excess rural workforce is depleted or, to use different terminology, until the economy has reached the Lewis turning point as agricultural labour becomes scarcer and agricultural productivity and wages rise (Lewis, 1954). Herrendorf, Rogerson and Valentinyi (2013) provide a detailed review of the literature, analysing the process of structural change and its relationship to growth. Effectively, the turning point arrives when the mobile population in the 18-45 age group has migrated to urban areas. The People’s Republic of China (hereafter “China”) is rapidly approaching this point.

This process can last for two decades or more depending on growth in demand for labour in the urban sector. Viet Nam is still some distance from that turning point (45% of the population was still engaged in primary activities in 2010, down from 59% in 2002). China may be approaching the turning point, and India may still be a long way from completing the transition. The urbanisation of the economy can confer productivity gains through agglomeration economies (Glaeser and Gottlieb, 2009) and a greening of urban development with an eye to the implications of global warming, rising energy prices and emerging technological opportunities. As intersectoral resource transfers stabilise and a country begins approaching the technology frontier, home-grown innovation acquires a more important role. Sustaining rapid growth depends more on promoting innovative activity and on the commercial success of innovations. To maintain economic growth, the economy will have to rely more on within-industry productivity growth.

According to the OECD (2014c), middle-income countries such as Malaysia, and to a greater extent India and Indonesia, still have (varying) margins to shift labour from lower productivity sectors (agricultural) to higher productivity sectors (agricultural, industry and service). It was still an important factor of labour productivity growth in many countries between 2000 and 2009, including in India, Indonesia, Mexico and Turkey.

Source: Adapted from OECD and World Bank (2014), *Science, Technology and Innovation in Viet Nam*, <http://dx.doi.org/10.1787/9789264213500-en>.

Figure 2.4. Evolution of the share of manufacturing in GDP, Malaysia and selected world regions, 1980-2013



Note: 1980=100.

Source: World Bank (2015b), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.

Since 2000 the share of manufacturing in value added has decreased while the weight in services has increased (Figure 2.5). The service sector now accounts for more than half of Malaysia's GDP (51.2% in 2014) and is continuing to grow (Figure 2.6); in recent years, the service sector's value added has grown at a faster pace than value added in manufacturing.⁸ As could be expected, this trend contrasts with the transformation of other, more recently emerging ASEAN economies such as Cambodia, Lao PDR, Myanmar and Viet Nam, where the share of industry in total value added increased markedly (ERIA, 2014). Only recently – and to a lesser extent – has the share of services become more prominent in Southeast Asian countries, reaching 31% of GDP in Brunei Darussalam and 75% in Singapore in 2014 (close to the level of the most advanced countries, e.g. 78% in the United States and 73% in Japan in 2013).

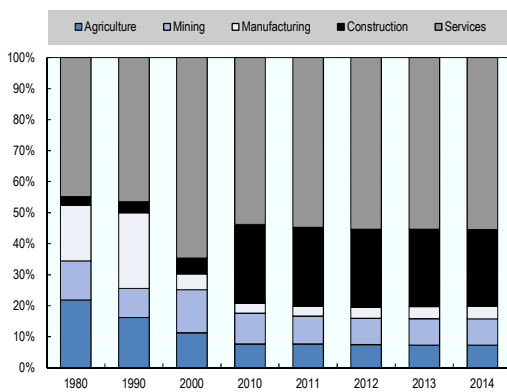
Challenges to becoming a high-income economy

Persisting gap with advanced economies and the “middle-income trap”

Notwithstanding Malaysia's robust growth performance, the gap *vis-à-vis* the advanced economies in terms of GDP per head is still large (Figure 2.7). In fact, the gap *vis-à-vis* the average and, even more, the top-performing OECD countries, increased. In addition, there have been concerns over the slow pace at which Malaysia has been advancing towards the high-income threshold. At a level of GNI per capita at USD 11 120 (current USD, Atlas method) in 2013, Malaysia reached the lower middle-income threshold in 1969 and crossed the higher middle-income threshold in 1996 (i.e. 27 years later). The optimism of the authorities at the beginning of the 2000s, forecasting average annual growth at 7.5% (supported by a total factor productivity [TFP] contribution of 3.2%) over the 2000s, growth remained in the range of 5% (Woo, 2009). As of 2015, Malaysia has thus spent 46 years in the middle-income category, including 19 years in its upper tier. By comparison, Korea, which joined the middle-income group

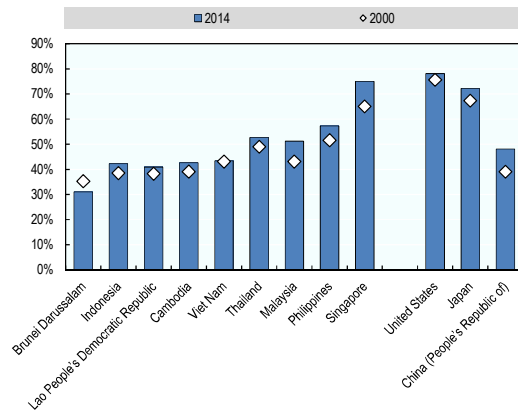
of countries the same year as Malaysia, reached the upper middle-income level as early as 1988 (i.e. within 19 years) and achieved high-income status in 1995 (i.e. within another 7 years; see Table 2.1). China has achieved the most rapid transition since the 1950s, advancing from lower (1992) to upper middle-income (2009) status within 17 years (Felipe, 2012). These delays and signs of weakening economic dynamism – some of which have been mentioned above – have nourished concerns that Malaysia may be facing what has become to be known as the “middle-income trap” (Box 2.2). According to Felipe (2012),⁹ Malaysia was, as of 2010, the only Asian country in the “upper middle-income trap”.

Figure 2.5. Share of sectors in GDP, Malaysia, 1990-2014



Source: APO (2014), *APO Productivity Databook 2014*.

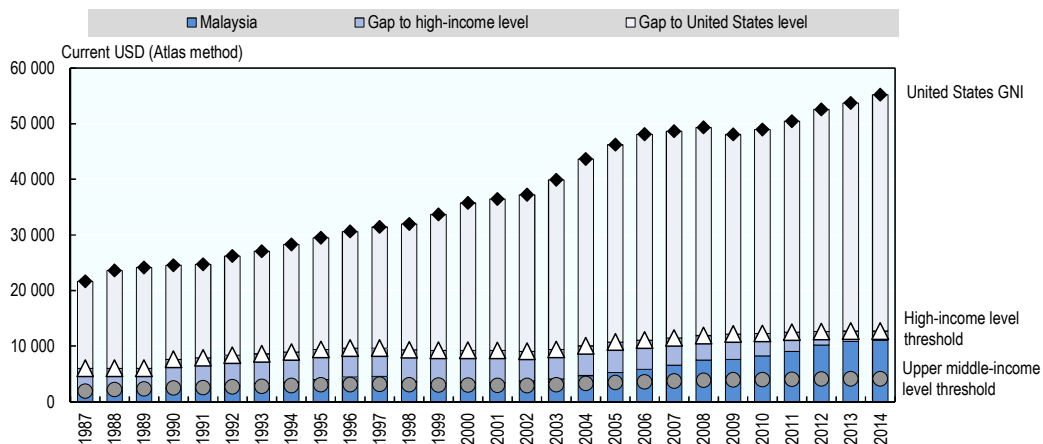
Figure 2.6. Share of services in GDP, Malaysia and selected countries, 2000 and 2014



Note: Data for Brunei Darussalam, Japan and the United States are for 2013.

Source: World Bank (2015b), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.

Figure 2.7. Gap between Malaysia’s GNI per capita and the United States and the high-income threshold, 1987-2013



Source: World Bank (2015b), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.

Table 2.1. Transitions between the World Bank income categories since 1950, selected Asian countries

	1950s	1960s	1970s	1980s	1990s	2000s
Upper middle-income to high-income			Japan (1977)	Hong Kong (China) (1983) Singapore (1988)	Chinese Taipei (1993) Korea (1995)	
Lower middle-income to upper middle-income		Hong Kong (China) (1976) Japan (1968)	Singapore (1978)	Chinese Taipei (1986) Korea (1988)	Malaysia (1996)	Thailand (2004) China (People's Republic of) (2009)
Low-income to lower middle-income	Japan (1951)	Malaysia (1969) Korea (1969) Chinese Taipei (1967)	Thailand (1976) Philippines (1976)	Indonesia (1986)	China (People's Republic of) (1992)	
Low-income		Lao People's Democratic Republic Cambodia Myanmar Viet Nam				

According to Ohno (2009), neither Malaysia nor Thailand have succeeded so far in breaking through the divide between the stage of “technology absorption” – characterised by a situation where a domestic supplier base has emerged but MNEs still dominate the industry – and the stage of “creativity” – where the country has internalised skills and knowledge and acquired the capacity to create new products. Yusuf and Nabeshima (2009) found that in the important electronics industry, there is little evidence of technological deepening and rising value added despite some success stories. Rasiah (2010) provides a more nuanced assessment. According to his findings, the technological capabilities of Malaysian electronics firms have increased significantly, but he also states that their participation in the most technology-intensive activities is still very low. For a further discussion on this point, see Chapter 4.

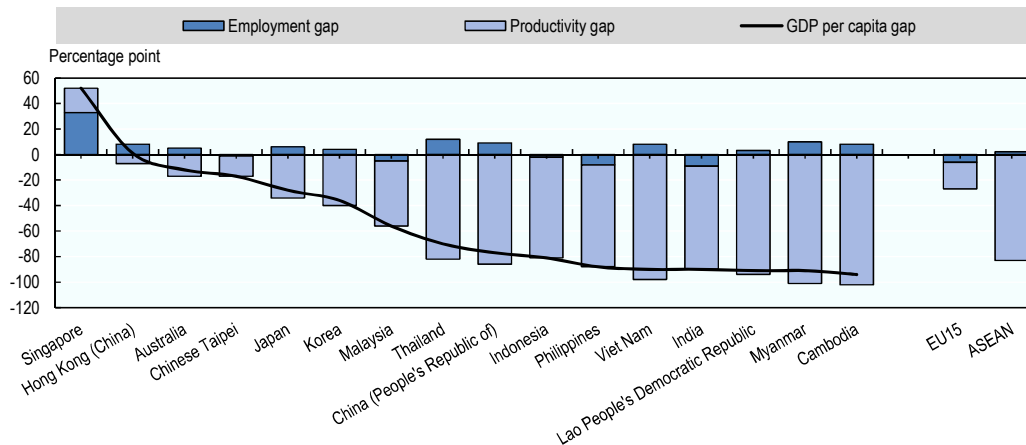
However, Malaysia is approaching the high-income threshold¹⁰ and can be expected to cross it in due time. According to the “best scenario” projection based on historical growth trends, achieving high-income status by 2020 is well within reach for Malaysia (OECD, 2014a).¹¹ This is a major achievement and a good occasion to look beyond 2020. There is a continuing challenge to transform and revitalise the Malaysian economy in order to continue the catch-up process vigorously, with innovation playing a major part.

Productivity growth slowdown

The difference between the level of Malaysia’s GDP per capita and that of the United States – and more generally in relation to most advanced economies – can be attributed to a combination of differences in labour productivity and, to a small part, labour utilisation. Figure 2.8 shows that the income gap of Southeast Asian countries to the United States can indeed be almost entirely attributed to lagging labour productivity. The gap in relation to the United States increased between 2000 and 2008 for large emerging economies such as Brazil, Mexico and Turkey (OECD, 2014a). This is not the case for Malaysia, where the gap in GDP per capita to that of the United States has been

narrowing compared to 1995 as a result of decreasing differences in both labour utilisation and productivity. Malaysia reduced its gap in labour productivity from -56 to -51. While Singapore reversed the gap to its advantage from -2 to +19 and Thailand reduced it from -87 to -82, other Southeast Asian countries recorded a widening gap (APO, 2015).

