

3

Malaysia's Health and Socio-economic Transformation

JO. M. MARTINS

3.1 Human Development and Health

Malaysia's health development has been part of the wider process of human and other socio-economic progression. This chapter provides the broader context to the Malaysian health system through a brief analysis of socio-economic development and its impact on health risks and conditions. There were also associated health improvements that in turn fostered human development. This analysis provides a macro and concise framework for the more detailed examination in other chapters of the development of the Malaysian health system in terms of its service delivery, related inputs and more detailed outcomes.

Malaysians have made noteworthy socio-economic progress since the country's independence in 1957, in view of the advantages and challenges of their physical and equatorial environment. As a result of these efforts, Malaysia is now among the countries that have achieved very high human development according to the United Nations Development Programme (UNDP), based on attained life expectancy, education and income per capita (United Nations Development Programme, 2018). Malaysia is also among the group of high- to middle-income countries with a gross national income per capita of \$26,190 in 2015 (purchasing power parities, 2015), compared with the substantially lower average of \$15,627 for countries in the same income group (World Bank, 2017), and is on the pathway to joining the high-income group of nations.

Malaysia is a good example of a comprehensive approach to development. Since independence, government policies have been progressively articulated in five-year development plans in a holistic manner that deals not only with the economic elements but also other social elements of human development, including health. Thus health interventions are planned and implemented in the context of a range of

complementary activities in socio-economic development. They reflect priorities set across the board, including labour force and financial resource constraints, and the steps taken to address them. Therefore, it is essential to examine health advances in conjunction with concurrent socio-economic development that affects the way people live and where, and what they do, with an impact on social organisation, as well as geographical and financial factors that have a bearing on relative access to health services and living conditions.

The progress made in human development in Malaysia has been substantial in terms of the three measures used by the UNDP in its index of human development: life expectancy, education and gross domestic product (GDP) per capita. Using 1970 as a basis, life expectancy had increased by 11 years to 75.6 years in 2015, secondary education enrolment more than doubled to 85%, and GDP per capita increased by more than five times to 35,100 Malaysian Ringgit (Table 3.1).

Three major phases can be identified in human development since independence. Their expression in health development is as follows:

- The first phase, during the 1960s and 1970s, emphasised rural development and capacity building of the health system.
- The second phase, in the 1980s and 1990s, was one of consolidating socio-economic transformation and the health system, from a rural

Table 3.1 *Human development, Malaysia, 1970–2015*

Year	Human development measures		
	Life expectancy (years) ¹	Education: secondary school enrolment (%) ²	GDP per capita constant prices (MYR 000s) ³
1970	64.4	39.2	6.2
2015	75.1	85.0	35.1
2015/1970	1.17	2.17	5.66

Sources: World Bank (2019a; 2019b; 2019c). Calculations made by the author.

¹ The average number of years lived from birth.

² The percentage of children of relevant age attending secondary school.

³ The average gross domestic product (GDP) per capita at constant prices in thousand Malaysian Ringgit (MYR).

setting to rising employment in secondary industries, urbanisation with migration from rural to urban centres and growing health system capacity.

- The third phase, in the 2000s and 2010s, has the characteristics of a more developed socio-economic configuration, with growing urbanisation and sustained employment in manufacturing but a larger proportion of people employed in services. Conditions have continued to improve, but growing affluence and more sedentary occupational and recreational activities have led to lifestyles that compromise the rate of health enhancements.

Health status has been closely associated with poverty, and in turn, health services provision has contributed to poverty alleviation (Hammer et al., 1995). In addition to socio-economic factors in development during the above three phases, four variables will be used in the analysis to examine the evolution that affected health status in Malaysia: poverty prevalence for social and economic security affecting health status; urban/rural residence for the manner of social organisation and geographical access to health services; rate of safe deliveries for access to and coverage by basic health services; and infant mortality rates as a marker of health status in a relatively young society, even today.¹

3.2 Reaching the Poor in Rural Malaysia and Increasing Capacity (1960s and 1970s)

At independence in 1957, about three-quarters of Malaysians lived in rural areas (74%), and close to half of the labour force worked in agriculture (47%), mostly in rubber plantations and rice cultivation. The unemployment rate was estimated at 13%, but it was posited that there was considerable additional disguised unemployment (Fernandez et al., 1975; Jones, n.d.; Supplementary Table 3.J). Poverty was pervasive, with 51% living below the poverty line on average and 60% living in rural areas (Roslan, 2001; Supplementary Table 3.D). This was associated with a high population growth rate (almost 3% per year) driven by a high fertility rate of more than 5 live births per woman, which led to a large proportion of the population being under 15 years of age (44%) and a dependency rate of 82% on the working-age population but a relatively low proportion of people aged 65 years

and over (3%). However, the high rate of infant mortality (75/1,000 live births) contributed to low life expectancy at birth of only 57 years at that time (Fernandez et al., 1975; Supplementary Tables 3.E, 3.H and 3.I). In addition, poor health due to the high incidence of malaria, tuberculosis and other communicable diseases (Roemer, 1976) affected the productivity of human capital. There is also evidence of malnutrition in children from poor rural areas (McKay et al., 1971; Chong et al., 1984). The low level of education was another dimension of the quality of human capital: in 1957, more than half the population aged over 14 years (53%) were illiterate in any language (Ministry of Education Malaysia, 1967), with implications for female fertility and maternal and child health associated with the level of education of women.

Few doctors and nurses were concentrated in urban centres in relation to the population (Supplementary Tables 3.K and 3.L) to address the large burden of disease and mortality. There was significant reliance on traditional healers, with services provided by *bomohs* (healers) and *kampung bidans* (village midwives) in the Malay tradition. *Sinsehs* (Chinese physicians) provided herbs and other traditional Chinese medicines, supplemented on occasion by Western-type medicines. There were also a few Ayurvedic practitioners from India. It was not uncommon for care to be sought interchangeably regardless of ethnicity. Although there were reservations about the effectiveness of traditional practices, the household expenditure survey for 1957/1958 indicated that households spent almost as much on traditional medicines with a lower price as they did on more costly Western ones (Roemer, 1976).

It was in this context that various Malaya and Malaysian² plans were formulated to address both economic and social development during this first phase. Rural development became a major policy objective in the 1950s and 1960s to address the productivity, income and living conditions of most people in Malaysia. Government development expenditure rose from 3.6% of the GDP in 1956–1960 to 6.8% in 1966–1970 and government revenue from the export of oil rose to 12.6% of the GDP in 1976–1980 (Lee & Chew-Ging, 2017). During 1956–1980, about a third of development expenditure was for infrastructure such as roads, power and communication that enhanced rural and regional transport and communication, and about one-quarter was for agriculture to improve productivity and the income of poor

rural populations engaged in rice cultivation, reforming rubber plantations and developing palm oil cultivation in small holdings with improved productivity. A substantial development expenditure that included security (due in part to internal emergency and confrontation with Indonesia over the sovereignty of Sabah and Sarawak) absorbed some 16% of the total government development expenditure during this period. Development expenditure on education and health (which tends to be less than that on security, transport and public works) amounted respectively to about 8% and 2% of the total during this period (Peacock, 1981; Fong, 1985; Aslam & Hassan, 2003).

The importance of health services reaching the poor in rural areas was expressed in the priority given to the following complementary activities (Suleiman & Jegathesan, n.d.):

- Training of health personnel and recruitment in rural areas.
- Provision of rural health services, including safe water and sanitation.
- Prevention and management of communicable diseases.
- Improved hospital capacity to support primary care.
- Family planning and nutrition supplementation.

