

# **Malaysian skills development and the middle-income trap**

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*Can larger investments in education and human resource training carry a country that is caught in a 'middle-income trap' to a more knowledge-based economy, with globally 'adaptive competencies'? It is a pivotal question for labour and employment in several emerging economies in South East Asia. Indonesia, Thailand and Malaysia have recently presented transformation plans aiming to bring them to a high-income level. A successful outcome of these projects depends on the one hand upon recruitment to the educational sector, particularly vocational and tertiary education, and, on the other hand, upon the reshaping of skills and upgrading initiatives.*

*Through an analysis of statistical data of tertiary education we will discuss the Malaysian government's attempts to transform Malaysia to a high-income knowledge-economy. We focus on problems of recruiting students to tertiary education and programmes that the private sector and export oriented multinational companies give high priority. Leading high-tech multinationals complain about lacking graduate and postgraduate skills in accounting, management and engineering, leading to staff pinching ([www.btimes.com](http://www.btimes.com) 06/09/11). There is an expensive mismatch between demand and supply. We also go into the problem of keeping graduates. It has become a big and costly problem for the Malaysian government with brain drain – a loss of higher skills to competing Asian and Western countries.*

*The overall discussion in the paper is the importance of skills formation in more knowledge-based economies. The assumption in literature is that general skills become more and more important (Ashton et al 1999, Brown et al 2001) because larger firms and organisations can provide specific qualification and skills by themselves. But who decides over skills formation in the knowledge-economy? The dominance of global lead firms in human resource, research and development may imply an increasing capture of labour's skills formation by these firms (Brown, Lauder et al 2008). Public-private borders in higher education are blurring (Welch 2011). We will discuss this in relation to privatisation of higher education in Malaysia.*

*In the analysis we also make comparison with Singapore, already a high income country and further ahead in capacity building in tertiary and vocational education. A main problem regarding planning of labour skills is to avoid a mismatch between supply and demand for*

*different categories of graduates. We will closely examine the problems and measures to avoid a mismatch in Malaysia, generally one of the crucial questions in knowledge societies.*

## **Introduction**

Malaysia has long been seen as a development success both by Western and Islamic countries, an open export economy able to combine high growth and eliminate absolute poverty. In 1990 Malaysian former Prime Minister Mahathir bin Mohamad announced Vision 2020 to take Malaysia to a high-developed industrial status in thirty years. It was part of the Sixth Malaysian Plan in 1991 and has been an important vision for all the following five years development plans. Transformation to a knowledge intensive economy has been seen as the most important process. Twenty years later, in 2010 Prime Minister Najib Razak came forward with four different plans to make it possible to realize Vision 2020, which shows how difficult and urgent it is becoming. Educational upgrading is central in two of the plans. The New Economic Model (NEM) will improve competition, double per capita income in 2020 and start abolishing ethnic preferential treatment for Malays (e.g. in education, public sector jobs and housing). In June 2011 came the 10<sup>th</sup> Malaysia Plan 2011-2015 (10MP) with focus on higher education, its growth, recruitment and too large brain drain from Malaysia. We will analyse the problems that these plans are facing as to upgrade the labour force and bring the economy out of the middle-income trap.

The paper is organised as follows. First we give an overall account of the problems that Malaysia is facing in attempts to come out of trap between middle and high-income economy (Economic Transformation Programme 2010). A successful outcome depends on the one hand upon a right alignment between recruitment policy and skill formation priority, and on the other hand on the employability of the graduates and in Malaysia's case on keeping or attracting the most qualified graduates. It is critical for the upgrading policy (Malaysia Economic Monitor 2011)

We examine the upgrading policy by analysing the expansion of the tertiary sector. Compared to other Asian countries it has in the last decade taken a remarkable leap forward and a large well-educated group of graduates has risen demanding better earnings, career prospects, quality of education and quality of life (Malaysia Economic Monitor 2011). We go into this scenario by looking at the expansion of tertiary sector, particularly the private higher education sector that in the last decade has taken remarkable leaps forwards and has aspiration to become a regional educational hub. We map the expansion of the tertiary sector by analysing statistical data on recruitment and production of graduates in the sector. We go into the alignment problem of free recruitment and the needed skills. Since the privatisation of higher educational institutions act 1996 the alignment problem has increased and has been more complicated to govern, as the recruitment to private higher education has been massive. We examine the increased recruitment in the light of the rise of the knowledge-based economy and the government's attempt to create a well-educated Malay middle class. The educational policy in Malaysia is complex and complicated because the ethnical policy is woven into the recruitment policy.

Secondly we examine the problem that the recruitment policy creates for graduates' employability. The supply of graduates does not always match the demand. We put focus on this issue by looking at two critical positions towards the government's skills upgrading policy. First the criticism that the government meets from particular bigger multinational and domestic companies who as for instance Intel have to make significant investment to provide basic training to graduates, such as soft skills and presentation skills ([www.btimes.com](http://www.btimes.com) 06/09/11). Second the direct or indirect criticism that the large drain brain represents (Malaysia Economic Monitor 2011).

Third we discuss whether the problems of mismatch between supply and demand for graduates are woven into coordination problems in the Malaysian education bureaucracy. And we end up with concluding remarks.

### **The rise of the knowledge economy and the middle-income trap.**

After Asian financial crisis of the late 1990s, Malaysia like its neighbours had lower growth and investments rates than before. Its growth rate was about 2 percent lower and investment rate about 10-15 percent lower. Outward foreign direct investments grow was much faster than inward. Most critical is the lack of creativity and innovation needed for technological transformation and economic development as concluded in the NEM report (Shankaran Nambiar 2011). The heading of a NEM rapport chapter is telling: “We are not developing talent and what we do have is leaving”.