Figure 2.8. **Income gap relative to the United States, 2013**



Note: Labour productivity is defined as real GDP per worker; the employment rate is measured as the number of workers relative to the population. Decomposition of per capita GDP gap at constant market prices using 2005 PPPs.

Source: APO (2015), *APO Productivity Databook 2015*.

While Malaysia has been catching up, it has yet to reach the level of productivity¹² achieved by the United States in the 1970s, and is currently lagging 20 years behind Japan and 25 behind Singapore (Figure 2.9). At the same time, Malaysian productivity levels are significantly higher than in most other Southeast Asian countries. However, there have been signs of weakening. Malaysia saw its labour productivity growth decrease from 3.3% during the 1990s to 2.3% over the period 2000-12 (APO, 2014).¹³

The decomposition of growth into the contribution of accumulation of factors of production – (various types of) labour and capital – and TFP sheds light on some of the characteristics of Malaysia's development trajectory since the 1970s (Figure 2.10). Like in other catching-up economies, Malaysia's rapid growth over the period 1970-2000 was mainly driven by non-IT capital accumulation (accounting for more than half of the recorded growth during this period) and, to a lesser extent, by labour input (in the range of 20% in the 1970s and 1980s, then decreasing to about 10% in the 1980s) and TFP (increasing from 1% in the period 1970-85 to 6% in the period 1985-2000). IT capital¹⁴ played a minor role during these three decades. In the aftermath of the Asian financial crisis, Malaysia has experienced not only a significant growth deceleration, but also important shifts in growth patterns. In particular, IT capital inputs have become more important, accounting for 13% of growth between 2000 and 2013, while the contribution of physical capital decreased by about half compared to the earlier period.¹⁵ The contribution of TFP, however, decreased to 6% in 2010-13 (APO, 2015).¹⁶

Box 2.2. Malaysia and the middle-income trap

The so-called middle-income trap can be defined as a stage characterised by a slowdown in growth due to an inability to move up the value chain, away from factor-driven, export-dependent growth and into new innovation-driven industries.

According to development theories, the model of development of economies having achieved the transition from a low-income to a high-income status contains its own limitations at its very core. Besides national specificities, this growth model relies in many cases upon the transfer of labour inputs from low productivity, resource-based sectors to higher productivity industry and service sectors, and the accumulation of physical capital allowing important economies of scale in manufacturing. High volumes of production, consisting to a large part of low value-added final products and goods assembled from imported components, are mainly intended for exports. As the volume of potential transfer of labour diminishes, the average wages increase and, consequently, hinder these countries' comparative advantage in labour-intensive industries. Other economies formerly lagging behind but currently entering the process of industrialisation would then conquer increasing market shares in regional and global value chains based on their greater labour availability and, therefore, lower labour cost. This shift in regional production is reinforced by FDI flowing toward the newly emerging countries, partly at the expense of the development of the formerly fast-growing economies.

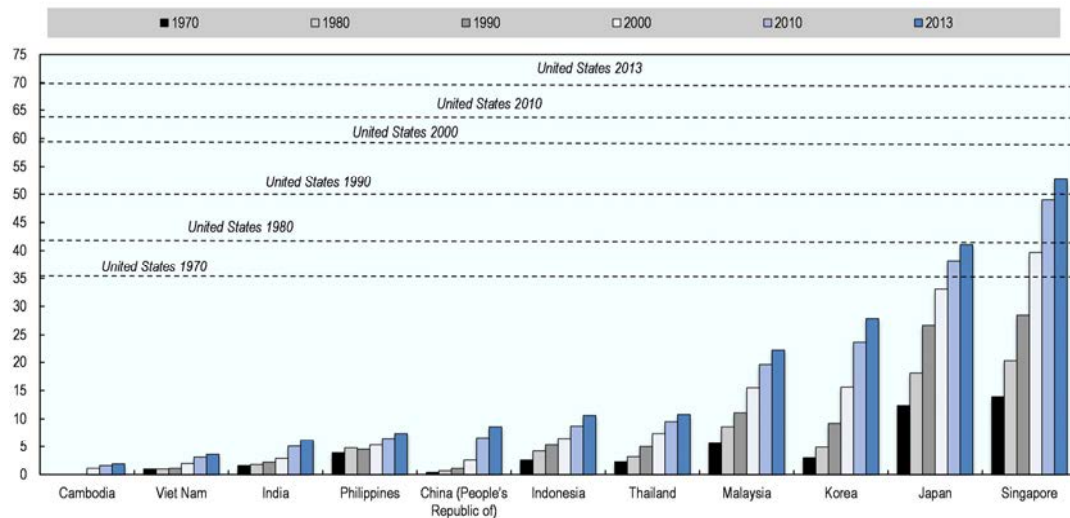
Middle-income countries are therefore compelled to carry out micro and macroeconomic, structural and institutional reforms in order to shift from an intrinsic/quantitative growth model based on factor accumulation, toward an extrinsic/qualitative growth model based on improvement of labour skills, ICT capital, production organisation and corresponding higher value-added services. However, besides their own domestic barriers hindering such a transition, these countries also face fierce competition from advanced economies in the high value-added manufacturing and service sectors. As it is argued by the precursors of this concept, the countries in the middle-income trap that do not grow fast enough to reach the high-income category find themselves “squeezed between the low-wage poor-country competitors that dominate in mature industries and the rich-country innovators that dominate in industries undergoing rapid technological change” (Gill and Kharas, 2007).

There are ongoing debates about what could be considered a reliable marker of an income “trap”. Recent research has found that the slowdown tends to occur at different income levels (one around USD 10 000 and another around USD 15 000 of GDP per capita, constant PPP dollars) rather than at one single point in the country's development trajectory (Eichengreen, Park and Shin, 2013). Other scholars have argued that there is no such “trap”, claiming that slowdowns can occur at any level of a developing country's per capita income. Recent history shows that several middle-income countries have experienced persistent difficulties in moving up the value chain, which keeps them at an upper middle-income level. This is, in particular, the case of several Latin American countries which reached the middle-income level decades ago.¹ Of the 13 countries which have succeeded in making the transition from middle- to high-income status since the 1960s, five were from East Asia – pioneering Japan and the four “Asian Tigers” of Hong Kong (China), Korea, Singapore and Chinese Taipei. However, the extent to which these countries' trajectories could offer a model for the “second generation” of Asian Tigers is a matter of debate since the geopolitical and institutional contexts have changed significantly in the last two decades (OECD, 2013a). In particular, international competition on product markets and the “market” for FDI has become more vigorous, not least due to the rapid rise of China and the evolution of global value chains, based on the fragmentation of production. In addition to the change in context, their initial conditions are different in the sense that the economy of newly emerging countries was mainly resource-based, with little prior industrialisation. This has further extended the time of transition, as it required building the intrinsic engine of growth almost “from scratch” and provided less incentives for private actors to do so in the absence of a strong policy. Ohno (2009) also argues that the catching up of latecomers appears more complicated than it was for the first wave of emerging economies for several reasons: these countries have fewer possibilities to protect their nascent industries; they lack a strong private sector comparable to those of Japan and Korea; and their governments fall short of having the industrial policy vision and capabilities to steer the development process.

1. According to Zhuang, Vandenberg and. Huang (2012), 28 countries have remained in the middle-income category since at least 1987, among them 14 are in Latin America (including Argentina, Brazil and Costa Rica) and 3 are in Asia (Malaysia, the Philippines and Thailand).

Figure 2.9. Levels of labour productivity per hour worked, selected Asian countries, 1970-2013

In constant market prices, 2011 PPPs



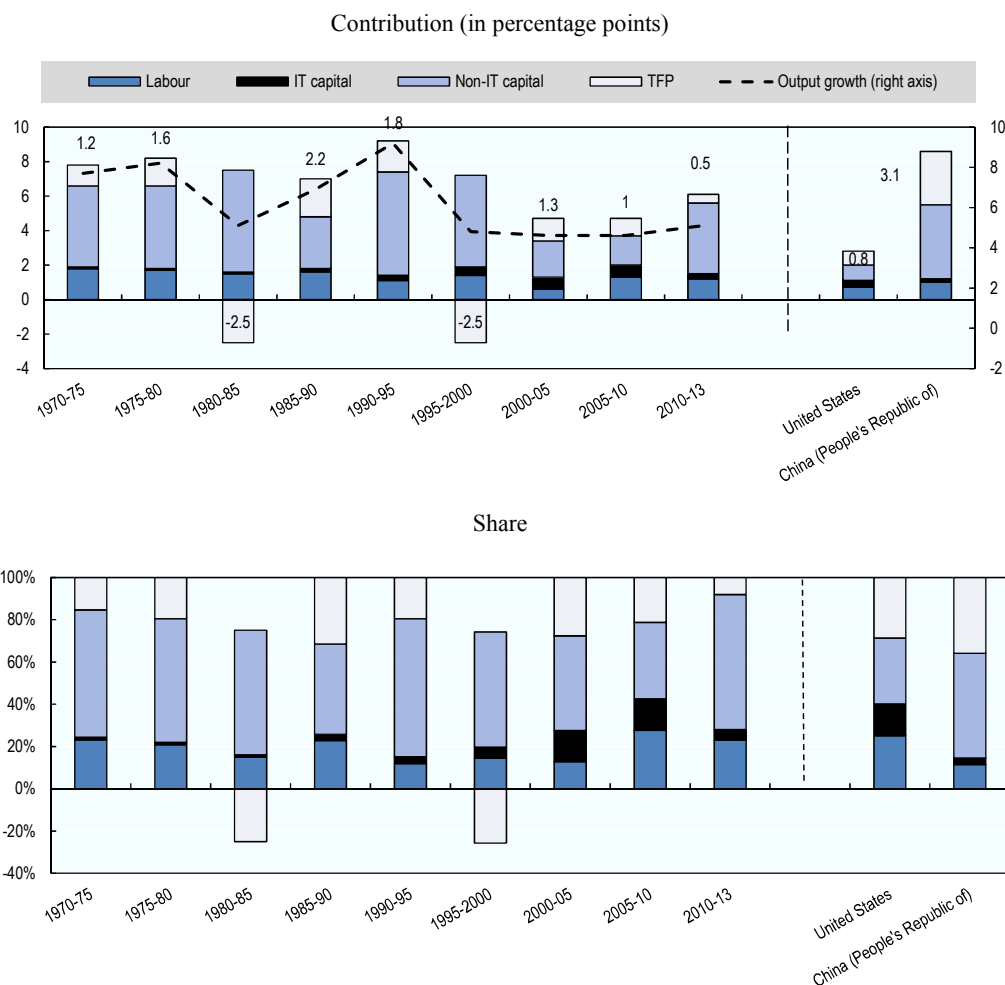
Source: APO (2015), *APO Productivity Databook 2015*.

The bulk of the contribution of the two traditional production factors to growth is made through factor accumulation rather than through a qualitative change: the improvement of labour quality only contributed 0.1% (out of the total 1.1% contribution of labour) to the 5.1% GDP growth over the period 2011-13. It accounted for a share of 2.4% of GDP, compared with 12.6% in Japan, 8.8% in Singapore, 8.4% in Korea and 7% in the United States (MPC, 2014). Despite its increase, non-IT capital exceeds by far the contribution of IT capital (35% versus 10% in 2010-12).

The evolution of the two determinants of labour productivity, TFP and capital intensity (“capital deepening”), during the period 1970-2013 shows that capital intensity remained high and TFP performance modest, both in terms of contribution (in percentage points) to growth and share in growth (0.5% growth, contributing 17% to the country’s GDP growth between 1970 and 2012). While in the medium to long term capital deepening should translate into higher TFP and, as a result, an increase in labour productivity, this has yet to happen in Malaysia. This may relate to the fact that a large share of investment went into construction (between 45% and 47%), which contributes less to improving labour productivity. ICT and machinery and equipment accounted for only 9% and 14%, respectively, of total investment during this period, and the investment in intellectual property (IP) products represented at most 1.7% (MPC, 2014).