This reflected the considerable regional differences in infant mortality that prevailed through the 1960s and 1970s, which were associated with the proportion of people living in rural areas and with levels of household poverty. Accordingly, the state of Terengganu, with 68% of households living in poverty and 73% of its population in rural areas, had an infant mortality rate of 54 per 1,000 live births; Selangor, including Kuala Lumpur (Malaysia's large urban capital), had a lower proportion of rural population (55%), a lower level of poverty (43%) and a substantially lower infant mortality rate of 30 per 1,000 live births (Hasan, 1986).

The efforts made to improve economic productivity resulted in an average GDP annual growth rate of 7.1% in the 20-year period of 1960–1980. However, the large population growth reduced it to a still-helpful rate of 3.7% per head of population (Supplementary Tables 3.A and 3.E). Even though primary industries continued to constitute a large proportion of the GDP (31%) in 1980, the proportion of secondary production almost doubled to 25% of the GDP, with little change in the proportion of services (44%) (Supplementary Table 3.B). Employment saw a substantial decline in the proportion of the population employed

in primary industries, mostly in rural areas, from 50% to 39% during the 20-year period and an increase in the proportion of those employed in services from 30% to 40% (Supplementary Table 3.C). Although the majority of the population continued to live in rural areas, greater urbanisation took place, and the proportion of the population living in urban areas increased from 26% in 1960 to 42% in 1980 (Supplementary Table 3.J), with consequences for the mode of living, type of work and conditions and relative ease of access to health services. Further, substantial gains were made in education. By 1967, enrolment among children of relevant age in primary education had risen to 94% and to 52% in lower secondary education, with considerable progress in the education levels of women (Ministry of Education Malaysia, 1967), which is associated with fertility and maternal and child health (Hasan, 1986). This was coupled with the increase in the female labour force participation rate from 37% in 1970 to 44% in 1980 and the observed substantial decline in fertility, which was also enhanced by the family planning programme in 1965 (Fernandez et al., 1975; World Bank, 2019d; Supplementary Table 3.G).

Development in terms of personnel and rural health facilities made substantial progress during this phase. The number of people per nurse declined about four-fold and that per doctor declined by about half during the 20-year period of 1960–1980 (Supplementary Tables 3.K and 3.L; Chapter 8). Public hospital services were upgraded without an increase in the number of beds per head of population, but their use rose by 43% during the same period (Chapter 5). The proportion of the population served by sewerage rose by about 89% and that with access to safe water increased by about 82% in the 10-year period 1970–1980 (World Bank, n.d.; Chapter 7). The impact on health of the various preventive and management interventions is illustrated by the 29% decline in the incidence of malaria and 96% decrease in the incidence rate of diphtheria in the 4-year period of 1976–1980 (Chapter 6). This progress was achieved with a relatively low total health expenditure. Estimates for 1973 indicated that total health expenditure amounted to only about 2% of the GDP, and that 65% of it was spent in the public sector (Roemer, 1985; Chapter 8).

During 1960–1980, socio-economic development and changed employment opportunities increased the proportion of the urban population from 26% to 42% in 1980, and poverty levels declined from 49% in 1970 to 37% in 1980. Easier access to health services and increased

Table 3.2 *Changes in poverty, urbanisation, safe deliveries and infant mortality, Malaysia, 1960–1980*

Year	Households in poverty (%)	Urban population (%)	Safe deliveries ¹ (%)	Infant mortality rate ²
1960	n.a.	25.6	41.3 ³	68.9 ³
1970	49.3	33.5	67.1 ³	38.5 ³
1980	37.4	42.0	85.4 ³	23.8
Change 1960–1980	-11.9 ⁴	+16.4	+44.1	-45.1

Sources: Supplementary Tables 3.D, 3.J and 3.G; Ministry of Health Malaysia (1982).

¹ Those performed by professionally trained health personnel.

² The ratio of the number of deaths of those aged under 1 year per 1,000 live births.

³ Peninsular Malaysia.

⁴ Change from 1970 to 1980.

n.a. – not available

service provision in rural areas led to greater health services coverage. In Peninsular Malaysia, safe deliveries by professionally trained health personnel rose from 41% to 85% during this 20-year period; as a proxy measure of health improvement in a young population, the infant mortality rate declined by more than half from 69 per 1,000 live births in 1960 to 24 in 1980 (Table 3.2). Life expectancy at birth rose by 8 years to 68 years in that period (Supplementary Table 3.G).

3.3 Transition and Consolidation (1980s and 1990s)

The core development objectives in the 1980s and 1990s were the eradication of poverty, the re-structuring of society and more balanced regional development (Prime Minister's Department, 1989). The related health policy goals set out in the Fourth to Seventh Malaysia Development Plans were (Suleiman & Jegathesan, n.d.):

- Training of health personnel and their engagement to serve the growing population and a better mix of human resources to provide needed services.
- Reduction in the disparity of health status among different population groups and areas.
- Control of preventable infectious diseases.

- Promotion of healthy living environment.
- Collaboration in health promotion between the public and private sectors and among agencies.
- Improvement in productivity and quality of services.

A major transition took place in Malaysia during these two decades. The population almost doubled from about 14 million to 23 million (Supplementary Table 3.E) in spite of a decline in the average fertility from four to three children per woman (Supplementary Table 3.G). Consequently, the proportion of children aged under 15 years decreased, with a compensating increase in the proportion of working-age people (15–64 years), which reduced child dependency on working-age people from about 70% to 53%, but the proportion of older people aged over 64 years remained low at 4% (Supplementary Tables 3.H and 3.I). The growth in working-age people was accompanied by a major shift in economic activity from agriculture to manufacturing and related employment. Accordingly, employment in primary industries, mostly agriculture, declined from 39% in 1980 to 16% in 2000, and the proportion of people employed in secondary industries (manufacturing and construction) rose from 21% to 36% (Supplementary Table 3.C). The economic transformation provided a wider range of employment opportunities, and the unemployment rate, which had risen to 8% in 1987 (Department of Statistics Malaysia, 1989), fell to 3% in 2000 (Department of Statistics Malaysia, 2001a). Income rose faster than the large growth in population and led to a substantial increase in GDP per head of population at an average annual rate of 3.7% during that period (Supplementary Table 3.A).

However, the rate of progress was upset by the oil crisis in 1979, which affected government revenue and led to fiscal constraints in the 1980s and an economic recession in 1985–1986. Government development expenditure that was still substantially high at 11% of the GDP in 1981–1985 dropped to 6% by 1996–2000 (Lee & Chew-Ging, 2017). As the emphasis on development moved to manufacturing, government development expenditure on agriculture was reduced by about half to 12% of the total in 1981–2000, while investments in infrastructure for roads, communication and power generation continued to receive about one-third (34%) of the total, and investments in industry increased somewhat from 14% to 17%. Government recognition of the importance of the continual improvement of human capital for both economic and social purposes

was shown in the rise of development expenditure on education from 8% to 12% and that on health from 2% to 3% (Aslam & Hassan, 2003). Primary education enrolments became almost universal (97%); secondary school enrolments rose to 65% and that in tertiary education to 26%, with female enrolments, of particular importance to health, being at least on a par with that of men (United Nations Educational, Scientific and Cultural Organization, 2011).