Skill development of workers is more pronounced in the 10MP than in any plans before and is claimed as necessary to move Malaysia into the high-income group of countries. To come out of the middle-income trap twelve national key economic areas are prioritized most of which require development of a strong skilled labour force, for instance to develop business services, information technology and to make the greater Kuala Lumpur area to a world-class financial city. But the 10MP does not seem to see the seriousness of Malaysia’s barriers in education, science and technology, according to the critics (ibid). The view seems to be that workforce skills could easily be produced and the middle-income trap could easily be overcome. As described in the above reports R&D expenditure as a percentage of GDP is only 0.6 per cent, compared with Singapore’s 2.3 per cent and South Korea’s 3 per cent. In 2006 Malaysia’s patent applications were 531, South Korea’s 125,476 – its published scientific journal articles in 2007 were 808, in South Korea 3792 and in Japan 52,895. So, Malaysia has a very long way to go,

The concept behind the ‘middle-income trap’ which is very much in focus in Malaysia can be explained as follows: It is easier to rise from a low-income to a middle-income developing economy than from a middle-income to an advanced high-income economy because a poor country can use cheap wages to its advantage making its economy competitive in labour-intensive manufacturing. However, as incomes increase, costs will also increase, and new low-income countries undermine the competitiveness of the old, low-tech manufacturing industries. Countries like Malaysia must move up the value chain into exports of more technologically advanced products, like electronics. To get to next level – the high-income level – an economy has to innovate and use labour and capital more productively. Instead of just assembling products designed by others, with imported technology, local companies must invest more heavily in R&D on their own and employ highly educated and skilled workers, create new products – and compete with leading brand names and newest technology. This makes the middle-income trap a crucial development problem. It is a very hard shift to transform the economy towards a higher level, especially as China can squeeze Malaysian and other middle-income countries’ labour costs both in low and high value-added jobs. On the other hand China’s growth opens for Malaysian exports and foreign investment and sustained regional integration and development.

Adding to this general picture of the middle-income trap, is the very success of Malaysia’s affirmative action policy since the 1970s, lifting the poor ethnic Malays (Bumiputera) to a higher level of income and status by quotas and preferential treatment in education, private and public

jobs, housing etc. The policy has become a trap and barrier in itself, because the Bumiputera policy is enjoyed by an ethnic majority, the Malays - Chinese and Indians are the largest minorities, about 25% and 8% of the population respectively - and therefore difficult to reverse. It is held up by the powerful Malay elite and the governing Malay majority party (UMNO), enjoying most of the benefits. It makes it indeed difficult to abolish. A culture of bureaucratic entitlement has been created, permeating practically all-commercial, social, political and educational life (Hill Hal, EastAsia Forum 19.01.2011). Larger semi-state and Bumiputera flagship project has not been adapted to an open market, for instance the national car project Proton has lost out to Thailand's car industry. Malaysian Chinese businesses stay smaller to avoid compulsory employment quotas. Many Chinese and Indian students are forced to study, pay for education and make a carrier abroad. Malaysian public universities rankings in Asia have been down-graded (Welch and Jarvis 2011). Bumiputera quotas are indeed growing barriers; especially educational quotas are trapping Malaysia's efforts to become a high-income knowledge economy. In Malaysia public expenditure of tertiary education is 92.7%, the highest of ASEAN countries, but an estimated 90% of this amount goes to Bumiputras (ibid: 90).

Another factor holding industrial upgrading back is the combination of labour-intensive industries, flexible immigration policies and low wages. Unions have over decades in vain fought for minimum wages. Malaysia has 1.9 million registered migrant workers, about 20 per cent of the workforce, which make the country to Asia's biggest importer of labour (Devadason 2011). On top of this registered number is an unknown amount of illegal migrants. The educational level of both legal and illegal immigrants is low and companies have no incentives for skill upgrading of immigrants who soon leave the country. Combined this factor adds to the middle-income trap.

Still statistical data shows a remarkable expansion of tertiary educational institutions and the number of graduates, in particular among private suppliers. Currently, there are 20 public universities and 26 private universities, as well as 405 public skills training institutes and 584 private skills training institutes (10<sup>th</sup> Malaysia Plan, 2010). Among the national suppliers of private tertiary educations are large Malaysian companies who have set up their own universities and are offering programmes on various tertiary levels. Privatization of skills formation is the dominant trend. Can the educational market transform Malaysia to a high-income knowledge economy?

### **Regional competition, globalization and privatization in higher education**

Global Agreement on Trade and Services (GATS) and bilateral free trade agreements in services, have opened for trade in higher education. Higher education has become a large industry and part of the knowledge economy. Export earnings from international students go mainly to the richer OECD countries especially English speaking. Private and public universities, colleges or skill development centres recruit foreign students or set up branches in host countries to make a profit. Off shore student enrolment in Australia was 37 % in 2001. In 2008 export earnings from international students were USD 15.5 billion in the US, USD 11.2 billion in the UK and USD 8 billion in Australia (Welch and Jarvis 2011: 46 table 3.2).