The manufacturing sector is crucial to the development of middle-income countries as it is often the main recipient of foreign technology, which can be then adopted and progressively adapted using domestic innovation capabilities. Between 1990 and 2000, Malaysia’s manufacturing sector was the main contributor to economic growth (2.4% per year on average) and at a greater level than in any other Asian country – with the notable exception of China (4.4%). Over the period 2000-13, however, Malaysia’s manufacturing growth – at an average annual growth rate of 1% – lagged behind that of several emerging economies. This concerns not only newly catching-up economies such as Myanmar (2.3%), Cambodia (1.8%) and Viet Nam (1.7%), but also Thailand (1.3%) and Chinese Taipei (1.8%) (APO, 2015).

Figure 2.10. Contributions and shares of labour, capital and total factor productivity to GDP growth in Malaysia, in comparison with China and the United States, 1970-2013



Notes: TFP = total factor productivity. Data for China and the United States are for 1970-2013.

Source: APO (2015), *APO Productivity Databook 2015*.

While the weight of value added in services in Southeast Asian economies increased rapidly, labour productivity in this sector remains low. With the exception of Hong Kong (China) and Singapore, the gap in relation to the level of service sector labour productivity achieved in advanced economies is even wider than in the respective gap in the manufacturing sector (Noland, Park and Estrada, 2012). This can be explained by the fact that most of these growing activities still consist of labour-intensive, “low-tech” services, such as often inefficient activities in wholesale and retail trade, and hotels and restaurants (OECD, 2014a). Labour productivity growth in the Malaysian service sector has accelerated, from 0.9% between 1980 and 2000 to 2.1% between 2000 and 2010, exceeding the growth achieved by other ASEAN countries (Park and Shin, 2012). It is, however, far below the productivity growth in major emerging Asian economies (8.1% in China and 5.4% in India).

The drop in gross capital formation

As mentioned above, growth of the Malaysian economy was largely supported by capital accumulation, including through FDI. However, the 1997 Asian financial crisis led to a dramatic slump of investment, from a record high of almost 45% of GDP in 1998 to about 22% in 2000. Investment has remained at a low level since and reached a low during the crisis in 2009. Since then the rate of investment has rebounded to levels above those recorded in the 2000s but still far below pre-crisis levels (25% of GDP in 2014).

FDI represents a significant but varying share of investment in Southeast Asia (Table 2.2). It has been predominant notably in Singapore, Cambodia, Brunei Darussalam and, to a lesser extent, Viet Nam. In Malaysia, the share of FDI in overall investment has remained in the middle range, above 15% of gross fixed capital formation in the 1990s and 2010s and around 12% in the 2000s (with an all-time low in 2001 at 2.1%) and again around 15% during the period 2010-14. The Asian financial crisis in 1997, and again the financial crisis in 2008, were associated with large outflows of FDI as investors repatriated part of their investment.

Table 2.2. **Inward foreign direct investment flows as a share of gross fixed capital formation**

Country	In %		
	1990-99	2000-09	2010-14
Malaysia	15.9	12.1	14.8
Brunei Darussalam	22.4	68.9	29.9
Cambodia	37.8	27.5	56.9
Indonesia	3.9	1.3	6.7
Lao People's Democratic Republic	20.5	9.8	x
Myanmar	38.7	20.6	22.9
Philippines	6.8	6.9	5.8
Singapore	35.3	68.7	79.6
Thailand	9.0	13.8	9.6
Viet Nam	31.1	16.3	21.7
China (People's Republic of)	11.1	7.7	3.3

Note: x = not applicable.

Source: UNCTAD (2015), *FDI Statistics Division on Investment and Enterprise* (database), <http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics.aspx>.

Asia and Europe are the most important sources of FDI in Malaysia (accounting respectively for 41% and 34% in 2011). The largest investors are Singapore, followed by Japan and the United States (OECD, 2013b). About half of these investments are in the manufacturing sector, in particular in the electronics industry, and one-quarter in the financial sector. The latter benefited from the government support designed to make Malaysia a global leader in Islamic finance (OECD, 2013b). The evolution and structure of FDI flows is all the more important as it is linked to the manufacturing performance. Empirical evidence suggests that there is a strong correlation between FDI (stocks) and manufacturing value added since building and maintaining manufacturing capabilities need sustained investment (ERIA, 2014).

Malaysia's trade performance and participation in global value chains

Through export-led industrialisation Malaysia transformed itself into Asia's third most open economy. The value of exports reached a peak at about 120% of GDP in 1999. Although the relative weight of Malaysian gross exports in its economy declined after

that date, it still exceeds that of ASEAN economies on average (2013) and expectedly those of large economies such as China.

In contrast to past decades, however, exports are now increasing at a slower rate, which indicates that the model might be reaching its limits (Table 2.3). Over the period 1970 to 2000, exports of goods and services expanded steadily, at an average annual growth rate of about 10%. A similar expansion took place in other ASEAN countries, though with an average growth rate of exports of 9.5% over the same period. However, in more recent years, Malaysia's exports have been growing at a slower pace (on average 4.5% annually over the 2000s) and 5.1% over the period 2013-14.

Table 2.3. Average annual growth rate of exports of goods and services, Malaysia, ASEAN, China and the United States, 1970-2014

Country/region	In %					
	1970-79	1980-89	1990-99	2000-09	2010-12	2013-14
Malaysia	8.2	9.2	12.7	4.5	3.6	5.1
ASEAN	9.3	8.0	11.1	7.9	7.6	-0.48 ¹
China (People's Republic of)	..	8.6	16.5	15.9	13.4	4.0
United States	7.4	6.0	7.2	3.4	6.3	2.8 ¹

Note: .. = not available.

1. Data are for 2013.

Source: World Bank (2015b), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.

The composition of the Malaysian export basket has changed radically compared to four decades ago. The part of the resource-based sector has been declining over time while the part of electrical appliances and goods has been expanding. Pre-independence Malaysia was one of the world's largest producers and exporters of tin and rubber (accounting for some 95% of total exports). Since the early 1980s, electrical goods and appliances and electronic goods, particularly semiconductor devices, came to represent a large portion (some 40% at some times) of total exports – while natural resources now only account for about 30%.

Malaysia remains at the top globally in terms of its share of “high-technology” exports in total manufacturing exports. However, this performance has deteriorated. While it was well above the level achieved on average by OECD top-performers in 2000, its share of total manufacturing exports has decreased markedly since then. Indicators pertaining to production or trade in goods classified as “high-technology” should be interpreted with caution, however, as the corresponding domestic activity is not necessarily of a knowledge (R&D)-intensive, high value-adding character. High-technology content may well pertain to imported components, not to the tasks performed locally. Most of the activity in high-tech manufacturing remains assembling imported parts with relatively low domestic value added. This is the case of assembly manufacturing platforms, including in China (which has embarked on a dynamic process of upgrading), and recently Viet Nam.

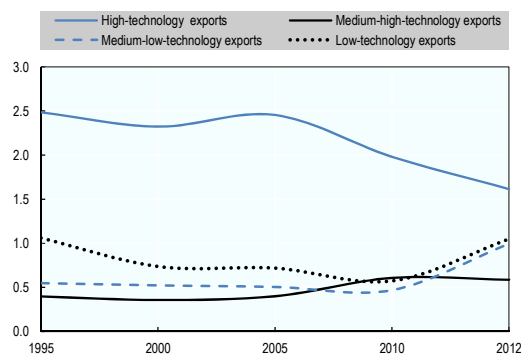
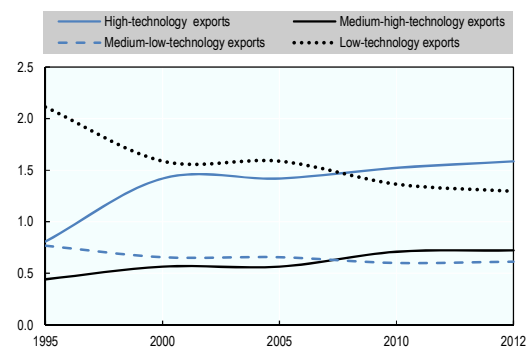
Malaysia's export specialisation in “high-technology” products is evidenced by a breakdown of exports into finer product groups (Table 2.4). Electrical machinery, apparatus and appliances are the most important commodities exported from Malaysia and in particular electronic integrated circuits and micro-assemblies. More generally, six out of ten top export items at this level are E&E products. Liquefied gas is the third, palm oil the fourth and crude petroleum the fifth most important export commodities.

Table 2.4. **Top ten export commodities, Malaysia, 2013**

Class	Commodity (4-digit heading of harmonised system 2007)	Rank in exports	Export value (USD million)	Share of total exports (%)	Share of world exports (%)
7764	Electronic integrated circuits and micro-assemblies	1	24.9	10.9	5.1
9310	Special transactions and commodities not classified according to kind	2	23.7	10.4	1.4
3431	Natural gas, liquefied	3	18.9	8.3	11.2
4222	Palm oil and its fractions	4	12.3	5.4	37.6
3330	Crude petroleum	5	10.2	4.5	0.8
7763	Diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices	6	6.0	2.6	6.7
7599	Parts and accessories, data-processing machines	7	5.4	2.4	4.3
7768	Piezoelectric crystals, mounted; parts of the electronic components	8	4.5	2.0	13.4
7527	Storage units, whether or not presented with the rest of a data-processing machine	9	4.3	1.9	5.9
7611	Television receivers, colour (including video monitors and video projectors)	10	3.6	1.6	4.4

Source: UNcomtrade (2015), *United Nations Commodity Trade Statistics Database* (database), <http://comtrade.un.org/db/default.aspx>.

The Revealed Comparative Advantage (RCA)¹⁷ Index reveals Malaysia's strong export specialisation in "high-technology" products (Figure 2.11). This specialisation has, however, decreased significantly, from 2.5 in 2005 to 2 in 2010 and 1.5 in 2012. By contrast, China's specialisation in high-tech products has been slightly increasing (Figure 2.12).

Figure 2.11. **Revealed Comparative Advantage by industry type, Malaysia, 1995-2012**Figure 2.12. **Revealed Comparative Advantage by industry type, China, 1995-2012**

Source: OECD calculations, based on CEPII (2015), *BACI World Trade Database* (database), www.cepii.fr/cepii/fr/bdd_modele/presentation.asp?id=1.

However, in a world where fragmented production in global value chains (GVCs) has become widespread, these gross export statistics can lead to misinterpretation of the patterns of specialisation as one country can import most of the goods that it exports after having performed some low value-adding assembly tasks.

Table 2.5 classifies East Asian economies according to constellations of RCA values, taking both exports and imports into account.¹⁸ It shows that Malaysia is not only exporting a higher share of “high-technology” products than the world average (i.e. enjoys an RCA in this class of products), but that it also imports a disproportionate share of intermediary high-technology products (components). For instance, several of the top ten export products pertaining to the E&E industry are also among the top ten import products.¹⁹ Other indicators confirm that Malaysia’s technology-based export products have high import content.

Table 2.5. **Highest Revealed Comparative Advantage of ASEAN countries, 2012**

	High-technology exports	Medium-high-technology exports	Medium-low-technology exports	Low-technology exports
High-technology imports	China (People's Republic of) Malaysia		Hong Kong (China)	
Medium-high-technology imports				
Medium-low-technology imports	Singapore			Indonesia Thailand
Low-technology imports			Lao People's Democratic Republic	Cambodia Myanmar Viet Nam

Note: Grey zones indicate profiles where countries have a higher Revealed Comparative Advantage in higher technology product categories in imports than in exports.