Another aspect of the socio-economic transformation was internal migration to urban areas with employment opportunities. A study carried out in 1989–1990 (Department of Statistics Malaysia, n.d.) indicated that the more rural states lost some of their population due to internal migration, while the more industrialised states gained population that way. As might be expected, internal migrants, both male and female, were younger, and with a higher level of secondary and tertiary education. The majority were Malays from rural areas. By 2000, most people lived in urban areas (Supplementary Table 3.J).

These major socio-economic shifts involved a number of inter-related features that affected population composition and altered health risks. The larger urban population employed in manufacturing and services and the greater participation of better-educated women in the labour force were associated with lower fertility and a rise in the proportion of people of working age, with lower levels of unemployment, higher household income and less poverty. However, occupations required less physical activity, while food intake was enhanced by higher household income and less poverty. As the socio-economic transformation took hold, demographic and epidemiological transitions took place. The epidemiological transition was expressed in terms of a decline in the burden of disease from infectious diseases because of the success of related health interventions, but non-communicable diseases increased with occupational and leisure activities and greater affluence, with an effect on health risks, health conditions and mortality (Table 3.3).

Access to medical services improved during the two decades of 1980–2000 as the number of people per doctor declined by more than half (Supplementary Table 3.K; Chapter 8). The number of nurses and midwives rose in relation to the population, but the number of assistant nurses declined (Supplementary Table 3.L; Chapter 8). Vaccination of infants for a range of communicable diseases reached over 90% coverage in most cases (Chapter 4). Rural household sanitation rose to 98% and access to safe water to 94% (Ministry of Health Malaysia, 2002; Chapter

Table 3.3 *Epidemiological transition and causes of death, peninsular Malaysia, 1982–1990*

Cause of death	Age-specific death rates Percentage change for 1982–1990 in age group (years)						
	<1	1–14	15–29	30–44	45–59	60–64	>64
Infectious diseases and fever	-65.1	-60.3	-46.1	-46.1	-57.7	-59.4	-59.4
Accidents, poisoning and violence	-1.4	-27.1	-10.3	-0.4	-4.0	-11.4	-11.4
Cancer	-14.9	+20.0	+2.7	+17.3	+29.3	+28.9	+28.9
Heart attack	+62.5	-23.6	-1.2	+18.2	-23.6	+37.5	+37.5
Unknown and other	-25.8	-33.0	-8.2	-7.8	-15.1	-31.6	-31.6
Old age (aged over 64 years)							-2.7
All causes	-36.3	-37.4	-14.9	-8.8	-11.3	-17.7	-2.7

Source: Suleiman & Jegathesan, n.d.

7). The rise in urbanisation and higher household incomes made access to private health services easier. This was associated with an increase in the proportion of doctors in the private sector (46%) (Ministry of Health Malaysia, 2002) and almost double the number of people employed in private hospitals and maternity homes (Department of Statistics Malaysia, 2001b). This meant that the rate of both outpatient visits and inpatient admissions to public hospitals per head of population either stayed about the same or declined slightly (Ministry of Health Malaysia, 1992; 2002). The transition is reflected in the estimated proportion of visits to doctors that might have been about equal between the public and private sectors in the 1980s but might have been higher in the private sector in the 1990s (Health Policy Research Associates et al., 2013). The rising use of the private sector had an impact on the level of health expenditure in relation to the GDP. A study of health financing indicated that total health expenditure in 1983 amounted to 2.8% of the GDP and that 76% was related to services provided by the public sector (Westinghouse Health Systems, 1985), while estimates for 2000 show that total health expenditure was 3.3% of the GDP and that 54% was financed by the public sector (Ministry of Health Malaysia, 2017; Chapter 8). This indicates that the rise in total health expenditure in relation to the GDP in that period might have been mostly from the growth in the private sector.

The socio-economic transformation during 1980–2000, with increasing employment opportunities and migration to urban areas, resulted in most people living in urban areas. It also led to a dramatic drop in the proportion of households living in poverty, from 37% in 1980 to 9% in 2000. Empirical evidence shows that, in addition to its direct impact on health status, the provision of health services by the public sector had considerable distributional effects on alleviating poverty in Malaysia (Hammer et al., 1995). Greater coverage of and access to healthcare was facilitated by urbanisation and services rendered by both the public and private sector and the greater use of preventive and other services in the public sector. This was reflected in the increase in the proportion of safe deliveries by health professionals to 97% in 2000. Infant mortality at 7 per 1,000 live births in 2000 had declined to about one-third of that in 1980 (Table 3.4); life expectancy continued to rise by 5 years to 73 years in 2000 (Supplementary Table 3.G).

Progress was also made in narrowing the differences between regions, although the differences prevailed. Kelantan, with a high proportion of its population living in rural areas (66%), had the highest

Table 3.4 *Changes in poverty, urbanisation, safe deliveries and infant mortality, Malaysia, 1980–2000*

Year	Households in poverty (%)	Urban population (%)	Safe deliveries ¹ (%)	Infant mortality rate ²
1980	37.4	42.0	85.4 ³	23.8
1990	16.5	49.8	95.1	13.1
2000	8.5 ⁴	62.0	96.6	6.8
Change				
1980–2000	–28.9	+20.0	+11.2	–17.0

Sources: Supplementary Tables 3.D, 3.G and 3.J; Ministry of Health Malaysia, 1982; 1992; 2002.

¹ Those performed by professionally trained health personnel.

² The ratio of the number of deaths of those aged under 1 year per 1,000 live births.

³ Peninsular Malaysia.

⁴ The poverty rate is for 1999.

infant mortality rate in Peninsular Malaysia, being about twice that of Selangor in 2000 (Table 3.5). However, the difference had been almost three times higher in 1980 (Suleiman & Jegathesan, n.d.).

3.4 Health in a More Affluent and Urban Society (2000s and 2010s)

The steered socio-economic transformation of Malaysia has led to a more affluent and increasingly urban society. Globalisation of the economy is nothing new to Malaysians. At independence, Malaysia was substantially dependent on rubber and tin production for global markets. Its economy evolved as global markets for different commodities changed to the production of palm oil and crude oil and the manufacture of electronic components and products, again mostly for global markets. Thus Malaysia felt the effects of both the Asian financial crisis in the late 1990s and the impact of the global financial crisis in the mid-2000s. Economic growth that faltered in the late 1990s to the mid-2000s regained its strength after 2010, and the GDP per head of population grew at an annual rate of 3.5% in 2010–2017 compared with 2.6% in 2000–2010 (Supplementary Table 3.A).

Table 3.5 Infant mortality, poverty and rural living, Malaysia, 2000

State	Infant mortality rate ¹		Households in poverty (%)		Rural population (%)	
	2000 ²	Change 1980 ³	1999 ²	Change 1980 ³	2000 ²	Change 1980 ³
Kelantan	10.5	-20.4	18.5	-36.5	65.8	-6.1
Perlis	8.6	-15.6	13.3	-49.8	65.8	-25.3
Pahang	8.5	-18.9	5.5	-21.4	58.0	-15.9
Kedah	7.8	-20.5	13.5	-40.3	60.7	-24.9
Melaka	7.5	-12.1	5.7	-14.7	32.8	-43.8
Terengganu	6.9	-24.1	14.9	-38.2	51.3	-5.8
Kuala Lumpur	6.5	-4.9	2.3	⁴	0	0
Perak	6.4	-18.5	9.5	-21.0	41.3	-26.5
Johor	6.2	-18.6	2.5	-15.7	34.8	-30.0
Penang	5.7	-14.4	2.7	-17.0	19.9	-32.6
Negeri Sembilan	5.5	-17.0	2.5	-23.8	46.6	-20.8
Selangor	5.3	-14.3	2.0	⁴	12.4	-53.4
Labuan	20.4	n.a.	⁵	⁵	22.3	⁵
Sabah	6.8 ⁶	-16.0	20.1 ⁵	-38.2 ⁵	52.0	-27.4
Sarawak	5.7 ⁶	-13.8	6.7	-49.8	51.9	-30.1
Malaysia	6.8	-17.0	7.5	-34.9	38.0	-27.8

Sources: Department of Statistics Malaysia, 1992; 2003a; Abbas, 1997; Suleiman & Jegathesan, n.d.; Hatta and Ali, 2013.