ASEAN development countries have sent lots of students abroad for higher education. Malaysia was late in expanding its universities. In 1995 only 6 % of an age cohort went to a Higher Education Institute (HEI), in 2010 it increased to 16 % (Welch and Jarvis 2011:92). The middle-income gap problem is illustrative in education. For years the majority of students sent abroad to study didn't return home – they were a brain drain. In China only 1/3 of students returned in the

1990s, in 2010 about half the number of off shore students returned (ibid 2011:72). Malaysia had 34 % students abroad in the late 1990s (WB 2000: Higher Education in Development Countries). A large well educated and partly state subsidized diaspora is established over decades. The brain drain is huge and Malaysia has long given generous scholarships, especially to Bumiputera students abroad. It is difficult to upgrade labour force skills and retain the graduated when other countries are waving their green cards.

However, Singapore has managed to catch up and come on top in educational competition, which also has inspired Malaysia. With well-paid academic foreign staffs and branches of foreign universities or other HEIs Singapore enrolled 57% foreign undergraduate students and 63% foreign postgraduate students in 2000 making it a regional educational hub and money machine. Total international enrolment was in 2004 down to 34% Welch (2011:84-88), a more balanced level. Singapore has also top level partnerships with universities and colleges in China.

Although Malaysia has a much larger ethnic Chinese population than Singapore, rather little has been done to use this resource for skill development and cooperation with China. Few Malaysian students go to China and few Chinese students to Malaysia. Still Malaysia Inc. with its many private HEIs has an ambition to become an educational hub in the region. After the Asian economic crisis 1997-98 Malaysia started to change its educational policy to reduce its brain drain and cost for students abroad. Foreign HEI branches, public and private, twinning programmes and degrees, could establish on conditions of teaching in Bahasa Malaysian language and Islamic courses (for non-Muslims, alternatively moral courses). Critics are concerned that privatization, English language proficiency and cost cutting are degrading higher educational levels (Shankaran Nabit 2011). Others in the business community and private educational sector praise Malaysia's privatization reforms. In 2009 about 450,000 students were enrolled in private HEIs, accounting for more than 50% of total enrolment (Arokiasamy 2010). Foreign students, mainly from Asia and Middle East constitute an increasing number in private HEI. In 2005 Malaysia had 38,900 foreign students in private HEI, adding RM3 billion to foreign exchange earnings (Bank Negara: Malaysia's Annual Report 2006:20). There are also possibilities for different long distance or virtual university, college, diploma or company degree courses.

### **Neoliberal drivers or state-led privatization of HEIs?**

In both Malaysia and Singapore industrial development and the transformation towards a knowledge economy have been led by strong state planning institution. State planning has even pushed privatization of HEIs forward and facilitated partnership agreements. However, will the result be that marketization and private players in the end take over development of higher education and define demand and supply of knowledge in an overall neo-liberal globalization context, in line with Lauder's et al (2008) theories of skills formation capture? We have seen how private corporations in medical, bio-tech, IT and other industries globally have taken over most of R&D, thus capturing the knowledge base of labour from public to private controlled knowledge.

The institutional architecture of Malaysia's human resource development is in many ways similar to Singapore's institution building. Singapore was earlier than Malaysia in changing its economy from labour intensive to more skill intensive forms of production and therefore it looked over its little neighbour's shoulder to learn how to do it. For instance, Singapore was first to set-up human resource development funds based on a levy-rebate scheme to promote training in companies, skills development centres or science parks.

An important institution in Singapore's transformation to a more knowledge-based economy is the Economic Development Board. Since 1961 it has had a crucial role in attracting foreign investors and set up medium and long terms plans for Singapore's economy development (Lee Kuan Yew 2000; E. H. Schein 1996). It has been the main driver together with ministries and other governmental agencies to push Singapore's economy up the skill development ladder. Since 1970 the Economic Development Board has set up several strategy plans with the aim of changing Singapore's economy from skill-based industries to knowledge-based industries and services, but still in 2000 more than 40% of the population was unskilled workers. The government has introduced a life long learning programme, in which it emphasises that demand on unskilled labour will diminish in the future and an insurance against unemployment is education and training. The pressure on unskilled workers to participate in this skill-upgrading programme is massive in a high achievement oriented society as the Singaporean (Lee Hsien Loong 2002).

In the Malaysian skill transformation process the prime minister office has set the overall agenda as it has done in all other significant cases of proactive planning. The Malaysian government has not developed an agency, which is comparable with the Economic Development Board. The Economic Planning Unit has submitted medium and long terms economic plans but it has not been the driver as the Economic Development Board to attract foreign investors and make linkages between public and private actors. The prime minister's office and the ministry of trade and industry have sought to play this role (R. S. Milne and D. K. Mauzy 1999). The impact of foreign investors on the skill development in Malaysia has been significant, especially after the mid-1980s. The prime minister office has supported partnership between leading multinational companies and public actors. For instance the establishment of skill development centres has strengthened the skills upgrading process. But as in Singapore the transformation of the skills structure goes slowly.

Already in 1983 the privatization concept of *Malaysia Incorporated* was introduced and coming institutional initiatives of private HEI is consistent with this basic view. Mid-1990s saw five educational laws enacted and implemented. Central is the Private Higher Educational Institutions Act of 1996, which liberalized the whole legal framework for higher private education - frameworks for establishing private universities, branch campuses of foreign universities and twinning arrangements between private and public institutions. As a result the government established six local private universities in 2001 and three branch campuses of foreign universities offering full degree courses in engineering, business studies, medicine and multimedia (Government of Malaysia. Eighth MP 2001: 109). The largest local university was Universiti Multimedia in partnership with Telecom Malaysia aimed to give support to the Multimedia Super Corridor, the government's number one flagship. Foreign branch campuses were set up in partnership with large Malaysian conglomerates such as Sunway Berhad in cooperation with Monash University. The government purpose was eventually "...to internationalize education and develop it as an export industry" (Government of Malaysia. MP 1993: 222).