Source: OECD calculations, based on CEPII (2015), *CEPII BACI World Trade Database* (database), www.cepii.fr/cepii/fr/bdd_modele/presentation.asp?id=1.

This is also reflected in statistics of domestic content in exports. In the case of Malaysia, this ratio has not changed significantly between the mid-1990s and today (Figure 2.13). This means that Malaysia has not reaped the full benefits of GVC integration. Domestic content in exports (of both final and intermediate products) has actually decreased, from 69.5% in 1995 to 59.4% in 2011. In contrast, it expanded in the Philippines, moving from 70% to 76.4% while it remained more or less at the same level in Indonesia and China (88% and 67.8%, respectively) in 2011.

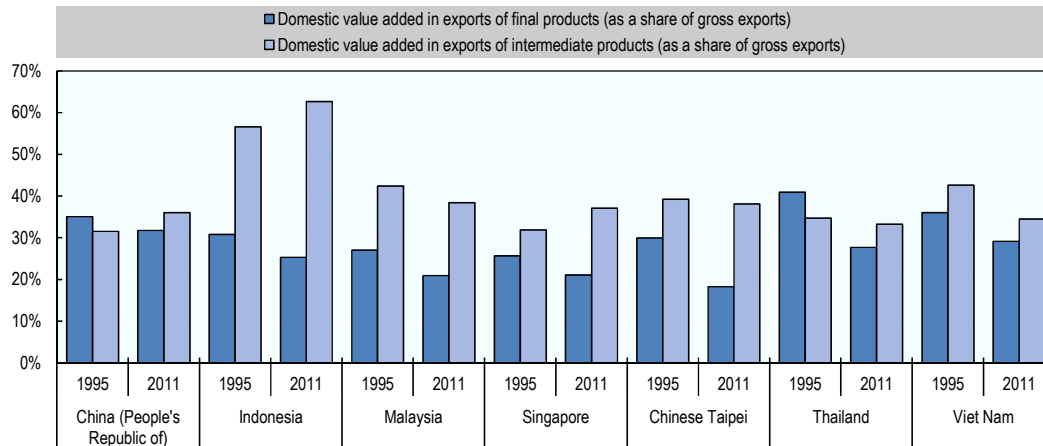
The domestic contribution in exports of final products (as a share of gross exports) decreased from 27% in 1995 to 21% in 2011 (Figure 2.13). A slight contraction is also recorded for domestic value added in exports of intermediate products. The latter is considered a measure of “forward linkages”, or how much exports are connected to a secondary stage of production in another country. In this sense, forward integration did not change substantially in Malaysia in the 16 years shown in Figure 2.13.

Overall, the GVC integration of Malaysia is mostly driven by a high backward participation – a high import content of exports (40.6% of total gross exports) – which is about twice as high as the average in both developing and developed countries. In contrast, the forward ratio (part of gross exports that are used as inputs in a forward value chain stage) displays levels close to the world average (19.8%). The top GVC importing industries are computer and electronics (40.5), food and beverage (7.2), and chemical products (5.9).²⁰

At 60.4% of gross exports in 2011, Malaysia’s total GVC participation remains higher than the world average as measured by the GVC participation index. The average in developing and developed countries was 48.6% and 48% respectively. Although this

intensity in global integration has been growing, this expansion is similar to (rather slightly lower than) the average in developing countries. Over the period 1995-2011, Malaysia recorded an annual percent change of 11% in the GVC participation index while the average in developing countries was 12%.

Figure 2.13. Domestic value added in exports, 1995 and 2011



Source: OECD/WTO (2016), “Trade in value added”, *OECD-WTO: Statistics on Trade in Value Added* (database), <http://dx.doi.org/10.1787/data-00648-en>.

Malaysia’s strong export performance has largely been driven by a successful integration in GVCs, but this performance currently faces growing competition by other countries from the region and China. While China’s increasing demand for a broad range of exports has evidently benefited Southeast Asian countries, its growing performance in manufacturing also presents a challenge. The pace at which it upgrades its economy and raises productivity can be expected to further raise competitive pressures and to some extent replace imports of components that are currently manufactured in Southeast Asian countries (Box 2.3). In addition, a new cohort of catching-up economies is emerging in global trade, notably in the Southeast Asian region; Viet Nam, which is rapidly expanding its participation in global manufacturing trade is one example (Box 2.4).

Framework conditions for innovation

The role of framework conditions

The macroeconomic and general business environment, the product and labour market regulations, competition intensity, the accessibility and quality of business financing, the tax system, the level and quality of entrepreneurship, and the quality of infrastructure all influence a country’s innovation performance. Good framework conditions stimulate firms to engage in innovation and R&D, and support the diffusion of innovations throughout the economy and society at large. Thus, conducive framework conditions and a healthy business environment are key prerequisites for strong innovation performance of individual innovation actors and the innovation system as a whole. Moreover, framework conditions for innovation have gained importance in recent decades as businesses and capital have become more mobile and select the most favourable operating environments. Framework conditions are important for several reasons:

- Innovation activity requires a medium- or long-term horizon and a sufficiently stable operating environment. This is particularly important for R&D, as well as for more fundamental and costly types of innovation activity.
- The regulatory framework is crucial to generating and speeding up the diffusion of new technologies. A favourable regulatory framework critically accelerates the reallocation of labour and capital to innovative firms and industries, which in turn stimulate investment in knowledge-based capital by raising its return (Andrews and Criscuolo, 2013).
- Vigorous competitive pressure provides a powerful incentive for business innovation. By contrast, a lack of competition allows inefficient firms and technologies to remain in the market.

Box 2.3. The evolution of global value chains in Southeast Asia

The economies of Southeast Asia continue to undergo profound changes and are becoming ever more closely integrated into fast-evolving regional and global production and knowledge networks. Advances in technology, including transportation and communication technologies, together with lower barriers to international trade and investment, have allowed production to become increasingly fragmented, and to spread geographically and across political borders. This has given rise to today's global value chains (GVCs). Southeast Asian economies have increasingly become involved in GVCs, which have boosted, reshaped and redirected the trade flows they are engaging in. Based on a fragmentation of production, GVCs link geographically dispersed activities. They have strengthened comparative advantages in certain industries through the country-specific location of tasks. Centres of gravity such as the attractors of trade in intermediate products have shifted, especially with the emergence of China as the largest manufacturing platform globally.

The rise of China is impacting the Southeast Asian economies via increasing bilateral trade and investment, and also cross-border flows of various types of knowledge related to GVCs. It also has an impact through competition in third markets. To date, the economies of Southeast Asia have gained overall from China's increasing demand for a broad range of exports from this region. At the same time, competition from China has also challenged Malaysian producers. The ongoing improvement of China's manufacturing capabilities and the pace at which it upgrades its economy and raises productivity can be expected to further raise competitive pressure on, and to some extent replace imports of, components that are currently manufactured in Southeast Asian countries. This is a challenge, notably for "middle-income" countries, such as Malaysia. In addition, there is a new cohort of catching-up economies, notably in the Southeast Asian region, for instance Viet Nam, which have lower income levels than Malaysia and currently also possess a lower level and range of manufacturing capabilities. These countries are moving into areas of production that have been important for Malaysia's own catch-up but are no longer feasible at its current state of development. They have attracted some production even from China's coastal areas. Some countries in this new cohort of catching-up economies will also gradually evolve and try to improve their innovation capabilities to upgrade and escape a lock-in to low value-adding activities.

Source: OECD (2013a), *Innovation in Southeast Asia*, <http://dx.doi.org/10.1787/9789264128712-en>.

When framework conditions are deficient, they are likely to reduce the effectiveness of policies designed to foster innovation. Favourable framework conditions facilitate innovation throughout the economy. At the same time, OECD experience shows that "dedicated" policy measures are also needed to address specific market or systemic

failures that hamper R&D and innovation. Empirical OECD work has found that framework conditions and dedicated science, technology and innovation (STI) policies affect innovation performance, both separately and in combination; it has helped identify the policies, institutions and framework conditions that support innovation effectively (Jaumotte and Pain, 2005a, 2005b; Westmore, 2013).

Box 2.4. Competition from a new cohort of catching-up economies: The example of Viet Nam

A new cohort of countries has arrived, taking on activities previously performed by countries that have meanwhile moved up the income ladder, such as Malaysia. Investment by East Asian and western firms has enabled producers located in Viet Nam to link to buyer-driven global value chains (GVCs). In a little more than a decade, Viet Nam has entered GVCs in clothing, furniture and electronics. Although Viet Nam is a latecomer, its participation in GVCs (50%) is similar to that of Thailand (51%), but less than that of Malaysia, the Philippines, Singapore and Chinese Taipei. While exports have grown, changes in the mix of the top export items have been limited for some time. Petroleum, rice, coffee and seafood have remained among these, together with furniture, garments and footwear during the 2000s. Domestic firms lacked the technological capabilities to upgrade or diversify their manufacturing activities. Viet Nam's Revealed Comparative Advantage (RCA) – a widely used indicator of trade specialisation – is still predominantly in low-technology items, but changes are occurring. The RCA Index for exports is the highest in textiles and clothing, food and wood products (although it has decreased over the past decade), followed by other manufacturing. This is mirrored by China's loss of comparative advantage in the assembly of textiles and clothing.

While much of Viet Nam's productive capacity is still in low value-added and low-technology processing and assembly manufacturing as well as low-end tradable services, a number of high-technology MNEs have recently arrived, e.g. from Japan, Korea and the United States. Viet Nam's export basket is changing accordingly: the RCA value for this product category increased slowly, from 0.07 in 1995, 0.22 in 2000, 0.32 in 2005 and was still only 0.37 in 2010, but up to 1.26 in 2012. Exports of "high-technology" products (which typically do not have high domestic knowledge or value-added content) expanded very rapidly; for example exports of cell phones and accessories doubled in both 2011 and 2012. Exports of electronics and computers, and transport vehicles and parts also achieved high growth. Phones and parts (11.1%) and electronics and computers (6.8%) had become an important component of Viet Nam's export basket by 2012, and further expansion is imminent. According to OECD and World Bank (2014), Viet Nam exported cell phones and accessories worth USD 12.7 billion in 2012, and was expected to export USD 18 billion, overtaking garments as Viet Nam's largest export item, in 2013. In parallel to exports, imports of "high-tech intermediates" have increased steeply as Viet Nam is becoming a platform for assembling.

Source: OECD and World Bank (2014), *Science, Technology and Innovation in Viet Nam*, <http://dx.doi.org/10.1787/9789264213500-en>.

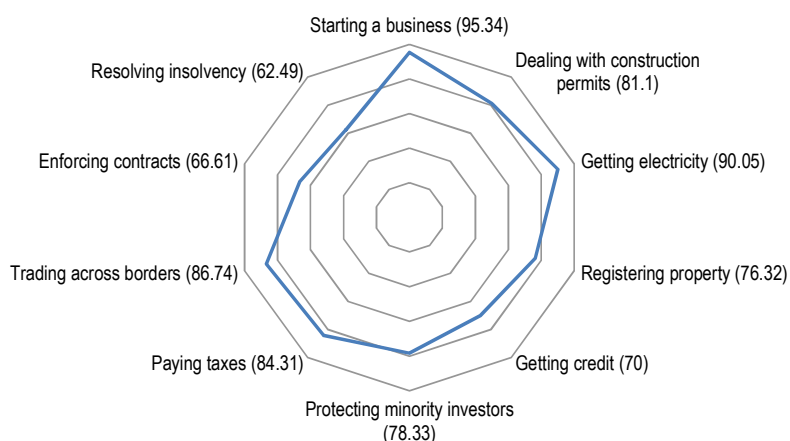
Overall business environment

Malaysia has been improving the business regulatory framework substantially over the last decade. Several important reforms have been introduced since 2005. The World Bank Ease of Doing Business, which captures various dimensions of the broader business environment, shows the extent of the progress it has made. Malaysia improved its overall score from 20th position in 2009 to 18th in 2016 (out of 189 economies). It ranks well above China (84th), Indonesia (109th), and the regional average for East Asia and the Pacific (109th) (World Bank, 2016a).