- 1 The ratio of deaths of those aged under 1 year per 1,000 live births for 2000.
 - 2 The infant mortality rate and percentage of rural population are for 2000 whereas the percentage of households in poverty is for 1999.
 - 3 Represents the change in the rate from 1980 to 2000 or from 1980 to 1999.
 - 4 Changes for Selangor and Kuala Lumpur could not be estimated because of aggregation of the two in 1980.
 - 5 Labuan was aggregated with Sabah for 1980 and 1999.
 - 6 Birth and infant mortality recorded, especially in Sabah, were of questionable reliability.
- n.a. – not available

The Malaysian economy has the features of more developed countries, with a decline in the proportion of the GDP from primary industries, a continuing large contribution from secondary industries and more than half of total production from services (Martins et al., 2018), with similar employment patterns. By 2017, 62% of people employed worked in services, 26% worked in manufacturing and construction and 12% worked in primary industries, mostly in agriculture (Supplementary Tables 3.B and 3.C). The larger proportion of employment in secondary and tertiary industries and the decline in agriculture were associated with the growth of urbanisation to 75% in 2017 (Supplementary Table 3.J).

The importance of training and education to economic activity is reflected in the high level of education of people employed in 2016: no formal education, 3%; primary education, 15%; secondary education, 55%; and tertiary education, 27% (Department of Statistics Malaysia, 2017a). In 2017, the net enrolment of people of relevant age in primary education was 99% (female, 99%); secondary education, 75% (female, 78%); and tertiary education, 75% (female, 78%) (Ministry of Education, 2018). The labour force participation rate of working-age people increased to 68% in 2017, with female participation rising to 55% (Department of Statistics Malaysia, 2017a; 2018a). The unemployment rate rose only slightly from 3.1% in 2000 to 3.4% in 2017 (Department of Statistics Malaysia, 2003b; 2018a).

The greater urbanisation, higher education levels and greater female participation in the labour force were associated with a substantial fall in fertility from above replacement level (2.8 children per woman) in 2000 to below replacement level (1.9 children per woman) in 2017. Population growth continued to be high due to the large proportion of young people of reproductive age, but the rate of growth was reduced by half from an annual average of 2.6% in 2000 to 1.3% in 2017 (Supplementary Table 3.E). A feature of this continuing population growth was the increase in the proportion of people other than those identified as ethnic Bumiputra, Chinese or Indian³ from less than 1% (0.5%) of the population in 1980 to 11% in 2017, which indicated a substantial growth in immigration (Supplementary Table 3.F).

The decline in fertility led to a demographic bonus in terms of the rise in the proportion of working-age people from 63% in 2000 to 70% in 2017 and a more productive young population. In the same period, the proportion of children dropped from 33% to a still-high percentage of 24%, while the proportion of older people increased somewhat from

4% to 6% (Supplementary Table 3.H). This meant a fall in the child dependency rate on the working population from 53% in 2000 to 35%, and old age dependency rose from 6% to a still-low 9% during the same period (Supplementary Table 3.I).

Among other priorities, health priorities identified in the three Malaysia Plans covering 2001–2015 were concerned with (Economic Planning Unit, 2001; Ministry of Health Malaysia, n.d.):

- Improving accessibility to affordable and quality care and addressing inequalities.
- Expanding wellness programmes aimed at improving quality of life.
- Promoting co-ordination and collaboration between the public and private providers of healthcare.
- Increasing the supply of healthcare human resources.
- Addressing efficiency issues in healthcare delivery.
- Strengthening regulatory and enforcement function to administer the health sector.

The concern with human resources in the provision of health services was met by a substantial increase in the availability of the two major professional resources. The number of people per doctor was about halved from 2000 to 632 in 2016 (Supplementary Table 3.K), and the number of people per nurse more than halved to 308 (Supplementary Table 3.L). By 2016, an increasing proportion of the larger number of doctors were in the public sector (65% in 2015), and even more so in the case of nurses (76% in 2015) (Ministry of Health Malaysia, 2018a; Chapter 8).

Prevention of infectious diseases remained a major objective, and child vaccination coverage continued to be high (Ministry of Health Malaysia, 2018a; Chapter 4). The same was true for access to safe water and sanitation, and the incidence of malaria continued to be low (Ministry of Health Malaysia, 2018a; Chapters 6 and 7). Another achievement was the eradication of polio. However, the incidence of dengue, often associated with growing urban centres, increased considerably, but better management of those affected resulted in a decline in case fatality rates. A major concern during this period was the threat of HIV/AIDS, which reached its incidence peak in 2002. Prevention efforts led to a fall in incidence by about half in 2016. However, HIV/AIDS affected efforts to control the incidence of tuberculosis, which increased to some extent (Ministry of Health Malaysia, 2018b; Chapters 4 and 6).

Urbanisation, sedentary occupations and greater affluence are associated with a rise in health risks related to non-communicable diseases, such as obesity (Ministry of Health Malaysia, 2018b). A study of diet, physical activity and smoking, which have an impact on health risks, such as diabetes, circulatory diseases and lung cancer, indicated that cultural differences resulted in varying behaviours among ethnic groups, and the authors proposed that a more culturally targeted approach was needed for these health risks. It is noteworthy that the study found that access to healthcare also made a difference (Botabara-Yap et al., 2017). The increasing burden of non-communicable diseases was reflected in the increasing proportion of heart and cerebrovascular diseases from 18% to 21% of all deaths from 2001 to 2017 (Department of Statistics Malaysia, 2007; 2018b). It is also manifested in the prevalence of diabetes, which increased from 12% to 15% in the 5-year period from 2006 to 2011 (Ministry of Health Malaysia, 2013; Chapter 6).

Public hospital outpatient visits increased, but their number per head of population declined, and visits to other public health clinics rose (Ministry of Health Malaysia, 2018a; Chapters 4 and 5). Evidence from household surveys indicated that the number of visits to doctors in the private sector might have been larger than the number of visits to doctors in the public sector (Health Policy Research Associates et al., 2013). Nevertheless, public sector health services remained the highest provider of both preventive and medical care. The number of people employed in private hospitals continued to grow by more than two-fold in 1999–2015 (Department of Statistics Malaysia, 2001b; 2017b), and the use of private inpatient care increased. However, admissions to public hospitals also rose substantially (Ministry of Health Malaysia, 2002; 2018a; Chapter 5). Despite the rise in private sector provision, the public sector continued to be the largest provider of inpatient as well as preventive and ambulatory medical services. It has been estimated that the above-mentioned considerably higher proportion of both preventive and curative services supplied by the public sector was financed by the public sector at only 51% of total health expenditure in 2015. The private sector, with a considerably lower proportional provision, was financed by 49% of the total health expenditure (Ministry of Health Malaysia, 2017; Chapter 9). A possible implication of this, all other things being equal, would be a considerable rise in health expenditure as a proportion of the GDP (4.6% in 2015) if all health services provided were at the expenditure per unit of service prevailing in the private sector.