To become a regional hub for educational excellence, providing world class university education has, however, its own challenges. Privatization cuts public expenses but Malaysia is scrutinized internationally: No Malaysian HEI has secured a position among the Top 100 of Times' World University Rankings 2007 (The Star 13.11.2007). The World Bank's Labour Force Survey in 2004 revealed an increase of unemployed graduates to 74,182, up from 42,500 in 2000 (World Bank Report 2007). But the Malaysian government is monitoring higher educational development closely and adjusting private partnership agreement and strategies continuously, as we will analyse below. Although all the problems to act proactively and use private market forces, in our judgement, the governance framework of higher education is still in state planning hands.

## **Expansion of higher education.**

Since the 'Industrial Master Plan' in 1986 the government's five years plans and other strategy plans have again and again emphasised that the key to become a knowledge-based economy is investment in education and especially in secondary and tertiary education. Its strategic thinking seems to subscribe to the economic philosophy of 'technological bias', which assumes that at the same time as new technologies eliminate some jobs through automation they create new higher skilled employment and up-skills existing jobs (P. Brown, H. Lauder and D. Ashton 2008). This philosophy is not only subscribed to by the government, but also by the growing middle class. The statistics below indicate this view on educational investments, especially the expansion of the private higher education.

The government has had economic resources to implement its strategic thinking into massive investments in higher education. For instance, the revenues from the government owned oil and gas company Petronas are significant. In 2008, Petronas' payment to the Federal Government represented 44 per cent of total revenues ( J. Chin 2008). In the last decades it has spent more on education (in per cent of GDP) than its immediate geographical neighbours (including Singapore), and developed countries such as the United States and the United Kingdom (Lee Kiong Hock & Shyamala Nagaraj 2012). Between 1982 and 2010 the educational profile of Malaysia's population and labour force has therefore changed remarkably. Particularly the labour force with a secondary or tertiary education has expanded. In 1982, the total labour force was 5,431 million and 1,983 million (36%) attained secondary education. In 2010, the total labour force had increased to 11,517 million and 6,412 million (56%) has attained a secondary education. The number of the labour force with tertiary education has also over the same period taken a leap forward. In 1982, the number of graduates with tertiary education was 331.800 or 6 per cent of the total labour force. In 2010, the number has increased to 2,788 million or 24 per cent of the total labour force (Department of Statistics Malaysia) corresponding to about 16 per cent of the population as mentioned above. Compared to Singapore who in a longer period has given higher priority to tertiary education than Malaysia, the number of graduates with tertiary education is high. In Singapore 33 per cent of the population born in Singapore has in the 2010 population census attained a tertiary education (Census of Population 2010, Singapore Statistics).

Although the number of Malaysian students overseas has decreased in recent years it is still a considerable number. In 2007, the total number was 54,915 students. Compared to 117,297 students in 2000 it is halved ([www. mohe.gov.my](http://www.mohe.gov.my)). The most popular places to study are Australia, the United States and UK (Neville 1998). As mentioned many of the students overseas do not return to Malaysia after graduating. It creates a huge brain drain problem (Malaysia Economic Monitor 2011).

Many middle class and rich ethnic Chinese and Indians are going abroad to study, not only because it is prestigious, but also because of the ethnic Bumiputera preference policy. The ethnic Chinese and Indians are very unsatisfied with the favoritism that the Bumiputeras enjoy (Pepinsky 2008). The massive growth in private tertiary educations and the great number of students overseas reflect how more wealthy Chinese and Indians find ways out of these affirmative action policies.

The above number of tertiary students both in Malaysia and overseas indicates that higher education became a mass education in period from 1982 to 2010. The number of universities

underscores this transformation. Currently, there are 20 public universities and 26 private universities (Tenth Malaysia Plan, 2010). In addition, since the private higher educational institutions act 1996, the number of private domestic and foreign providers of university colleges and colleges has increased steadily. In 2010, there were 24 university colleges and 390 colleges (Siew Yean Tam 2011). Many of them can offer twinning programmes including both public and private institutions, foreign or local location of courses. Students then spend different periods of study in Malaysia and overseas (Neville 1998). The increased number of private higher education institutions is the government's attempt to meet the huge demand for higher education and at the same time to cap the outflow of currency after the financial crisis in 1997 (Middlehurst and Woodfield 2004).

### Enrolment to Higher education

The expansion of public and private universities, university colleges and colleges is reflected in the enrolment. It has been facilitated by policies to provide free education at the primary and lower secondary levels since the beginning of 1960s, and at the upper secondary level since the early 1980s (Lee Kiong Hock & Shyamala Nagaraj 2012). Malaysia five years plans, which in the last two decades have promoted a knowledge-based economy, have been main drivers in booming recruitment to tertiary education to an unprecedented level.

Table 1

Enrolment in tertiary educational institutions by levels of study, 2000-2005.

Level of study	2000			2005			2010		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
Certificate	23,816	81,775	105,570	37,931	94,949	132,880	40,204	85,885	126,089
Diploma	91,388	117,056	208,454	98,953	131,428	230,381	149,702	225,997	375,699
First Degree	170,794	59,932	230,726	212,326	110,591	322,917	287,354	227,764	515,118
Masters	24,007	2,174	26,181	34,436	4,202	38,638	51,133	15,690	66,822
PhD	3,359	131	3,490	6,742	140	6,882	17,425	2,810	20,235
Total	313,374	261,047	574,421	390,388	341,310	731,698	545,817	558,146	1,103,963

Kilde: The Ninth Malaysia Plan 2006-2010 and The Tenth Malaysia Plan 2011-2015.