Malaysia ranks high in terms of protecting minority investors, starting a business, getting electricity and dealing with construction permits – all ranking within the top 15 (out of 189) positions. In terms of new business regulation, for example, Malaysia since 2010 took a series of steps to ease the burden for local entrepreneurs, such as easing business start-up by introducing more online services; merging the company, tax, social security and employment fund registrations at a one-stop shop; and providing same-day registration. Efforts such as these have reduced the time required to start a business from 37 days in 2005 to less than 6 days today – less time than in Brazil or Ireland. Resolving insolvency and enforcing contracts are the less advanced areas – although they still rank relatively high (within the top 50).

Compared to international practice, starting a business, getting electricity and trading across borders are the top three areas best aligned to international regulatory practice (Figure 2.14). In contrast, enforcing contracts and resolving insolvency appear again as the less advanced areas of Malaysia’s business regulatory framework compared to global standards. There is hence still significant room for improving the business regulatory framework. Updating the legal framework for insolvency procedures in line with international standards will allow “viable businesses” to be rebuilt.²¹

Figure 2.14. **Distance to frontier scores on Doing Business 2016: Malaysia**



Note: The rankings are benchmarked to June 2015 and based on the average of each economy’s distance to frontier (DTF) scores for the ten topics included in this year’s aggregate ranking. An economy’s DTF score is indicated on a scale of 0 to 100, where 0 represents the worst performance and 100 the frontier. Scale: Score 0 centre, Score 100 outer edge. For the economies for which the data cover two cities, scores are a population-weighted average for the two cities.

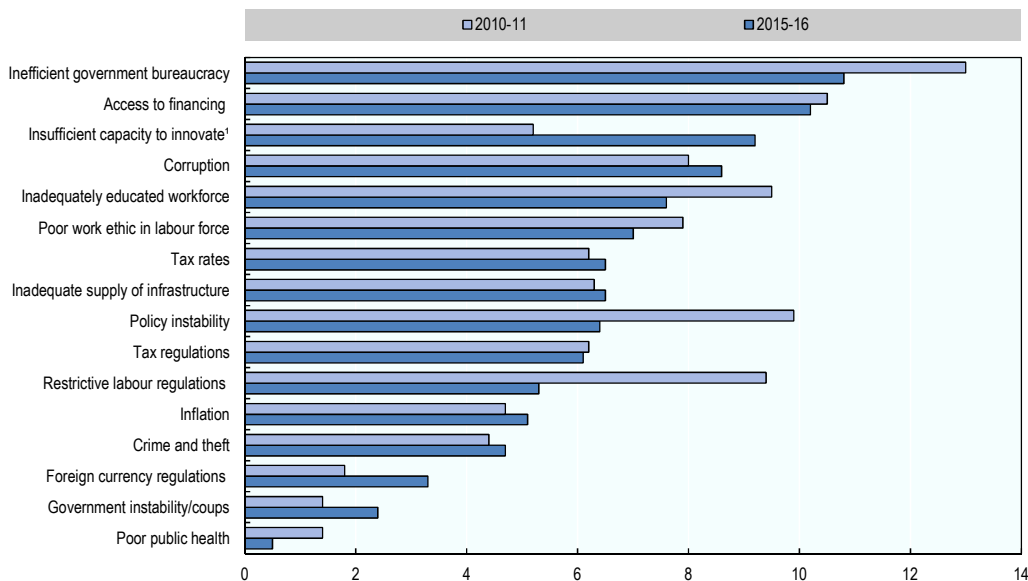
Source: World Bank (2016b), *Doing Business Data* (database), www.doingbusiness.org/data.

According to the 2016 World Economic Forum’s Global Competitiveness Index, Malaysia also needs to improve several government-related competences, such as efficiency in bureaucracy and eradication of corruption (Figure 2.15). Crime and theft were also considered important factors constraining competitiveness.

In terms of overall quality of regulation, Malaysia scores high compared to the average in the ASEAN region. According to the Fraser Institute, in 2013 Malaysia was one of the regional leaders in terms of favourable business regulations and overall regulation. That year marked a turning point in the government’s approach to regulation when it launched the National Policy on the Development and Implementation of

Regulations (NPDIR), aimed at improving the Malaysian rule-making process. This marked a transition from deregulation to a whole-of-government approach on good regulatory practice, which is in line both with the OECD Recommendation of the Council on Regulatory Policy and Governance (OECD, 2015b) and international good practice.²² An institutional infrastructure has been set up to implement the NPDIR, led by the Malaysia Productivity Corporation (MPC). According to the Eleventh Malaysia Plan (2016-20), 16 public agencies already implement 31 good regulatory practices following the OECD principles (EPU, 2015).

Figure 2.15. **Most problematic factors for doing business, Malaysia, 2010-16**



Notes: This assessment is the result of a survey of Malaysian business companies. From a list of factors, respondents were asked to rate them between 1 (most problematic) and 5 (not problematic). The bars in the figure show the responses weighted according to their rankings.

1. 2012-13 data instead of 2010-11.

Source: World Economic Forum (2015), *Global Competitiveness Report Dataset* (database), <http://reports.weforum.org/global-competitiveness-report-2014-2015/downloads>; World Economic Forum (2016), *Global Competitiveness Report 2016*, <http://reports.weforum.org/global-competitiveness-report-2015-2016>.

Access to finance

Access to finance is fundamental for firms to invest in productive resources – such as capital and innovation – and enhance their competitiveness. Difficulties in accessing finance (bank credit or other forms of finance such as equity) are closely associated to firm size. Recurrently, in business surveys worldwide, firms and in particular small and medium-sized enterprises (SMEs), consider financial constraints among the most important handicaps for competitiveness and innovation investment.

The lack of, or difficulties in accessing, finance are related to various factors. On the demand side these include: limited collateral capacity and economies of scale – inherent to size, as well as technical deficiencies of firms that prevent them from managing and/or implementing sustainable investment projects, among others. On the supply side, limited medium- and long-term sources of funding in the domestic market and lack of

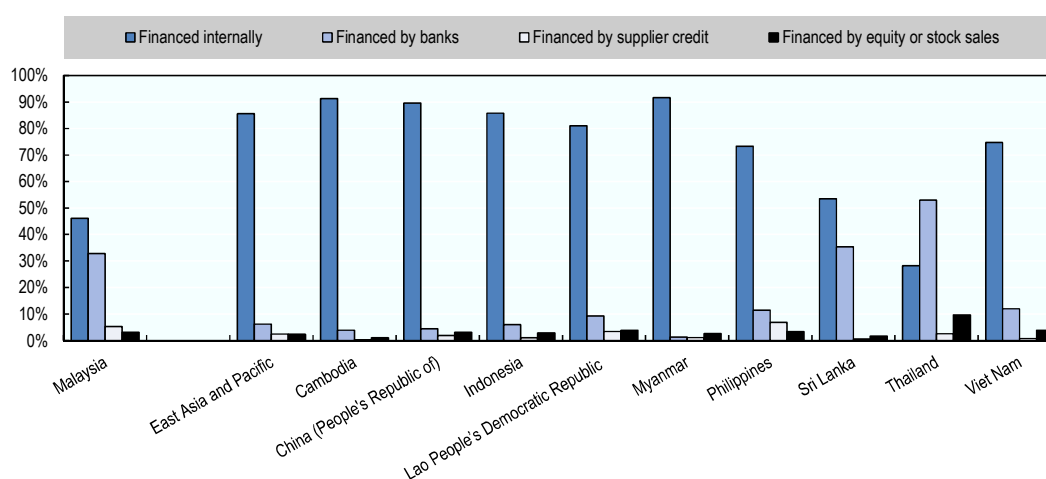
transparency and information to conduct proper credit risk assessments lead to a reduced appetite on the part of banks to serve the SME market segment.

For innovation investment, market failures related to asymmetric information and moral hazard (in repayment by the agent) are exacerbated due to the intangible nature of innovation and uncertainty surrounding research and development efforts, among other reasons. In the case of young firms and start-ups, the lack of collateral further inhibits access to external finance.

Despite the government's actions to improve access to finance for SMEs – as reflected by the proliferation of loans, grants, guarantee schemes, venture capital and government loan schemes introduced in recent years – financial constraints continue to be one of the key barriers to firm productivity and innovation in Malaysia. Several macro-level indicators suggest that Malaysia is lagging behind some peers in terms of access to credit and firms' use of external sources of finance. It has been estimated that the total credit gap (the difference between formal credit provided to SMEs and total estimated potential need for formal credit) recorded for 2010 was about USD 8 billion – twice the credit gap of Viet Nam and four times that of the Philippines (IFC, 2011). This gap is higher in Thailand (USD 11.8 billion) but lower in Singapore (USD 7.1 billion).

Malaysian SMEs rely mainly on internal funds to finance investment projects (Figure 2.16). The use of external finance is weak and mainly consists of bank finance. For manufacturing SMEs, 46% of investments are financed with internal sources while 33% are financed with bank credits. In this type of funding, Malaysian firms rely more strongly on bank credits than most countries in the region – Cambodia, China, Indonesia or the Philippines; firms in Thailand or Sri Lanka display higher ratios. The use of finance by supplier credits or through equity and stock markets remains low, as in other countries in the region, representing less than 5% of the investment being covered through this type of funding.

Figure 2.16. Sources of finance for investment projects of small and medium-sized enterprises, East Asia and OECD



Notes: An SME is defined as a firm with less than 100 employees. The most recent available data are for 2007 for Malaysia, 2013 for Cambodia, 2012 for China, 2009 for Indonesia, 2012 for Lao People's Democratic Republic, 2014 for Myanmar, 2009 for the Philippines, 2011 for Sri Lanka, 2006 for Thailand and 2009 for Viet Nam.

Source: World Bank (2015a), *Enterprise Survey Data* (database), www.enterprisesurveys.org/data/survey-datasets.

In terms of early-stage funding, several initiatives have been set up but they are still in the early stages. Venture capital is still embryonic and is often linked to public funding. The first venture capital Berhad fund of MYR 13.8 million was created in 1984. In the 1990s, an important step toward the liberalisation of venture capital was made: companies were allowed to invest up to 75% in high-tech or risk projects in order to qualify for tax holidays or pioneer status. Since 2009, venture capitals investing at least 30% of their funds in start-up or early-stage companies benefit from a five-year tax exemption. However, restrictive investment criteria, poorly communicated business plans, low public awareness, general disconnect between the potential entrepreneurs and the venture capital industry as well as lack of skilled personnel to manage the funds are still the main obstacles for many companies in Malaysia.²³

During the Tenth Malaysia Plan, the financing of companies at the development and growth stage slightly accelerated. For example, Malaysia Technology Development Corporation (MTDC), Malaysia Venture Capital Management Berhad, Malaysia Debt Ventures Bhd and Multimedia Development Corporation (MDeC) provided about MYR 495.2 million of grants, loans and venture capital for technology development to 760 *Bumiputera*²⁴ SMEs owned by the bottom 40% household income group (the so-called “B40”). Efforts to improve finance for innovative start-ups continued with the creation of PlaTCOM Ventures (in 2012) under the SME Master Plan 2012-20. This programme currently provides help to new innovative business, entrepreneurs and academics at all stages of product or service creation.

The Eleventh Malaysia Plan will introduce new ways of early-stage business financing through the SME Investment Partner (SIP) programme. SIP will combine equity and loan financing features and provide up to 100% margin of financing. It is supposed to complement the existing venture capital, private equity and angel financing landscape. SMEs will be encouraged to pool resources, utilise shared services and purchase inputs, raw materials and services in bulk to reduce costs (EPU, 2015).