Continuing economic development and employment opportunities in secondary industries, but especially in services in urban areas, continued to fuel the growth in urbanisation, which rose from 62% in 2000 to 75% in 2016. It was also associated with high levels of employment that improved social and income security further, which helped to alleviate poverty and its associated health conditions. The household poverty rate declined from 8.5% to 0.4% in 2000–2016 (Table 3.6). Although the substantial decline in poverty is not questioned, the actual levels and methodology have been queried in more recent times in view of alternative estimates (Ravallion, 2019). Despite caveats regarding the measurement of poverty, it is apparent that poverty has continued to decline since 1999. Infant mortality was highest in Sabah, which had the highest rate of poverty and a large proportion of its population still living in rural areas, and was lowest in urban Kuala Lumpur, which had one of the lowest levels of poverty in Malaysia (Nair and Sagar, 2015; Department of Statistics Malaysia, 2013; 2016a).

As a measure of essential health service coverage and provision in a still relatively young population, safe birth deliveries by professional personnel were almost universal (99.5%) by 2016. Although fertility declined substantially, the momentum from the high proportion of people of reproductive age kept the birth rate at 16 per

Table 3.6 *Changes in poverty, urbanisation, safe deliveries and infant mortality, Malaysia, 2000–2016*

Year	Households in poverty (%)	Urban population (%)	Safe deliveries ¹ (%)	Infant mortality rate ²
2000	8.5 ³	62.0	96.6	6.8
2010	3.8 ⁴	70.9	98.6	6.9
2016	0.4	74.8	99.5	6.7
Change 2000–2016	–8.1	+12.8	+2.9	–0.1

Sources: Supplementary Tables 3.D, 3.G and 3.J; Ministry of Health Malaysia, 2002; 2012; 2018b.

¹ Those performed by professionally trained health personnel.

² The ratio of the number of deaths of those aged under 1 year per 1,000 live births.

³ Poverty rate is for 1999.

⁴ Poverty rate is for 2009.

1,000 people. A reflection of the need to support the larger number of childbirths is that about a third of admissions (32%) to public hospitals, which provided the most obstetric care in 2015, were related to childbirth and related conditions (Department of Statistics Malaysia, 2017a).

In contrast to previous periods, the infant mortality rate did not improve to any significant extent, remaining at about 7 per 1,000 live births during 2000–2016 (Table 3.6). This lack of improvement was also observed for maternal mortality, which remained at around 24 per 100,000 live births during the same period (Ministry of Health Malaysia, 2018b). Although not reflected in formal records of infant mortality (Department of Statistics Malaysia, 2003a; 2016a), analysis of the location of the growing number of non-citizens (10% of the total population in 2017) (Department of Statistics Malaysia, 2017c) shows that states that experienced continued improvements in infant mortality, such as Kelantan, tended to have a lower proportion of non-citizens in the population, while those with a higher proportion, such as Johor, experienced either a standstill or a worsening (Department of Statistics Malaysia, 2003a; 2016a). This raises the question of potential inaccuracies in the registration of infant deaths of non-citizens.

Notwithstanding the stagnation in the recorded trend towards lower infant and maternal mortality, an achievement was the increase in life expectancy since 1999, in spite of the threat of HIV/AIDS and risks from more sedentary occupations and affluent lifestyles: life expectancy rose by more than 2 years between 1999 and 2017 (Table 3.7).

The potential for further improvements in health status and life expectancy is suggested by studies of *avoidable deaths* (Ministry of Health Malaysia & Harvard T. H. Chan School of Public Health, 2016) and *potential years of life lost* due to premature mortality and disability (Institute of Public Health, 2017).

These studies point to the potential gains from improvements in occupations and lifestyles that affect mortality and disability from non-communicable diseases, as well as better identification and management. Injury from traffic accidents and other causes is another major area for potential gains. The importance of mental health is also apparent. The research also indicates the continuing importance of preventing and managing infectious diseases (Table 3.8).

Table 3.7 Life expectancy by sex and years of age, Malaysia, 1999 and 2017

Age (years)	Life expectancy (years)				Change in years	
	1999		2017		2017–1999	
	Female	Male	Female	Male	Female	Male
At birth	74.9	69.9	77.4	72.7	2.5	2.8
1	74.4	69.6	76.8	72.1	2.4	2.5
5	70.6	65.8	72.9	68.2	2.3	2.4
20	56.0	51.4	58.2	53.7	2.2	2.3
40	36.7	33.1	38.8	34.9	2.1	1.8
55	23.0	20.2	25.2	22.2	2.2	2.0
60	18.9	16.5	21.0	18.4	2.1	1.9

Sources: Department of Statistics Malaysia, 2000; 2017c.

3.5 Progress and Challenges

This chapter provides a concise and macro analysis that places salient features of health development in its socio-economic framework as a basis for the following chapters, which address the various components of the health system and their complementary contributions to health outcomes.

Health has been an integral and important part of Malaysia's socio-economic and human development that has aimed at alleviating poverty, enriching human capital, improving living conditions and enhancing health status.

Strategies have been articulated in five-year development plans in which health development has played a vital role in conjunction with education, employment and living conditions. These strategies have evolved as the success of rural development has taken hold and economic development has provided employment opportunities in secondary industries, with growing urbanisation and an increase in related living conditions. The health system's success in preventing and managing communicable diseases has led to an epidemiological transition that has improved health status but that has made it more dependent on the control of the non-communicable diseases characteristic of more developed, urban and affluent societies. Accordingly, progress has improved health, but it has also created new challenges to continued

Table 3.8 *Burden of disease and injury, Malaysia, 2014*

Cause/disease	DALY ¹	YLL ²	YLD ³
	Percentage of total		
Cardiovascular and circulatory diseases	20.8	28.5	8.3
Unintentional injuries	11.9	15.8	5.5
Malignant neoplasm	9.4	14.9	0.4
Diabetes mellitus	7.8	5.2	12.2
Mental and behavioural disorders	7.2	0.1	18.8
Respiratory diseases	6.5	5.0	9.0
Respiratory infections	5.5	7.4	2.6
Infectious diseases	5.1	5.0	5.3
Other	25.6	18.1	38.0
All causes/diseases	100.0	100.0	100.0
Number of years lost	4,993,000	3,099,000	1,894,000

Source: Institute of Public Health, 2017.

¹ The combined potential years of life lost from premature mortality and disability.

² The number of potential years of life lost due to premature mortality.

³ The number of years of life lost due to disability.

success in addressing the risks of infectious diseases while strategies and means of tackling the threats posed to wellbeing by the burden of non-communicable diseases are being developed.

3.6 Key Messages from Malaysia's Experience

3.6.1 *What Went Well?*

- The provision of healthcare can be an important factor not only for the improvement of health status but also for the quality of human capital, its productivity and the alleviation of poverty.
- Poor people cannot afford to pay for health services; for them, services need to be free of charge.
- Market mechanisms did not meet the health needs of most of the population, especially those in rural areas, and public intervention was required.
- Social change, urbanisation and economic development alleviate some health problems but give rise to others.

3.6.2 What Did Not Go So Well?

- Fragmentation of responsibility between various agencies significantly impacted health. Recognition and management of fragmentation varied.
- The health system is constrained in its ability to deal with some politically charged issues, such as undocumented migrant groups.

