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Wasted Potential: The Economic Case for Educating Non-Citizen Children Born in Malaysia in an Aging Nation

Amjad Rabi
Norma Mansor
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1. Summary

Many non-citizen children born in Malaysia face systemic barriers to education, legal recognition, and economic participation. Although born on Malaysian soil, prevailing legal and policy frameworks exclude them from accessing fundamental rights, particularly the right to public education. The lack of formal schooling severely restricts their future opportunities, entrenching them in cycles of poverty and informal employment. This exclusion not only constrains their individual potential but also deprives Malaysia of a vital segment of its future workforce—an especially critical loss as the nation confronts accelerating demographic shifts.

Malaysia is experiencing a rapid demographic transition that is set to reshape its labour market and long-term economic prospects. The share of the working-age population is shrinking, while the proportion of elderly citizens is increasing at an accelerated pace. By 2050, Malaysia's old-age dependency ratio will surpass its youth dependency ratio for the first time, significantly raising the economic burden on the workforce. In this context, maximizing labour force participation and productivity is critical to sustaining economic growth. The exclusion of a large segment of the population—such as stateless and undocumented individuals—represents not only a human rights issue but also a missed economic opportunity.

Education is a key driver of economic growth, offering both private and social returns. At an individual level, education significantly enhances earning potential; in Malaysia, a worker with a bachelor's degree earns 2.63 times more than one with only a high school diploma. However, Malaysia's labour market exhibits high education premiums, largely due to an oversupply of low-educated workers. Expanding education access, particularly for non-citizen children born in Malaysia, would help address this imbalance, improving labour market productivity and contributing to the nation's transition into a high-income economy.

This study estimates the long-term economic loss resulting from the education deprivation of non-citizen children born in Malaysia. Using a cohort-based projection model, it traces the economic trajectory of a cohort of 290,437 children born in Malaysia without Malaysian citizenship in 2016. The analysis estimates that the forgone earnings resulting from their exclusion from education will amount to between 4.00 and 9.49 percent of Malaysia's GDP in 2025, based on present value calculations.

It is important to note that this estimate captures only direct earnings losses due to educational disparities. However, the broader economic and social costs of education deprivation extend beyond wage differentials. Limited access to education affects job security, career advancement, and productivity, all of which contribute to long-term economic inefficiencies. Additionally, lower education levels are associated with higher social costs, including greater dependence on informal employment, increased vulnerability to economic shocks, and reduced social mobility.

These findings highlight the substantial economic cost of excluding non-citizen children born in Malaysia from formal education. The loss is not limited to individual earnings but extends to lower national productivity, reduced innovation, and increased social welfare burdens. Addressing this issue is not just a moral imperative but a strategic policy priority for Malaysia's long-term economic resilience. Ensuring that all children, regardless of legal status, have access to education is critical to securing the country's economic future in the face of an aging population and shifting labour market dynamics.

Keywords: cost of inaction, non-citizen children born in Malaysia, education

2. Situation Analysis

2.1. Non-Citizen Children Born in Malaysia and Access to Education

The legal and policy framework that restricts non-citizen children from accessing fundamental rights—such as education, healthcare, and formal employment—poses a significant challenge to both individual wellbeing and social cohesion. Although many of these children are born in Malaysia, they are often left in a state of legal uncertainty that limits their access to essential services and impedes their integration into society. This situation reinforces cycles of exclusion, poverty, and marginalization, ultimately stunting their personal development and undermining their potential to contribute meaningfully to the national economy.

In 2016, former Home Minister Ahmad Zahid Hamidi reported that 290,437 children in Malaysia were born without Malaysian citizenship. However, this figure likely includes children born to legal migrant workers who may retain the nationality of their parents. A follow-up parliamentary session in Dewan Negara on October 27, 2016, confirmed the total number of such children as 290,437, noting that birth records were categorized by the nationality of the parents rather than ethnicity. The three largest groups of children born in Malaysia without Malaysian citizenship were those of Indonesian, Filipino, and Myanmar origin (Dewan Negara, 2016).