Competition conditions

Competition and market structure are central to innovation. While the relation is certainly not linear (Aghion et al., 2005), competition encourages companies to invest in innovation in order for them to gain market shares and/or stay in the market. The incentive to innovate (additional profit) is stronger, particularly in the case of highly concentrated industries or markets (or those characterised by neck-to-neck technological competition).²⁵ In this sense, artificially maintaining incumbency (e.g. preserving monopolies and/or oligopolies) keeps favoured firms working at productivity levels that are lower than optimal and with weak incentives to innovate as they know they will preserve their market leadership.

Competition is fundamental for the effectiveness of public policies for innovation and productivity. It has recently been shown that productivity policies, such as subsidies and grants directed to firms in competitive sectors or industries with healthy competition, lead to productivity growth in those sectors. In contrast, public policies in industries with low levels of competition may prove to be ineffective. Measures to foster competition include policies that are more dispersed across firms in a sector or measures that encourage younger and more productive enterprises (Aghion et al., 2005).

In Malaysia, competition conditions are not exactly fair and equal for firms and may vary substantially across industries and markets. This reduces companies’ incentives to innovate, with the corresponding detrimental effects in prices, and product quality and

variety. The most prevalent issue pertaining to competitive neutrality is the issue of preferential treatment of GLCs (OECD, 2015b).²⁶ There have been instances of outright subsidies, preferential access to financing and loan guarantees, preferential treatment in public procurement, selective enforcement of competition law, or even administrative intervention to protect or advantage state-owned enterprises (SOEs).

Malaysian state enterprises receive various subsidies and financial assistance from the government and other SOEs. The government also provides a guarantee of the debts, although this practice has been on the decline. In 2012, the Auditor General found that between 2009 and 2011, 18 of the SOEs audited had received loans from the government. For instance, IWK, the national sewage company, received substantial government subsidies for its operation. In fact, the 2012 Auditor General report noted that the company was too reliant on government subsidies to cover its operational expenses (OECD, 2015b).

Steps have been taken to improve competition regulation and enforcement. A major improvement was made in competition policy in Malaysia with the adoption of the National Competition Act – the first comprehensive national competition law. The Malaysian Competition Commission (MyCC) has been successful in enforcement activities, especially in price-fixing cases involving trade associations (Lee, 2014). Future work will require reviewing public sector regulations touching competition, merger control and regional integration regulation.

Market openness and foreign direct investment regulations

In addition to general macroeconomic conditions, integration into global markets through trade and foreign direct investment (FDI) is key to an innovation-friendly environment. Trade openness may lead to scale economies by providing more opportunities for growth, and may encourage innovation through competition and learning (learning-by-exporting) from partners. Firms that participate in global markets are subject to increased exigencies in product quality and novelty compared to domestic markets – which in turn fosters innovation efforts.

FDI is potentially also a major source of knowledge transfer and spill-overs to the local economy through the channels of employee turnover (or spinoffs) and business linkages with domestic firms. For developing countries, in particular those building an absorption capacity, trade and foreign investment can be seen as important instruments to the process of productivity catch-up.

Like other countries in the region, Malaysia is a highly open economy displaying an intensity of trade (exports plus imports relative to GDP) superior to the size of the national economy. Trade represented 138.4% of GDP in 2014 – an important decrease from 2004 when this ratio was twice the value of GDP. The decrease in trade openness is to some extent related to demand contractions in global markets and increases in non-trade related GDP. In spite of this drop, the level of openness remains high and hence presents an important opportunity for learning and knowledge transfer for Malaysian companies.

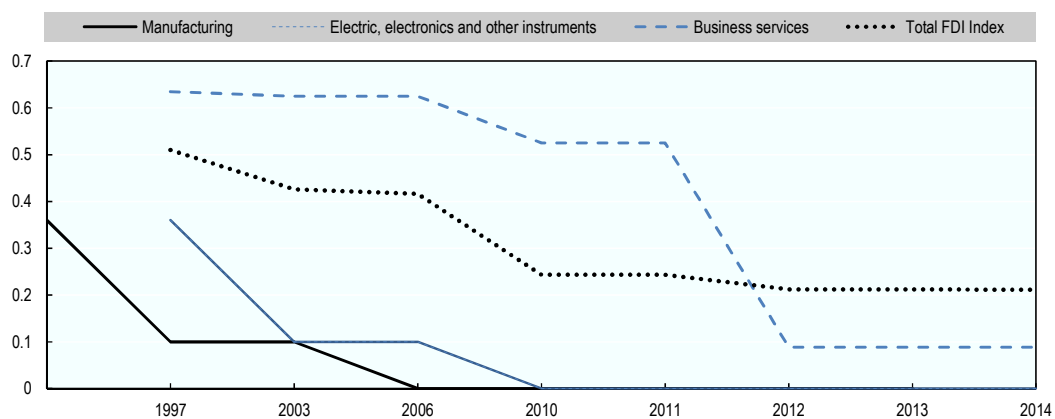
FDI has also played an important role in the Malaysian economy, given the country's model of development over the last two decades. Foreign firms have played a major role in the process of growth and diversification and foreign investment has been a key part of the outward-oriented development strategies of successive governments (OECD, 2013a).

FDI has continued to rise in absolute terms but has declined significantly as a share of both GDP and total FDI in ASEAN countries since the pre-crisis 1990s (*ibid.*). By the early 1990s, FDI represented 8% of GDP, but in more recent years this participation has been shrinking – down to 3.1% of GDP in 2014 (World Bank, 2015). A large share of FDI inflows involves reinvested earnings of existing foreign affiliates, which suggest that while established foreign investors are not leaving the country, there are fewer new arrivals compared to earlier decades. In more recent years, the delocalisation trends involving a number of MNEs have also affected the spread of FDI across Southeast Asia and its location in Malaysia. The government attributes this shift in inflow FDI to the refocusing of FDI strategy towards more knowledge-intensive investment (OECD, 2013b).

The nature and type of FDI have also been changing. Outward FDI has gained in importance. Since the mid-2000s, FDI outflows have exceeded inflows, and this is in part related to fiscal reforms and the development of some domestic sectors.²⁷ Mergers and acquisitions have gained in importance with the introduction of a five-year tax deduction for mergers and acquisitions abroad, leading to high-technology production in the Malaysian territory or gains in new export markets for local products (OECD, 2013b).

Malaysia is continuing its efforts to attract and enhance local linkages with FDI. Figure 2.17 shows that Malaysia made some important efforts to reduce FDI restrictions over the period 1997-2014, including on services. For manufacturing and, more specifically the E&E sector, Malaysia has even opened its economy to a higher degree than the OECD average. The key sector of business services is now at par with the OECD average level of restrictions. As an example, in 2009, Malaysia removed its former Foreign Investment Committee (FIC) investment guidelines, enabling transactions for acquisitions of interests, mergers and takeovers of local companies by domestic or foreign parties without approval by the FIC.

Figure 2.17. **OECD FDI Regulatory Restrictiveness Index, selected industries and sectors, Malaysia, 1997-2014**



Note: The FDI Regulatory Restrictiveness Index (FDI Index) measures statutory restrictions on foreign direct investment across 22 economic sectors. It gauges the restrictiveness of a country's FDI rules by looking at the four main types of restrictions on FDI: 1) foreign equity limitations; 2) discriminatory screening or approval mechanisms; 3) restrictions on the employment of foreigners as key personnel; and 4) other operational restrictions, e.g. restrictions on branching and on capital repatriation or on land ownership by foreign-owned enterprises. Restrictions are evaluated on a 0 (open) to 1 (closed) scale.

Source: OECD (2016), "OECD FDI regulatory restrictiveness index", *OECD International Direct Investment Statistics* (database), <http://dx.doi.org/10.1787/g2g55501-en>.

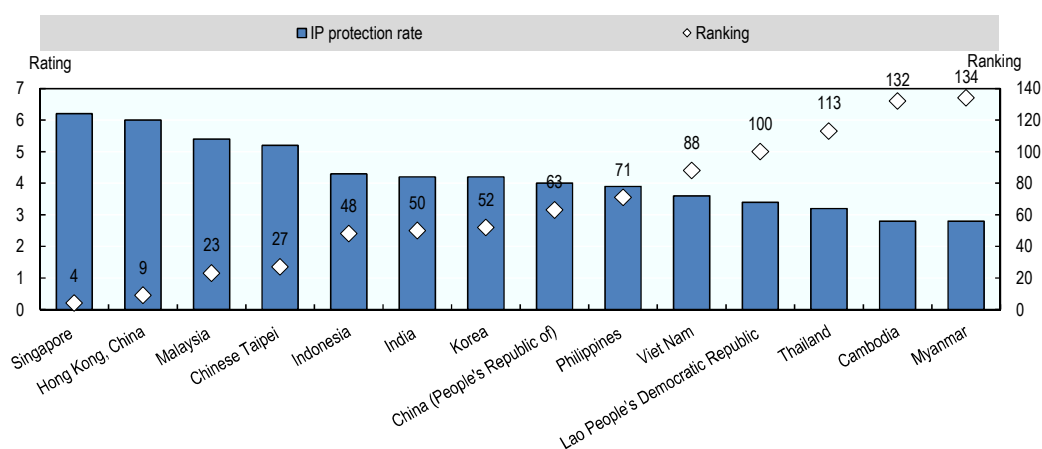
Intellectual property²⁸

Improving the intellectual property rights (IPR) legal framework and functioning is important for innovation and business development, particularly for countries moving up in the development cycle and starting to invest in frontier innovation capacity.²⁹ As economies develop and acquire valuable knowledge assets, local firms begin to develop a vested interest in building IPR institutions and protecting intellectual creations to foster competitiveness. An effective IPR system is also ancillary in the development and organisation of markets by helping consumers scrutinise the quality of products and services and their origins, e.g. signalling quality of a brand is the main attribute of trademarks, origin designations and geographic indications.

An in-depth analysis carried out by the OECD (2015a) has shown the maturation of Malaysia's national intellectual property (IP) system in the past decades, notably with regards to its legal and operational aspects. This positive evolution has allowed the role of the Malaysia Intellectual Property Office (MyIPO) to be enhanced in the national innovation system.

Malaysia ranks well in international benchmarks in terms of IP protection. It positioned 23rd out of 140 in the Global Competitiveness Report for Intellectual Property Protection, with a score of 5.4 out of 7 in 2015-16 (Figure 2.18). This ranking has slightly improved in recent years³⁰ and compares well with other countries in the region. These developments were also acknowledged by the Fraser Institute, where the protection of property rights score went from 4.23 in 2000 to 7.16 in 2013 on a scale of 1-10 (Gwartney, Lawson and Hall, 2014; 2015).

Figure 2.18. Intellectual property protection rates and ranking, 2015-16



Note: Average rating provided to the question “In your country, to what extent is intellectual property protected? [1 = not at all; 7 = to a great extent]” in the framework of the World Economic Forum survey, carried out in 140 countries.

Source: World Economic Forum (2016), *Global Competitiveness Report 2016*, <http://reports.weforum.org/global-competitiveness-report-2015-2016>.

A number of reforms to IP laws have brought policies in line with international standards underscored in the WTO Trade-Related Intellectual Property Rights (TRIPS) agreement. Malaysia has signed additional IP-related commitments under the Association of Southeast Asian Nations (ASEAN) and other international IP treaties, including the Patent Cooperation Treaty (PCT) system in 2006. The corporatisation of the MyIPO

in 2003 helped improve institutional capacities to deal with legal and administrative matters related to IP rights. Management reforms and examiner reward programmes for high productivity have contributed to this achievement. Today, the processing of IP titles is very efficient by international standards. Application fees compare favourably with international fees, although small companies perceive maintenance fees as costly. Enforcement has been improved, and in 2007 a new system of IP High Courts was introduced to ensure that titles obtained are enforced.