The recruitment to tertiary education increased 92 per cent from 2000 to 2010. The increase is remarkably compared with Singapore where enrolment to universities and National Institute of Education and Polytechnics went up with 48 per cent in the same period (Ministry of Education 2011). Table 1 shows a significant increase, in particular to private tertiary educations. There are several explanations for the increase. After the financial crisis in 1997 many families did not afford to give their children financial support to go abroad to study. They were forced to find

tertiary educational places at home and at the same time (as mentioned above) the government sought to put a cap on currency spending on study overseas. Another explanation is the earlier mentioned ethnical preferential policy in Malaysia. Many Chinese and Indians who were dismissed to admission to public universities and colleges by the Bumiputera affirmative action policy saw private education as the only way to get a degree in tertiary education if not going abroad. A more general explanation is the rise of the Malaysian middle class. The middle class is generally driven by two factors to sustain their living standard: stable, secure and well-paid jobs with good benefits; and higher education (Banerjee & Duflo 2008). The Malaysian middle class is no exception from this general observation. The state-led modernization process in Malaysia has fostered a well-educated middle class not only in the public sector but also in the private sector and it want to secure their children's fortune by saving up to their education (Embong 2002).

Private higher education open doors of opportunity for the new middle class families either because they do not want a public tertiary education, or have no chance to get admission to such education. The recruitment number to the private higher education shows that the students primarily aim at Certificate, Diploma and First Degree level. But the increase in master and PhD is noticeable. Although the number is limited compared to public higher education on master and PhD level the leap forward from 2000 to 2010 is remarkable. It is not only due to more families are economically able to support their children's study but also because more private companies are offering their employees upgrading to a higher academic level. For instance, Petronas, the government owned Gas and Oil Company offer selected employees master courses at foreign or national universities ([www.petronas.com.my](http://www.petronas.com.my)).

As in many other countries the gender balance in higher education in Malaysia is more and more in favour of female students. Since 1987 women's enrolment at all levels has increased from 44.4 per cent to 56.6 per cent in 2008 in public sector universities. The enrolment follows the same pattern in private universities (Ministry of Higher Education). Table 2 below shows how the gender balance has an impact on the field of study. The distribution is recognizable from European countries where female students also dominate most of study fields.

Table 2  
Distribution of graduates by field of study and sex, 2007.

Field of study	Male	Female	
	%	%	
Arts	26.4	47.9	
Science	8.6	13.6	
Technical	47.5	16.6	
ICT	10.9	9.7	
Education	6.6	12.2	
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Total number	68,548	90,315	

Source: Ministry of Higher Education, Malaysia.

It is interesting to compare the distribution of graduates with the number of first degrees awarded in Malaysia in 2007.

Table 3

First degrees awarded in Malaysia in per cent.

Field of study	2007
Technical	18
Science	26
Arts	57

Source: New Economic Model for Malaysia 2010.

Table 2 shows that female students prefer arts, science and education fields, while male students dominate in technical and ICT fields. The distribution of first degrees awarded illustrates students' preferences. The Economic Model for Malaysia expresses worries about the distribution between the technical and science fields on the one hand, and arts and social sciences on the other hand. The government's argument is that the educational sector is not producing the right type of labour competences needed for future growth (New Economic Model for Malaysia 2010).

The problem of matching supply and demand for graduates with higher education reflects the dilemmas in Malaysian politics under and after Mahathir. Since the Industrial Master Plan 1986 the government became more and more focused on upgrading the economy towards higher value-added industries. It sought to establish a number of mechanisms to ensure that the education and training system responded to changes in demand for more technical and academic skills in the public and private sector. For these mechanisms to be efficient the government had to identify the skills required to higher value added forms of production and to ensure that these were at place when they were demanded. The provision of skills became not so efficient in Malaysia according to the above-mentioned critics. According to E.T. Gomez it is because the government has placed itself between state intervention policies and the neo-liberal market economy (Gomez 2009). On the one hand it was inspired by government intervention policies as in Japan, South Korea and Singapore and set up five years plans for its industrial development. On the other hand the government subscribed to neo-liberalism and privatization, which always has sought to leave to the market to determine the direction taken by economic development.

The other dilemma is between preferential ethnical policy and qualified admission to higher education. The Bumiputera policy has built on favouritism in order to enhance the Malay population's social and economic level compared to Chinese and Indians. The policy has been successful in the sense that it has leveled out the big differences among the three main ethnical groups. The preferential position for Malays to higher public education has enhanced their educational level, but it has produced many graduates in subject fields with limited demand, and, it has forced many qualified Chinese and Indians to become overseas students – and then stay abroad as diasporas. We will examine whether the upgrading policy has changed the employment structure and to what extent the supply and demand for higher educated graduates match.

### **Output of graduates and change of employment structure.**

We have analysed how Malaysia over the last decades has invested heavily in post-secondary and higher education and made the gap to Singapore closer as to numbers of enrolled students at the

tertiary level (Yusuf and Nabeshima 2009). The next step is to examine whether the increased output of graduates is transformed into changes of the employment structure. We are interested to explore whether there is a correlation between changes of the employment structure, educational upgrading and movements towards more knowledge-based forms of production. By statistical data on employment by major occupational groups we seek to examine such correlations in table 4. The table below gives an overview of changes of employment by major occupational groups in Malaysia. Although the numbers for the period 1980 to 1990 not are comparable to the numbers for the period 2000 to 2005, because of different statistical method of assessment, they indicate interesting changes in the last 25 years.