3.6.3 Trends and Challenges?

The continued growth of the private health sector and rising health expenditure will be a challenge for the future development of healthcare.

References

- Abbas, F. A. (1997). *Poverty Reduction in Malaysia, 1970–1995: Major Features*. Kuala Lumpur: Economic Planning Unit.
- Ahmad, N. (2007). *Overview of Poverty Eradication in Malaysia*. Putrajaya: Economic Planning Unit. Online report. www.ssig.gov.my/wp.content/uploads/2013/07/10985.pdf
- Aslam, M. and Hassan, A. S. (2003). Development planning and regional imbalances in Malaysia. FEA Working Paper No. 2003-5. Presented at the 9th International Planning History Conference. 20–23 August 2000. Helsinki University of Technology, Finland.
- Botobara-Yap, M. J., Razon-Estrada, M. and Balila, E. (2017). The influence of culture and access to health care delivery and predictors of health behaviours among Malaysians of different cultural backgrounds. *International Forum*, 20(2), 57–74.
- Chong, Y. H., Tee, E. S., Ng, T. K. W., Kandiah, M., Hussein, R. H., Teo, P. H. and Shahid, M. (1984). Status of community nutrition in poverty kampungs. In *Institute of Medical Research Malaysia Bulletin No. 22*. Kuala Lumpur: Institute of Medical Research, pp. 1–64.
- Department of Statistics Malaysia. (n.d.). *Internal Migration in Peninsular Malaysia 1989–1990*. Kuala Lumpur: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (1989). *Yearbook of Statistics Malaysia 1988*. Kuala Lumpur: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (1991). *Vital Statistics Time Series, Peninsular Malaysia 1911–1985*. Kuala Lumpur: Department of Statistics Malaysia.

- Department of Statistics Malaysia. (1992). *Yearbook of Statistics Malaysia 1991*. Kuala Lumpur: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2000). *Yearbook of Statistics Malaysia 2000*. Kuala Lumpur: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2001a). *Yearbook of Statistics Malaysia 2001*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2001b). *Censuses of Professional and Institutional Establishments: Private Sector*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2003a). *Vital Statistics Malaysia 2003*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2003b). *Yearbook of Statistics Malaysia 2003*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2007). *Social Statistics Bulletin Malaysia 2007*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2010). *Yearbook of Statistics Malaysia 2009*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2013). *Statistics Yearbook Malaysia 2012*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2016a). *Vital Statistics Malaysia 2015*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2016b). *Population (000s) 1891–2015, Malaysia*. Putrajaya: Department of Statistics Malaysia. Online report. www.data.stats.gov.my/download_bppd.php?cat=3&id=1
- Department of Statistics Malaysia. (2017a). *Statistics Yearbook Malaysia 2016*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2017b). *Health and Social Work Services: Economic Census 2016*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2017c). *Abridged Life Tables, Malaysia, 2015–2017*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2017d). *Social Statistics Bulletin Malaysia 2017*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2018a). *Labour Force Survey Report, Malaysia 2017*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2018b). *Statistics on Causes of Death, Malaysia, 2018*. Putrajaya: Department of Statistics Malaysia. Online report. www.dosm.gov.my/v1/index.php?
- Department of Statistics Malaysia. (2018c). *Current Population Estimates, Malaysia, 2018*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia. (2019). *Vital Statistics Malaysia 2017*. Putrajaya: Department of Statistics Malaysia. Online report. www.dosm.gov.my/v1/index.php?

- Economic Planning Unit. (1996). *Seventh Malaysia Plan 1996–2000*. Kuala Lumpur: Economic Planning Unit.
- Economic Planning Unit. (2001). *Eighth Malaysia Plan 2001–2005*. Putrajaya: Economic Planning Unit.
- Economic Planning Unit. (2015). *Eleventh Malaysia Plan 2016–2020: Anchoring Growth on People*. Putrajaya: Economic Planning Unit.
- Economic Planning Unit. (2016). *The Malaysian Economy in Figures, 2016*. Putrajaya: Economic Planning Unit.
- Fernandez, D. Z., Hawley, A. H. and Predeza, S. (1975). *The Population of Malaysia*. Paris: Committee for International Research in Demography.
- Fong, C. O. (1985). Integrated population-development program performance: the Malaysian FELDA experience. *Journal of Development Areas*, 19(2), 149–70.
- Hammer, J. S., Nabi, I. and Cercone, J. (1995). Distributional effects of social sector expenditures in Malaysia, 1974 to 1989. In D. van de Walle and K. Nead (eds.), *Public Spending and the Poor: Theory and Evidence*. Washington, DC: World Bank, pp. 521–54.
- Hasan, A. R. (1986). *Changes in the Level and Pattern of Mortality Rates in Peninsular Malaysia, 1971–1983*. Canberra: Australian National University.
- Hatta, Z. A. and Ali, I. (2013). Poverty reduction policies in Malaysia: trends, strategies and challenges. *Asian Culture and History*, 5(2), 48–52.
- Health Policy Research Associates (HPRAs), Institute for Health Systems Research (IHSR) and Institute for Health Policy (IHP). (2013). *Malaysia Health Care Demand Analysis: Inequalities in Healthcare Demand and Simulation of Trends and Impact of Potential Changes in Healthcare Spending*. Putrajaya: Ministry of Health Malaysia.
- Institute of Public Health. (2017). *Malaysian Burden of Disease and Injury Study 2009–2014*. Shah Alam: National Institutes of Health.
- Jones, G. W. (n.d.). *The Growth of Malaysia's Labour Force*. Canberra: Australian National University.
- Lee, C. and Chew-Ging, L. (2017). The evolution of development planning in Malaysia. *Journal of Southeast Asian Economies*, 34(3), 436–57.
- Mahari, Z., Wan, R. O., Khalili, M., Esa, S. and Miskiman, N. (2011). Demographic Transition in Malaysia: The Changing Roles of Women. Conference paper, 15th Conference of Commonwealth Statisticians, New Delhi, February 2011.
- Martins, J. M., Guo, F. and Swanson, D. (2018). *Global Population in Transition*. Cham: Springer International.
- McKay, D. A., Lim, R. K. H., Notaney, K. H. and Dugdale, A. E. (1971). Nutritional assessment by comparative growth achievement in Malay