Malaysia's IP policy has started playing a more proactive role by taking steps to improve markets for IP and therefore the diffusion of innovation, by facilitating the trading of IP titles and providing financing opportunities for IP. An additional approach to raise the contributions of IP consists of finding ways for IP to serve as collateral for loans to finance innovation activities. The policy measure, which is implemented by Malaysia Debt Ventures (MDV), is still in its initial phase, and is led entirely by the government. The government is creating the technology platforms and subsidising the credit rates for the loans using IP as collateral. However, for it to consolidate and succeed in the future it needs to be taken up by Malaysia's private banks and operate internationally.

Several weaknesses of the IP system remain, as emphasised in the previous OECD review. The national IP system is still best characterised as one of multiple institutions that implement separate policies aimed at incentivising the uptake and effective use of IP policies (OECD, 2015a). The MyIPO itself implements some, but not all, of these policies. Although the diversity allows for policy experimentation, initiatives could benefit from greater co-ordination between the IP policy agencies, namely the NIPP Action Council and National IP Committee – which focus mainly on legal and enforcement matters, and the MyIPO. Improving the awareness of the importance of IP protection in the private sector is also a pending task.

ICT and transport infrastructure

Improving infrastructure was one of the selling assets in the promotion of the export-oriented economic model. In international benchmarks, Malaysia ranks well in overall infrastructure, with particularly high scores in the quality of roads, railroads, ports and airports. The country performs less well in terms of telephony, particularly fixed telephone lines (per 100 population) according to the *Global Competitiveness Report* (World Economic Forum, 2016) (Table 2.6).

In the last five years, Malaysia has succeeded in improving all its infrastructure indicators and climbed 11 positions in this international ranking (World Economic Forum, 2016). The Malaysian population now has good access to basic services such as electricity and water. However, major issues remain in the field of energy and supportive infrastructure. The problem of immoderate use of natural gas, coal and hydropower to produce electricity and the underdevelopment of renewable sources of energy remains a challenge.

During the high growth years – until the early 1990s, the infrastructure sector received an important share of public investments in line with the Malaysia plans that always put infrastructure development high on the agenda. However, the deceleration of the growth rates in the last 15 years shifted the funding role to the private sector. Following Vision 2020 in 1991, the Malaysian government facilitated this transition by launching the Master Privatisation Plan of telecommunications, ports, airports, roads, railways as well as power generation and supply.³¹

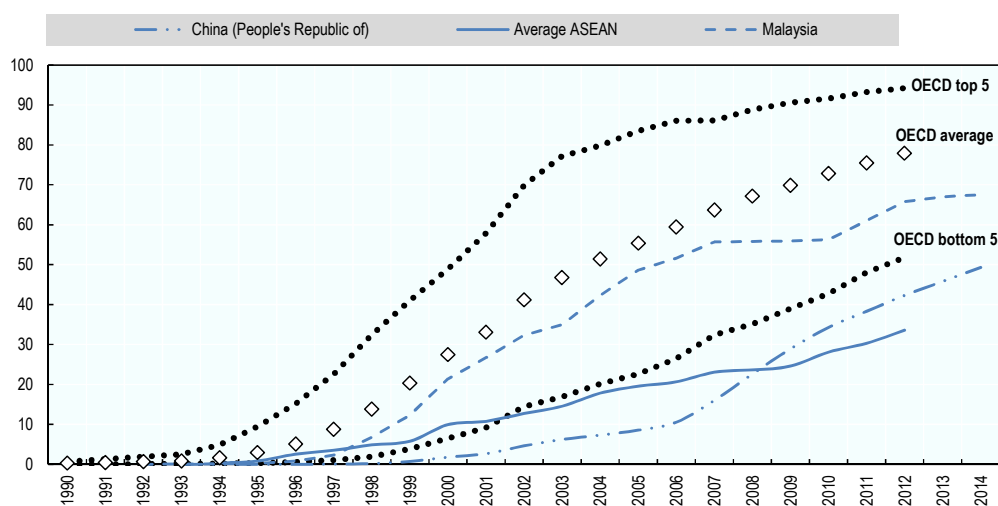
Private participation led to positive results, Malaysia's Ports Klang and Tanjung Pelepas are now considered to be among the most productive ports in the region, only lagging behind the Chinese city of Shenzhen and Hong Kong (China). The launch of the Multimedia Super Corridor (MSC) project in 1996 was one of the crucial steps in the strengthening of infrastructure in Malaysia. Huge investments were made in the improvement of transport, telecommunications and power-generation technologies. The construction of Kuala Lumpur International Airport in 1998, located close to the MSC, facilitated the access of new companies and investors. Between 2006 and 2009, 31 ports, 5 international airports and 5 economic corridors were created in Malaysia.

Table 2.6. Infrastructure indicators in Malaysia, 2010 and 2015

Indicators	2015-16 (out of 140 countries)	2010-11 (out of 139 countries)
Quality of overall infrastructure	16	27
Quality of roads	15	21
Quality of railroads	13	20
Quality of ports	16	19
Quality of airports	21	29
Quality of electricity supply	36	40
Mobile telephone subscriptions/100 population	24	47
Fixed telephone lines/100 population	73	80
Individuals using Internet	45	39

Sources: World Economic Forum (2015), *Global Competitiveness Report Dataset* (database), <http://reports.weforum.org/global-competitiveness-report-2014-2015/downloads>; World Economic Forum (2016), *Global Competitiveness Report 2016*, <http://reports.weforum.org/global-competitiveness-report-2015-2016>.

Figure 2.19. Internet users, per 100 inhabitants, 1990-2014



Source: OECD calculation based on World Bank (2015b), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.

In terms of Internet infrastructure and penetration, Malaysia has also made improvements. Internet penetration has grown quickly in recent years (Figure 2.19), from 21% in 2010 to 67.5% in 2014, representing the second highest level in the region after Singapore. Mobile phone penetration is very high (149%), with more than one mobile

phone per person on average. This rate is higher than Indonesia or the United States. 4G connection is widespread and more than 90% of Malaysians are using e-commerce. At the same time, the level of fixed telephone subscriptions or broadband is very low (14.6% and 10.1% accordingly) and unpopular among Malaysians. Broadband penetration therefore remains an important area for improvement.

Notes

1. Using the World Bank's Atlas method this corresponds to 24 770 PPP international dollars, as used in Figure 2.7 (see: http://databank.worldbank.org/data/download/GNI_PC.pdf for a measure of GNI per capita using the two exchange rates). In terms of GNI per capita at current USD, Malaysia ranks 82nd and 62nd using PPP international dollars.
2. Viet Nam, for example, at a GNI per capita which is just about one-seventh of that of Malaysia (USD 1 730 in 2013), has only recently entered the lower middle-income range. The World Bank (for the 2016 fiscal year) defines middle-income economies as those with a GNI per capita of more than USD 1 045 but less than USD 12 736; lower middle-income and upper middle-income economies are separated at a GNI per capita of USD 4 125. Accordingly, low-income countries are those with a GNI per capita of USD 1 045 or less, whereas high-income economies are those with a GNI per capita of USD 12 736 or more (<http://data.worldbank.org/about/country-and-lending-groups>).
3. ASEAN was established on 8 August 1967 by five member countries, including Malaysia. It now has ten member countries: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic (hereafter "Lao PDR"), Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam.
4. Hong Kong (China), Korea, Singapore and Chinese Taipei.
5. The HDI goes beyond the purely economic dimension, and in addition to GNI per capita includes data on health (life expectancy) and education (years of schooling); the *Human Development Report* also provides supplementary information on progress towards gender equality, income equality, poverty, development of competences, personal security, environmental quality and perceptions of well-being. Economic data cover investment, international integration and infrastructures (especially communications).
6. Between 1980 and 2012, Malaysia's HDI value increased from 0.563 to 0.769. The rise of this index reflects significant progress in multiple dimensions: during this 32-year period, the life expectancy at birth of its population increased by 7.1 years, mean years of schooling increased by 5.1 years, expected years of schooling increased by 3.6 years and GNI per capita increased by about 191% (UNDP, 2013).
7. In 2015 Malaysia was the world's second-largest exporter of liquefied natural gas after Qatar and the second-largest oil producer in Southeast Asia behind Indonesia (IGU, 2015). The country indirectly also plays a role in the production of biofuels as palm oil is used as a raw material in biodiesel production.

8. The service sector in Malaysia contributed to over one-half of the growth of GDP between 2000 and 2010. This was also the case in Indonesia, the Philippines and Singapore (Noland, Park and Estrada, 2012).
9. Considering the track record of countries having already achieved the transition, a country is considered to be in the lower/upper middle-income trap today if it has been in the lower/upper middle-income group longer than the historical experience.
10. Defined as GNI per capita above USD 12 736 in 2016.
11. According to the “best scenario”, China would reach the threshold in 2026, Thailand in 2031, Indonesia in 2042 and India in 2059 (OECD, 2014a).
12. Labour productivity here is measured by output per hour worked. Similar results are obtained for Malaysia when using productivity as defined by output per worker.
13. According to the latest data available, labour productivity increased by 2.3% in 2013, against an annual average of 3% during the period 2008-12, and less than in Asian countries such as China, Indonesia, Thailand and Viet Nam (MPC, 2014).
14. IT capital includes IT hardware and software as well as communications equipment.
15. According to national data, investment in ICT almost doubled between 2006 and 2010 (period of the Ninth Malaysia Plan) and 2011-13, i.e. the three first years of the Tenth Malaysia Plan (MPC, 2014).
16. TFP growth during the Tenth Malaysia Plan (2011-14, 1.1%) was slower than during the Ninth Plan (2006-10, 1.5%), the Eighth Plan (2001-05, 1.4%) and the Seventh Plan (1996-2000, 1.2%), with little variation overall (MPC, 2015).
17. The index of Revealed Comparative Advantage (RCA(X)) of total exports is calculated as $RCA(X)_{i,c} = (X_{i,c}/X_{i,world}) / (X_{economy,c} / X_{economy,world})$ where $X_{i,c}$ and $X_{i,world}$ are respectively exports in industry i by country c and the world, while $X_{economy,c}$ and $X_{economy,world}$ are economy-wide exports by country and the world.
18. Electronic integrated circuits and micro-assemblies, crude petroleum, parts and accessories, data-processing machines, diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices are, respectively the first, third and fourth largest commodity groups for imports in 2013 (UNcomtrade, 2015).
19. Malaysia is the third largest importer of intermediates as a share of its production (25% in 2009), following the logistics hubs of Singapore and Luxemburg. Imported products also represent an important share of its final domestic demand.
20. A part of a country’s exports participate in GVCs either through upstream (forward) links – that is looking back along the value chain and measuring foreign inputs/value added included in a country’s exports – or downstream links – i.e. measuring the domestic inputs/value added of the country contained in the exports of other countries by looking forward along the value chain.
21. For instance, revisiting bankruptcy time – in several OECD countries it does not last longer than three years (e.g. Canada or Singapore) – and recognition of firm restructuring could find a better balance between creditor protection and the entrepreneur’s recovery.
22. According to this taskforce, practices such as identifying policy objectives to regulatory design to implementation; articulating regulatory policy goals, strategies and benefits clearly; and considering the impacts of regulation on competitiveness and economic growth, are key goals for Malaysia.