**Table 4**

Employment by major occupational groups, 1980-2010 in per cent of total employment. Malaysia.

<i>Occupational Group</i>	<b>Malaysia</b>			<b>Malaysia</b>		
	1980	1990		2000	2005	2010
Administration/ Management	1.7	2.4	Senior Officials & Managers	6.9	8.0	7.5
Professionals & Technicians	6.7	8.8	Professionals	5.8	6.2	6.3
			Technicians/ Associate Professionals	12.0	13.1	14.7
Clerical workers	8.2	9.8	Clerical workers	9.6	9.1	10.1
Service workers & Shop & Market Sales Workers	9.7	11.5	Service workers& Shops & Market Sales Workers	13.0	14.3	16.8
			Craft & related Trade Workers	9.1	11.6	11.7
Production Workers & Technicians	28.5	27.6	Plant & Machine Operators & Assemblers	16.1	14.5	11.7
Agriculture & Fishery	35.7	28.3	Agriculture & Fishery	15.0	12.6	11.3
Service/ Cleaning/ Maintenance	9.0	11.3	Service/ Cleaning Maintenance	12.5	10.6	10.7

Source for Malaysia: Seventh, Eighth, Ninth and Tenth Malaysia Plan 1996, 2001, 2006, 2011.

The employment statistics does not inform on correlation between improvement of education attainment and changes of employment structure. We need to make some assumptions to identify such a correlation. For instance we use the number of senior administrative officials and managers as an indicator of more knowledge oriented jobs, but the statistical categories administrative officials and managers do not say anything about the position holders' educational credentials. Therefore, our reflections on how improvements in education attainment are reflected by the composition of the labour force are assumptions. We assume that senior administrative officials and managers have an educational training that is higher than the average worker in the

manufacturing industries and therefore an increase in their number is an indicator for an increase in knowledge oriented work.

Overall table 4 shows that the Malaysian economy is moving away from agriculture and fishery to manufacturing and service productions. But does the table reveal changes towards a more knowledge-based economy? The numbers of senior administrative staff, managers, professionals, technicians and middle managers indicate some direction. Taking this broad category together, we have some indication of a move towards a more knowledge-based economy. In 1980 this broad category of employees was about 8 per cent of the whole labour force, while in 2010 it was growing to about 28.5 per cent. It is more than a triple increase. This occupational group has had the largest increase in the period 1980 to 2010. Although these employment categories do not say anything precisely on educational attainment, credentials or job content, we assume that this occupational group includes more knowledge-oriented work than the other occupations in the table. It is worth noting that from 2000 the two categories administration/management and professionals/technicians are divided into three employment categories with Associate professionals and Technicians as a new one. It indicates that these employment areas have become significant fields in the economy.

Other changes are worth noting. For instance, the category clerical work did not increased particularly in this period. It may indicate the growing computerisation of office work and work intensification and rationalisation. Some areas of office work have been deskilled while other areas such as insurance and banking have been up-skilled and require tertiary education (U. Heisig 2009). The category craft and related trade workers is, since 2000, a new category of the labour statistics in the Malaysia Plan. Previously it was included in the category production and related workers. It may indicate a growing demand for skilled workers like blacksmiths, electricians and carpenters etc.

We will supplement this statistical analyse with a 2007 survey on distribution of graduates by occupation and sex in table 5.

**Table 5**  
Distribution of graduates by occupation and sex (per cent), 2007.

<i>Main job sector</i>	Male	Female	Total
Administrative & managerial workers	6.0	4.5	5.2
Professional workers	46.2	45.5	45.8
Technical & related workers	23.0	11.5	16.6
Clerical & related workers	7.8	27.4	18.8
Service & sales workers	6.5	7.4	7.0
Agriculture, forestry & fishing	1.3	0.4	0.8
Craft & related trades	0.3	0.5	0.4
Production & related workers	5.3	1.8	3.3
General workers	3.6	1.1	2.2
Total	100	100	100

Source: S. Nagaraj, Goh Kim-Leng, Tey Nai-Peng, R. Jani 2009.

Table 5 provides a picture of the development of employment in Malaysia whereas table 6 is a 2007 snapshot of the distribution of graduates by occupation. It corroborates our assumption that graduates mainly are in the broad category senior administrative staff, managers, professionals, technicians and related workers (middle managers) but it shows that there are surprisingly few graduates in the category administrative and managerial workers. Table 5 shows that most of the graduates are in professional and technical jobs and it is in line with the gender pattern of fields of study (table 2) that more males are in the technical jobs. The table also shows that a relative great number of graduates are in jobs that not directly match with the jobholder's educational background. 32.4 per cent of the total number of graduates is in job categories clerical work, service work and etc. The number of females is 38.5 per cent. It indicates that especially female graduates have a tendency to be in jobs that not match with their educational background. It raises the problem of employability of graduates (- or traditional patterns of gendered employment).

### **Graduates and employability.**

Before analysing the problem of employability we will give a snapshot of the distribution of graduates on sector. Private multinational companies and the local private sector employed 65.4 per cent of total graduates. The government sector employed in 2007 less than a quarter of the total number of graduates. Although there are more females than males in the government sector the gender distribution is remarkably equal in most of the sectors. It indicates that female graduates have got a strong foothold on the labour market for highly educated.

**Table 6**  
Job sector of graduates by sex (per cent), 2007.

<i>Sector</i>	Male	Female	Total
Government	20.6	25.8	23.5
Statutory body	4.6	4.3	4.5
Private (multinational)	22.6	17.8	19.9
Private (local)	45.1	45.8	45.5
Own business	6.1	4.8	5.3
Others	1.1	1.5	1.3
Total	100	100	100

Source: S. Nagaraj, Goh Kim-Leng, Tey Nai-Peng, R. Jani 2009.