- children below school age. *Bulletin of the World Health Organization*, 45, 233–42.
- Ministry of Education Malaysia. (1967). *Educational Statistics of Malaysia 1938 to 1967*. Kuala Lumpur: Ministry of Education Malaysia.
- Ministry of Education Malaysia. (2018). *Malaysia Educational Statistics: Quick Facts 2018*. Putrajaya: Ministry of Education Malaysia.
- Ministry of Health Malaysia. (n.d.). *Country Health Plan 2011–2015*. Putrajaya: Ministry of Health Malaysia.
- Ministry of Health Malaysia. (1982). *Annual Report Ministry of Health Malaysia 1980*. Kuala Lumpur: Ministry of Health Malaysia.
- Ministry of Health Malaysia. (1992). *Annual Report Ministry of Health Malaysia 1990*. Kuala Lumpur: Ministry of Health Malaysia.
- Ministry of Health Malaysia. (2002). *Annual Report Ministry of Health Malaysia 2000*. Putrajaya: Ministry of Health Malaysia.
- Ministry of Health Malaysia. (2012). *Annual Report Ministry of Health Malaysia 2010*. Putrajaya: Ministry of Health Malaysia.
- Ministry of Health Malaysia. (2013). *National Diabetes Registry Report 2009–2012*. Putrajaya: Ministry of Health Malaysia.
- Ministry of Health Malaysia. (2017). *Malaysia National Health Accounts: Health Expenditure Report 1997–2015*. Putrajaya: Ministry of Health Malaysia.
- Ministry of Health Malaysia. (2018a). *Health Facts 2018*. Putrajaya: Ministry of Health Malaysia.
- Ministry of Health Malaysia. (2018b). *Annual Report Ministry of Health 2016*. Putrajaya: Ministry of Health Malaysia.
- Ministry of Health Malaysia and Harvard T. H. Chan School of Public Health. (2016). *Malaysian Health Systems Research Volume 1: Contextual Analysis of the Malaysian Health System March 2016*. Putrajaya: Ministry of Health Malaysia.
- Nair, S. and Sagarán, S. (2015). Poverty in Malaysia: need for a new paradigm shift. *Institutions and Economics*, 7(3), 95–123.
- Peacock, F. (1981). Rural poverty and development in west Malaysia. *Journal of Development Areas*, 15(4), 639–54.
- Prime Minister's Department. (1965). *First Malaysia Plan 1966–1970*. Kuala Lumpur: Prime Minister's Department.
- Prime Minister's Department. (1971). *Second Malaysia Plan 1971–1975*. Kuala Lumpur: Prime Minister's Department.
- Prime Minister's Department. (1989). *Mid-Term Review of the Fifth Malaysia Plan 1986–1990*. Kuala Lumpur: Prime Minister's Department.
- Prime Minister's Department. (1991a). *The Second Outline Perspective Plan 1991–2000*. Kuala Lumpur: Prime Minister's Department.

- Prime Minister's Department. (1991b). *Sixth Malaysia Plan 1991–1995*. Kuala Lumpur: Prime Minister's Department.
- Ravallion, M. (2019). *Has Malaysia Virtually Eliminated Poverty?* Online article. Retrieved from <https://economicsandpoverty.com/2019/01/21/ha-malaysia-virtually-eliminated-poverty>
- Roemer, M. I. (1976). *Health Care Systems in World Perspective*. Ann Arbor, MI: Health Administration Press.
- Roemer, M. I. (1985). *National Strategies for Health Care Organization*. Ann Arbor, MI: Health Administration Press.
- Roslan, A. H. (2001). *Income Inequality, Poverty and Development Policy in Malaysia*. Paris: UNESCO.
- Suleiman, A. B. and Jegathesan, M. (eds.). (n.d.). *Health in Malaysia: Achievements and Challenges*. Ministry of Health Malaysia.
- United Nations Development Programme (UNDP). (2018). *Human Development Indices and Indicators: 2018 Statistical Update*. New York: UNDP.
- United Nations Education, Scientific and Cultural Organization (UNESCO). (2011). *Secondary Education Regional Information Base: Country Profile – Malaysia*. Bangkok.
- Westinghouse Health Systems. (1985). *Malaysia Health Services Financing Study*. Kuala Lumpur: Asian Development Bank/Westinghouse Overseas Service Corp.
- World Bank. (n.d.). *Malaysia Data Book*. Washington, DC: World Bank.
- World Bank. (2017). *World Development Indicators 2017*. Washington, DC: World Bank.
- World Bank. (2019a). *Life Expectancy at Birth, Total (Years)*. Online report. www.data.worldbank.org
- World Bank. (2019b). *School Enrolment, Secondary (% Gross)*. Online report. www.data.worldbank.org
- World Bank. (2019c). *GDP per Capita (Constant LCU)*. Online report. www.data.worldbank.org
- World Bank. (2019d). *Labor Force Participation Rate, Female (% of Female Population Ages 15+)*. Online report. www.data.worldbank.org
- World Bank. (2019e). *Gross Domestic Product at Constant 2010 Dollars*. Online report. www.data.worldbank.org
- World Bank. (2019f). *Fertility Rate, Total (Births per Woman)*. Online report. www.data.worldbank.org
- World Bank. (2019g). *Urban Population (% of Total) Malaysia*. Online report. www.data.worldbank.org
- Young, K., Bussink, W. C. F. and Hasan, P. (1980). *Malaysia Growth with Equity in a Multiracial Society*. Baltimore, MD: Johns Hopkins University Press.

Supplementary Tables

Supplementary Table 3.A *Gross domestic product growth, Malaysia, 1960–2017*

Period	Average growth rate per year as percentage			
	GDP ¹		GDP per capita	
1960–1970	6.3		3.5	
1970–1980	7.9	7.1 ²	5.5	4.5 ²
1980–1990	5.8		3.1	
1990–1995	9.1		6.5	
1995–2000	4.7	6.3	2.2	3.7
2000–2005	4.6		2.6	
2005–2010	4.4		2.6	
2010–2015	5.2		3.4	
2015–2017	4.9	4.8	3.5	2.9
Average 1960–2017	6.1		3.8	

Source: World Bank, 2019e. Calculations made by the author.

¹ Gross domestic product (GDP) growth rate is based on GDP and GDP per capita at 2010 constant prices.

² The growth rates to the right of each column are for the intervening period, e.g. 1960–1980: 7.1 and 4.5.

Supplementary Table 3.B *Gross domestic product by industry, Malaysia, 1961–2017*

Year	Industry as percentage ¹ of gross domestic product		
	Primary ²	Secondary ²	Tertiary ²
1961	45	13	42
1970	38	17	45
1980	31	25	44
1990	28	30	42
1995	21	36	43
2000	19	35	46
2005	17	33	50
2010	21	27	52
2015	18	28	54
2017	17	27	56
Change 2015–1961	–28	+14	+14

Sources: Young et al., 1980; Prime Minister's Department, 1991a; 1991b; Economic Planning Unit, 1996; 2015; Department of Statistics Malaysia, 2003b; 2010; 2018c.

¹ Estimated from a variety of sources and indicative of trends, rather than precise.

² Primary includes agriculture, fisheries, forestry and mining; secondary includes manufacturing and construction; tertiary includes all services and utilities.

Supplementary Table 3.C *Employment by industry, Malaysia, 1970–2017*

Year	Employment by industry as percentage		
	Primary ¹	Secondary ¹	Tertiary ¹
1970	50	20	30
1980	39	21	40
1990	27	26	47
2000	15	36	49
2011	12	27	61
2015	12	27	61
2016	12	26	62
Change 2016–1970	–38	+6	+32

Sources: Young et al., 1980; Prime Minister's Department, 1991a; 1991b; Department of Statistics Malaysia, 1989; 2003b; 2010; 2013; 2017a; Economic Planning Unit, 1996; 2001; 2015.

¹ Primary includes agriculture, fisheries, forestry and mining; secondary includes manufacturing and construction; tertiary includes all services and utilities.

Supplementary Table 3.D *Poverty in Malaysia, 1970–2016*

Year	Percentage of households		
	All	Rural	Urban
1957	51.2	59.6	29.7
1970 ¹	49.3	58.6	24.6
1980	37.4	45.8	17.5
1990	16.5	21.1	7.1
1999 ²	8.5	14.8	3.3
2004	5.7	11.9	2.5
2009	3.8	8.4	1.7
2014	0.6	1.6	0.3
2016	0.4	1.0	0.2
Change 1970–2014	–48.9	–57.6	–24.4

Sources: Roslan, 2001; Ahmad, 2007; Economic Planning Unit, 2016; Department of Statistics Malaysia, 2017a.