23. Despite the fact that the Malaysian and Singapore venture capital sectors were created almost at the same time, Malaysia has an important lag in terms of venture capital utilisation.
24. *Bumiputera* is the Malaysian term to describe the Malay race and other indigenous peoples of Southeast Asia.
25. The incentive to innovate relates to the increase in profit that a firm can earn if it invests in R&D – and this will depend on the type of innovation (product or process), the size of this technological novelty (how radical it is), the degree of product differentiation and technological competition, as well as the extent to which innovation is protected through formal means (IPRs).
26. Government-linked corporations (GLCs) account for 36.8% of the agriculture, forestry and fishing sector; 59.6% of the banking sector; 43.7% of the communications sector; 72.3% of the transportation and warehousing sector; and 98.2% of the utilities sector.
27. FDI-related fiscal reforms were initiated in 1992 with a first tax abatement on income generated overseas, followed in 1995 by a full tax exemption on income remitted by Malaysian firms investing abroad.
28. This section draws primarily on the dedicated intellectual property review performed by the OECD in 2015 (OECD, 2015a).
29. For these reasons, IPR is central to competitiveness and business growth, particularly in countries which have started to move up in the curve of development (middle-income countries) and intending to move towards higher levels of development.
30. Malaysia was 25th (out of 144) in 2014-15, 30th (out of 148) in 2013-14, 31st in 2012-13 (out of 144) and 2011-12 (out of 142).
31. A large number of SOEs were privatised, notably Klang Port, Telecom Malaysia and the Tenaga Nasional (electricity utility company). As a result, by 2008, private sector and government-linked companies were investing more in infrastructure than the public sector.

References

- Aghion, P. et al. (2005), “Competition and innovation: An inverted U relationship”, *Quarterly Journal of Economics*, Vol. 120/2, pp. 701-728, Oxford University Press, Cambridge, Massachusetts, <http://dx.doi.org/10.1093/qje/120.2.701>.
- Andrews, D. and C. Criscuolo (2013), “Knowledge-based capital, innovation and resource allocation”, *OECD Economics Department Working Papers*, No. 1 046, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5k46bj546kzs-en>.
- APO (2015), *APO Productivity Databook 2015*, Asian Productivity Organisation, Tokyo.
- APO (2014), *APO Productivity Databook 2014*, Asian Productivity Organisation, Tokyo.

- CEPII (2015), *CEPII BACI World Trade Database* (database), www.cepii.fr/cepii/fr/bdd_modele/presentation.asp?id=1.
- Eichengreen, B., D. Park and K. Shin (2013), “Growth slowdowns redux: New evidence on the middle-income trap”, *NBER Working Paper*, National Bureau of Economic Research, Cambridge, Massachusetts, No. 18 673, <http://dx.doi.org/10.3386/w18673>.
- EPU (2015), *Eleventh Malaysia Plan*, Economic Planning Unit, Prime Minister’s Department, Putrajaya, <http://rmk11.epu.gov.my/index.php/en>.
- ERIA (2014), *ASEAN Rising: ASEAN and AEC Beyond 2015*, Economic Research Institute for ASEAN and East Asia, www.eria.org/ASEAN_RISING-ASEAN_and_AEC_Beyond_2015.pdf.
- Felipe, J. (2012), “Tracking the middle-income trap: What is it, who is in it, and why?”, *ADB Economics Working Paper Series*, No. 306, March, Asian Development Bank, Manila, www.adb.org/sites/default/files/publication/29804/economics-wp-306.pdf.
- Gill, I. and H. Kharas (2007), *An East Asian Renaissance, Ideas for Growth*, The World Bank, Washington, DC, http://siteresources.worldbank.org/INTEASTASIAPACIFIC/Resources/226262-1158536715202/EA_Renaissance_full.pdf.
- Glaeser, E.L. and J.D. Gottlieb (2009), “The wealth of cities: Agglomeration economies and spatial equilibrium in the United States”, *Journal of Economic Literature*, Vol. 47/4, American Economic Association, Nashville, Tennessee, pp. 983-1 028, <http://dx.doi.org/10.1257/jel.47.4.983>.
- Gwartney, J., R. Lawson and J. Hall (2015), *Economic Freedom of the World: 2015 Annual Report*, Fraser Institute, www.fraserinstitute.org/sites/default/files/economic-freedom-of-the-world-2015.pdf.
- Gwartney, J., R. Lawson and J. Hall (2014), *Economic Freedom of the World: 2014 Annual Report*, Fraser Institute, www.fraserinstitute.org/sites/default/files/economic-freedom-of-the-world-2014.pdf.
- Herrendorf, B., R. Rogerson and A. Valentinyi (2013), “Growth and structural transformation”, *NBER Working Papers*, No. 18 996, National Bureau of Economic Research, Cambridge Massachusetts, www.nber.org/papers/w18996.
- IFC (2011), *IFC Enterprise Finance Gap Database*, <https://finances.worldbank.org/fr/Enterprise-Finance/IFC-Enterprise-Finance-Gap-Database-Raw-Data/2ppx-k958>.
- IGU (2015), *World LNG Report – 2015 Edition*, International Gas Union, Fornebu, Norway.
- Jaumotte, F. and N. Pain (2005a), “Innovation in the business sector”, *OECD Economics Department Working Papers*, No. 459, OECD Publishing, Paris, <http://dx.doi.org/10.1787/688727757285>.
- Jaumotte, F. and N. Pain (2005b), “An overview of public policies to support innovation”, *OECD Economics Department Working Papers*, No. 456, OECD Publishing, Paris, <http://dx.doi.org/10.1787/707375561288>.
- Lee, C. (2014), “Competition law enforcement in Malaysia: Some recent developments”, *Malaysian Journal of Economic Studies*, Vol. 51 (Special Issue), Emerald, Bingley, pp. 77-88.
- Lewis, W.A. (1954), “Economic development with unlimited supplies of labour”, *The Manchester School*, Vol. 22/2, Wiley, Hoboken, New Jersey, pp. 139-191, <http://dx.doi.org/10.1111/j.1467-9957.1954.tb00021.x>.

- MPC (2015), *22nd Productivity Report 2014/2015*, Malaysia Productivity Corporation, Petaling Jaya, www.mpc.gov.my/mpc/images/file/APR/APR20142015.pdf.
- MPC (2014), *21st Productivity Report 2013/2014*, Malaysia Productivity Corporation, Petaling Jaya, www.mpc.gov.my/mpc/images/file/APR%202013%202014/Cover.pdf.
- NEAC (2010), *New Economic Model for Malaysia*, National Economic Advisory Council, Putrajaya.
- Noland, M., D. Park and G.B. Estrada (2012), “Developing the service sector as engine of growth for Asia: An overview”, *ADB Economics Working Paper Series*, No. 320, Asian Development Bank, Manila, www.adb.org/sites/default/files/publication/31114/developing-service-sector-engine-growth-asia.pdf.
- OECD (2016), “OECD FDI regulatory restrictiveness index”, *OECD International Direct Investment Statistics* (database), <http://dx.doi.org/10.1787/g2g55501-en>.
- OECD (2015a), *Boosting Malaysia National Intellectual Property System for Innovation*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264239227-en>.
- OECD (2015b), *Implementing Good Regulatory Practice in Malaysia*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264230620-en>.
- OECD (2014a), *Economic Outlook for Southeast Asia, China and India 2014: Beyond the Middle-Income Trap*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/saeo-2014-en>.
- OECD (2014b), *OECD Reviews of Innovation Policy: Colombia 2014*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264204638-en>.
- OECD (2014c), *Perspectives on Global Development 2014: Boosting Productivity to Meet the Middle-Income Challenge*, OECD Publishing, Paris, http://dx.doi.org/10.1787/persp_glob_dev-2014-en.
- OECD (2013a), *Innovation in Southeast Asia*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264128712-en>.
- OECD (2013b), *OECD Investment Policy Reviews: Malaysia 2013*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264194588-en>.
- OECD and World Bank (2014), *Science, Technology and Innovation in Viet Nam*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264213500-en>.
- OECD/WTO (2016), “Trade in value added”, *OECD-WTO: Statistics on Trade in Value Added* (database), <http://dx.doi.org/10.1787/data-00648-en>.
- Ohno, K. (2009), “Avoiding the middle-income trap: Renovating industrial policy formulation in Vietnam”, *ASEAN Economic Bulletin*, Vol. 26/1, Institute of Southeast Asian Studies (ISEAS), Singapore pp. 25-43.
- Park, D. and K. Shin (2012), “The service sector in Asia: Is it an engine of growth?”, *ADB Economics Working Papers*, No. 322, Asian Development Bank, Manila.
- PEMANDU (2014), *Economic Transformation Programme: Annual Report 2014*, <http://etp.pemandu.gov.my/annualreport2014>.
- Rasiah, R. (2010), “Are electronics firms in Malaysia catching up in the technology ladder?”, *Journal of the Asia Pacific Economy*, Vol. 15/3, Special Issue: Innovation and Catch-Up Experiences in Automotive and Electronics Industries in Asia, pp. 301-319, <http://dx.doi.org/10.1080/13547860.2010.494910>.

- Thiruchelvam, K. et al. (2011b), “Innovation financing in Asia: The experience of Malaysia”, report prepared for the International Development Research Centre, Ottawa.
- UNcomtrade (2015), *United Nations Commodity Trade Statistics Database* (database), <http://comtrade.un.org/db/default.aspx>.
- UNCTAD (2015), *FDI Statistics Division on Investment and Enterprise* (database), <http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics.aspx>.
- UNDP (2013), *Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World*, United Nations Development Programme, New York, http://hdr.undp.org/sites/default/files/reports/14/hdr2013_en_complete.pdf.
- Westmore, B. (2013), “R&D, patenting and growth: The role of public policy”, *OECD Economics Department Working Papers*, No. 1 047, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5k46h2rfb4f3-en>.
- Woo, W.T. (2009), “Getting Malaysia out of the middle-income trap”, University of California, Davis, Economics Department, 13 August, <http://ssrn.com/abstract=1534454>.
- World Bank (2016a), *Doing Business 2016 – Measuring Regulatory Quality and Efficiency*, The World Bank, Washington, DC, www.doingbusiness.org/~media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB16-Full-Report.pdf.
- World Bank (2016b), *Doing Business Data* (database), www.doingbusiness.org/data.
- World Bank (2015a), *Enterprise Survey Data* (database), www.enterprisesurveys.org/data/survey-datasets.
- World Bank (2015b), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.
- World Bank (2014), *Malaysia Economic Monitor: Boosting Trade Competitiveness*, No. 89 102, The World Bank, Bangkok, www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2014/06/27/00035088120140627082245/Rendered/PDF/891020WP0P14640B00PUBLIC00MEM100web.pdf.
- World Bank (2013), *Taking Stock. An Update of Vietnam’s Recent Economic Developments*, The World Bank, Hanoi, 8 July.
- World Bank (2010), *Malaysia Economic Monitor: Growth through Innovation*, The World Bank, Bangkok, http://siteresources.worldbank.org/INTMALAYSIA/Resources/324392-1271308532887/mem_april2010_fullreport.pdf.
- World Economic Forum (2016), *Global Competitiveness Report 2016*, The World Economic Forum, Geneva, <http://reports.weforum.org/global-competitiveness-report-2015-2016>.
- World Economic Forum (2015), *Global Competitiveness Report Dataset* (database), <http://reports.weforum.org/global-competitiveness-report-2014-2015/downloads>.
- Yusuf, S. and K. Nabeshima (2009), “Tiger economies under threat. A comparative analysis of Malaysia’s industrial prospects and policy options”, *Knowledge Economy Study*, No. 51 278, The World Bank, Washington, DC, <http://dx.doi.org/10.1596/978-0-8213-7880-9>.
- Zhuang, J., P. Vandenberg and Y. Huang (2012), *Growing Beyond the Low-cost Advantage*, Asian Development Bank, Manila.



From:
OECD Reviews of Innovation Policy: Malaysia 2016

Access the complete publication at:
<https://doi.org/10.1787/9789264255340-en>

Please cite this chapter as:

OECD (2016), "Macroeconomic performance and framework conditions for innovation in Malaysia", in *OECD Reviews of Innovation Policy: Malaysia 2016*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264255340-5-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.