As mentioned above many graduates have difficulties to get a job after completion of study and a great number are employed in jobs that do not match to their educational background. The

statistics do not reveal data on whether graduates who begin their labour market debut in jobs that do not match their educational background are stuck in these jobs because of their fields of study are not demanded. A great number of graduates in arts and other non-technical fields of study are offered re-training programmes (New Economic Model for Malaysia 2010). These efforts of re-training indicate that many graduates try to come out of their individual educational trap. Recent statistics from Ministry of Higher Education shows that more than 50 per cent of graduates in 2006 and 2007 are not employed in a period after completion of study. 28 per cent are unemployed while 27 per cent are doing further studies, attending re-training courses or waiting for job placement (S. Nagaraj, Goh Kim-Leng, Tey Nai-Peng, R. Jani 2009). It is not alarming compared to similar statistical information from other countries but viewed in the light of the great number of graduates that is underemployed the statistics reveals on the other hand problems about many graduates employability.

The Tenth Malaysia plan focuses on the problem of graduates' employability. It identifies the problem as mismatch between supply and demand for graduates with a tertiary educational background. As we have shown the problem in recent years is not the supply of graduates. It has increased significantly. The problem is graduates' skill baggage. According to the Tenth Malaysia Plan employers and industry associations state that many graduates lack soft skills, such as positive work ethics, communications, teamwork, decision-making and leadership skills (Tenth Malaysia Plan 2010). The mismatch of supply and demand has created a problem of unemployment among highly educated, especially in the first years after completion of study. As mentioned it is not an unknown problem elsewhere in the world. But in Malaysia it is at the same time an ethnical problem. Unemployment among highly educated is largely a Bumiputera problem. In 2008 unemployment among diploma and degree holders was 24.1 per cent and particularly female graduates were unemployed or had temporary jobs (Lee Kiong Hock & S. Nagaraj 2012).

The high unemployment rate among Bumiputera graduates is remarkably. Highly educated Bumiputera have had easy access to jobs in the public sector because of the ethnic quota policy – more than 80 per cent of the employees in the public sector have been Malays. But in recent years the public sector has been more restrictive and selective in its appointment of graduates (Lee Kiong Hock & S. Nagaraj 2012) Like employers in the private sector employers in the public sector complaint about graduates poor skills baggage. The Tenth Malaysia Plan focuses on the problem. It acknowledged that the massive intake of students to tertiary education in recent years has not been underpinned by effective mechanisms to secure quality and it has reduced many graduates employability. In the next five years plan period improvement of quality is in focus (Tenth Malaysia Plan 2010).

The high unemployment among graduates is an indication of a massive production of highly educated labour but also of an inadequate supply of graduates. Viewed from the above statistics on output of graduates the problems of matching supply and demand were in year 2000 not so severe in Malaysia. The number of senior officials & managers and professionals was 13 per cent, which matches almost with the output number. In 2010 supply and demand seems not to match. The economic development underpins this observation. The New Economic Model for Malaysia points out that the share of skilled labour has in recent years declined across industries although the same industries talk about an increased need for skilled labour (New Economic Model for Malaysia 2010:54). This paradox is according to the world's largest semiconductor chip maker, Intel, who has a large high-technology manufacturing production in Malaysia, connected to the problem of an inadequate supply of graduates ([www.btimes.com](http://www.btimes.com) 06/09/11).

The mismatch problem between supply and demand is not only related to the explosive increase in higher education in Malaysia. It is also connected to the brain drain. The World Bank has in its Malaysia Economic Monitor 2011 addressed the problem (Malaysia Economic Monitor 2011). It is, however, not a new problem that Malaysian overseas students stay abroad after completion of study. But in recent years the number of graduates who stay abroad or leave Malaysia after graduation is larger and expanding. The Malaysian diaspora worldwide is by the Economic Monitor estimated to be one million in 2010. The diaspora is geographically concentrated and ethnically skewed. There is 57 per cent in Singapore and almost 90 per cent of the diaspora in Singapore is Chinese. The rest is mostly in Australia, Brunei, UK and the United States (Economic Monitor 2011).

As shown above the brain drain has not eroded the number of available graduates in Malaysia. But it has made a substantial cut in the number of high qualified graduates and has increased the problem of mismatch between supply and demand. The Economic Monitor emphasises that the brain drain is a symptom, not a problem in itself. There are many push and pull factors that drive the migration decision. Among the key factors for Malaysians are differences in earnings potential, career prospects, quality of education and quality of life. For the Malaysian government it is worth noting that the bulk of the Malaysian diaspora is non-Bumiputeras. Leaving the country is a way of expressing discontent with Malaysia's inclusiveness policies.

The government has tried to address the problem in its transformation programs. Focus is on increasing productivity and salary levels. It is thought as a leverage to reduce incentive to emigrate and help to attract Malaysian talent abroad. The size of the Malaysian diaspora indicates that it is important to find effective ways to connect to it. The way out of the middle income trap is highly depended on attracting talent and reducing the mismatch between supply and demand for highly qualified labour.