¹ Peninsular Malaysia only.

² Change in methodology increased the overall rate in 1999 from 8.1% to 8.5%.

Supplementary Table 3.E *Population growth, Malaysia, 1960–2017*

Year	Population (000s)	Average annual population growth rate (%) ¹
1960	8,118.0 ²	2.9
1970	10,881.8	2.4
1980	13,879.2	2.7
1990	18,102.4	2.6
2000	23,494.9	2.0
2010	28,588.6 ³	1.7
2015	31,186.1	1.3
2017	32,022.6	
Change 1960–2017	+23,904.6	2.4

Source: Department of Statistics Malaysia, 2016b; 2018c. Calculations made by the author.

¹ The average annual population growth rates are for 10-year periods, except for 2010–2015 and 2015–2017.

² The population of Peninsular Malaysia was 6.9 million in 1960 before Sabah and Sarawak joined the federation.

³ At the time of the population census in 2010, there was an estimated 28.5 million people in Malaysia: 22.7 million in Peninsular Malaysia, 3.3 million in Sabah and the federal territory of Labuan, and 2.5 million in Sarawak.

Supplementary Table 3.F *Population by ethnic group, Malaysia, 1957–2010*

Year	Ethnic group as percentage of total population				
	Malay and other Bumiputra ¹	Chinese	Indian	Other ²	All ³
1957 ⁴	49.8	37.2	11.3	1.8	100.0
1970	56.0	34.1	9.0	0.8	100.0
1980	58.8	32.1	8.5	0.5	100.0
1991	57.9	26.9	7.6	7.6	100.0
2000	61.2	24.5	7.2	7.1	100.0
2010	61.8	22.6	6.7	8.9	100.0
2017	61.8	20.8	6.2	11.2	100.0
Change 1957–2017	+12.0	–16.4	–5.1	+9.4	

Sources: Department of Statistics Malaysia, 1989; 1991; 1992; 2003b; 2010; 2013; 2017a; 2018c.

¹ Includes Malays and other indigenous groups in Sabah and Sarawak.

² Includes non-Malaysian citizens.

³ Percentages may not add up due to rounding.

⁴ The proportions for 1957 are for Peninsular Malaysia.

Supplementary Table 3.G Fertility and life expectancy, Malaysia, 1960–2017

Year	Total fertility rate ¹ (number of children)	Life expectancy ² (years)	Infant mortality rate ³
1960	6.45	59.5	69.8
1970	5.01	64.4	38.5
1980	4.07	68.0	23.8
1990	3.55	70.7	13.1
2000	2.78	72.8	6.8
2010	2.15	74.2	6.7
2015	2.01	74.6	6.9
2017	1.90	74.8	6.7
Change 1960–2017	-4.55	+15.3	-63.1

Sources: Department of Statistics Malaysia, 1992; 2003a; 2016a; 2017c; 2019; World Bank, 2019f.

¹ The average number of children a woman has during her lifetime.

² The average number of years lived after birth.

³ The number of deaths of those aged under 1 year per 1,000 live births.

Supplementary Table 3.H Age distribution of the population of Malaysia, 1957–2017

Year	Age group as proportion of total population (years)			
	0–14	15–64	65 and over	All
1957	43.8	53.4	2.8	100.0
1970	44.9	52.0	3.1	100.0
1980	39.6	56.8	3.6	100.0
1991	36.5	59.8	3.7	100.0
2000	33.3	62.8	3.9	100.0
2010	27.6	67.3	5.0	100.0
2015	24.9	69.2	5.8	100.0
2017	24.1	69.6	6.3	100.0
Change 1957–2017	-19.7	+16.2	+3.5	

Sources: Mahari et al., 2011; Department of Statistics Malaysia, 2013; 2017a; 2018c.

Supplementary Table 3.I *Dependency rates, Malaysia, 1957–2017*

Year	Dependency rate (percentage)		
	Child ¹	Old ²	Total ³
1957	82.1	5.2	87.3
1970	86.2	5.9	92.1
1980	69.6	6.4	76.0
1991	61.0	6.2	67.2
2000	53.0	6.2	59.2
2010	41.0	7.4	48.4
2015	36.0	8.4	44.4
2017	34.6	9.1	43.7
Change 1957–2017	−47.5	+3.9	−43.6

Sources: Mahari et al., 2011; Department of Statistics Malaysia, 2013; 2017a; 2018c. Calculations made by the author.

¹ The ratio of the population aged 0–14 years to that of working age of 15–64 years.

² The ratio of the population aged 65 years and over to that of working age of 15–64 years.

³ The ratio of child and old populations to that of working age.

Supplementary Table 3.J *Urban population, Malaysia, 1960–2017*

Year	Urban population as percentage of total
1960	25.6
1970	33.5
1980	42.0
1990	49.8
2000	62.0
2010	70.9
2015	74.2
2017	75.4
Change 1960–2017	+49.8

Source: World Bank, 2019g.

Supplementary Table 3.K *Number of people per doctor, Malaysia, 1964–2016*

Year	Peninsular Malaysia	Sabah	Sarawak	Malaysia
	Number of people per doctor ¹			
1964	6,000	13,100	14,000	7,145
1970	4,100	7,900	11,100	4,691
1980	3,284	7,170	6,571	3,563
1990	2,294	5,053	4,781	2,532
2000	1,318	3,354	2,719	1,490
2010	851	1,851	1,491	859
2016	581	1,155	765	632

Sources: Prime Minister's Department, 1965; 1971; Department of Statistics Malaysia, 1992; 2003b; 2013; 2017a.

¹ Approximations that show the degree of magnitude and trends, as different sources tend to yield slightly different ratios over time.

Supplementary Table 3.L *Number of people per nursing personnel, Malaysia, 1964–2016*

Year	Peninsular Malaysia	Sabah	Sarawak	Malaysia
	Number of people per nursing personnel ^{1, 2}			
1964	2,500	1,500	3,000	2,488
1970	1,900	1,100	2,200	1,879
1980	517	825	1,620	570
1990 ³	438	628	1,379	481
2000 ³	771	830	1,144	801
2010	611	662	781	629
2016	288	452	394	308

Sources: Prime Minister's Department, 1965; 1971; Department of Statistics Malaysia, 1992; 2003b; 2013; 2017b.

¹ Includes midwives, nurses and assistant nurses.

² Approximations that show the degree of magnitude and trends, as different sources tend to yield slightly different ratios over time. The ratios are the average number of people per individual nurse.

³ While the number of nurses counted increased, the number of assistant nurses fell considerably, hence the rise in the number of people per nursing personnel from 1990 to 2000.

Notes

1. Some might query the relevance of using safe deliveries and infant mortality as indicators in later periods. Their relevance is sustained by the 2015 continuing high birth rate of Malaysia of 17 live births per 1,000 population, which is 50% higher than that of Canada in the same year (11/1,000) and about double that of Italy (8/1,000). Further, the importance of these indicators is reflected, among other things, by the fact that about one-third of hospital admissions in Malaysia are still related to childbirth.
2. Malaya became Malaysia in 1963 with the unification of Peninsular Malaysia with Sabah and Sarawak in North Borneo.
3. The three major ethnic groups in Malaysia are Bumiputra (a political and ethnic grouping of the indigenous and Malay populations), Chinese and Indian (Supplementary Table 3.F).