The analysis of the employability of graduates has raised the question whether the mismatch between supply and demand for highly educated labour is blocking or restricting the transformation process towards a high-income country. The New Economic Model for Malaysia is not in doubt that graduates' employability creates problems for the transformation. But in its argumentation the New Economic Model does not discuss future demand for "soft" and "hard" skills. We believe it is an important discussion as demand for skills is changing in many industries. The ICT industries may illustrate this change in the demand pattern. It has not only a demand for "hard" programming and engineering skills but also for "soft" communication, design and team-working skills. Moreover, the dilemma between "soft" and "hard" skills does not seem so important any longer as larger lead companies, national and multinational, prefer themselves to train their employees with "hard" skills designed to company needs, while "soft" skills as ability to communication, team-working and willingness to learn are considered as general skills taken care of by main agencies in the educational sector (Lauder, Brown, Ashton 2008). Therefore, the main human resource and education agencies and their interaction with lead companies become important in the implementation of the overall educational policy.

### **Lack of planning co-ordination in the education sector**

In the Malaysian plans, spanning over five years, the government presents the overall educational policy and budget, proposed by the Economic Planning Unit and approved by the parliament. The more detailed planning is in the hands of the main agencies in the educational sector (Abdullah, Rose, Kumar 2007). Critical voices claim that these main agencies are not able to make the more detailed planning (Ritchie 2006 and 2009). The problem concerns coordination difficulties among

the main planning agencies: the Economic Planning Unit, the Human Resource Development Fund, the National Vocational Training Board and the three education ministries (Ministry of Education, Ministry of Human Resources and Ministry of Youth and Sport) that are responsible for implementing the educational policy. This lack of coordination, which causes fragmentation of the education policy, is not unique for the Malaysian educational bureaucracy but reflects conflicting interests and the long planning distance from the overall strategies to viable educational programmes. Educational planning, we may add, can hardly predict economic crises (like 1997-98 or 2008-10) or sudden bubbles (ICT or finance) or consumption swings in the global market which make proactive planning extremely difficult.

The critics make comparison with the Singaporean educational bureaucracy, which is handling these coordination problems without greater conflicting interests (Ritchie 2006 and 2009). We doubt that the low intensity of conflicting interests in the Singaporean bureaucracy solely is due to excellent institutional capacity and efficiency. It may also reflect the overall degree of political consensus about goals and means. It is well known that Malaysia is divided politically and split in ethnic and religious belonging. It has an impact on the bureaucracy. Although Malaysia has the same authoritarian tradition and bureaucratic elitism in planning as Singapore, the degree of conflicting interests is different in the bureaucracy and it has its effect on the implementation of educational policy. The Bumiputera privileges in education illustrate that.

We do not oppose the critics' argument that Malaysia is lagging behind Singapore in terms of institutional capacity and efficiency (Ritchie 2006 and 2009). But we find it important to stress that Malaysia in despite of fragmented coordination and conflicting interests among the main agencies in the education sector, has, as the above statistics illustrate, achieved remarkable results in comparison with countries that have begun their transformation process towards a more knowledge-based economy on a earlier stage than Malaysia. It suggests that Malaysia is on the move to meet the demand for skilled labour in a more knowledge-based economy at least in quantitative terms. It is arguable whether the supply is matching the demand as to both "hard" and "soft" skills, and, especially, as to quality of skills.

### **Concluding remarks**

As a predominantly Muslim country, split in ethnical groups and divided between secular modernisation and Islamic governance, Malaysia has successfully invested in educational and training capacity based on a partnership between larger companies and the government. In the global competition Malaysia, like Singapore and other Asian NICs, has chosen the knowledge-based economic route to become a high-income country. It is a route with hard competition especially from China and India. We have identified the middle-income trap as the main obstacle in different areas. The middle-income trap keeps Malaysia back due to the large labour-intensive export sector, supported by immigration of cheap labour, Bumiputera preferential treatment of the Malay majority, lack of technical and "hard" skills, lack of new innovative competencies and planning difficulties to match demand and supply of skills, especially the skills of higher education institutions. Malaysia has not without success used the capacity and capability of the private sector, both local and foreign corporations and organizations, to enhance the level of education and the skill formation of the labour force.

Over the last decade the Malaysian government has ploughed remarkable investments into especially higher education and at the same time private higher education has expanded significantly. It has led to a great leap forward in output of graduates from tertiary education.

Although the percentage of the labour force with tertiary educations is not as high as in Singapore, Malaysia has moved neatly up the ladder in the last teen years. This expansion has not been without problems. Especially the mismatch between students' choice of education and industries' demand for skills creates problems. But the mismatch between demand and supply of skills is also caused by conflicting interest among the main agencies in the Malaysian education sector.

We have shown that this mismatch has created employability problems especially for students soon after completion of their study. A great number is unemployed. It is a problem if they do not have the right skills and competence. Complains from multinational companies such as Intel and the MP10 about the graduates' lack of soft skills indicate the dimension of the problem. The brain drain is adding to the problem of mismatch of supply and demand.

Our analysis has concluded that the way out of the middle income trap is depending on the government's and the private sector's ability to cope with these mismatch problems. It is not only a question about the quality of higher education and about attracting educated Malaysian abroad to go back. It is also a question about the Bumiputera policy. It seems difficult to find a long-term solution to this mismatch between supply and demand as long as the government maintains its Bumiputera policy. Because of this favouritism Malay students are in a better admission position to educations and stipends. This policy has been a success in the sense that it succeeded in relatively few years to create a large middle class of higher educated Malays. But it has a negative impact on enrolment to the disciplines in tertiary education. Malay students prefer "soft" arts disciplines whereas they are less inclined to choose "hard" natural science, technical and engineering disciplines. It has strengthened the mismatch problem and has created a retrain problem, and it does not make it easier for Malaysia to come out of the middle-income trap.

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