Malaysia imposes strict regulations on migrant workers regarding family reunification, which significantly impacts the number of children born to non-citizen parents within the country. Most foreign workers on work permits are not allowed to bring their families. Only those holding an Employment Pass (EP) in higher-skilled professions, earning a minimum of RM5,000 per month, are eligible to bring their spouses and children (Mishu, 2024). However, migrant workers earning this amount represent only 3.5 percent of the total migrant workforce (Department of Statistics Malaysia, 2024), meaning that the vast majority of legally employed foreign workers do not have their families residing with them in Malaysia. As a result, most children born in Malaysia without citizenship status are either undocumented migrants, refugees, or children at risk of statelessness, rather than those of legally employed foreign workers. For simplicity, this group will hereafter be referred to as non-citizen children born in Malaysia.

The legal status of non-citizen children born in Malaysia varies depending on their parents' circumstances, but a key issue is the lack of a clear pathway to citizenship. Malaysia follows the *jus sanguinis* (right of blood) principle, meaning that citizenship is determined by descent rather than birthplace (Razali, 2017). As a result, children born in Malaysia do not automatically acquire citizenship unless at least one parent is a Malaysian citizen¹. Several groups are particularly affected by these legal and administrative barriers, including undocumented migrants, whose children may lack birth registration and proof of nationality;

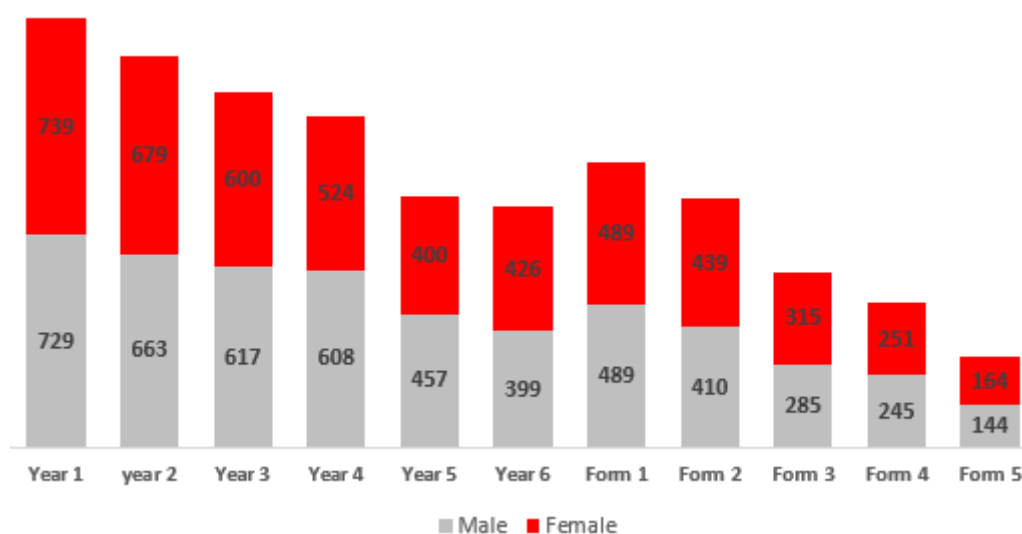
¹ The only discretionary pathway available is Article 15A of the Federal Constitution, which allows applications for citizenship before the age of 21. However, this process is slow, opaque, and inconsistently applied, leaving many children in legal limbo (Razali, 2017).

refugees and asylum seekers, who are not legally recognized in Malaysia and whose children remain in legal limbo (UNHCR, 2023); children of migrant workers with irregular status, who may be unable to establish their nationality due to missing documentation; and indigenous and minority groups, particularly in Sabah and Sarawak, where bureaucratic obstacles hinder birth registration and nationality claims.

Compounding these issues, Malaysia has not ratified key international conventions such as the 1954 Convention Relating to the Status of Stateless Persons and the 1961 Convention on the Reduction of Statelessness. The absence of alignment with international legal frameworks leaves stateless children without formal protection.

The lack of legal recognition for non-citizen children born in Malaysia has far-reaching socioeconomic consequences. These children face exclusion from public education, healthcare, and formal employment. Many live in poverty, with limited opportunities for upward mobility, forcing them into low-wage, informal work at a young age. In 2024, only 10,076 children without documentation were enrolled in Malaysian public schools, highlighting severe barriers to formal education (Ministry of Education, 2024).

Figure 1: Enrolment in public schools among non-citizen children, 2024

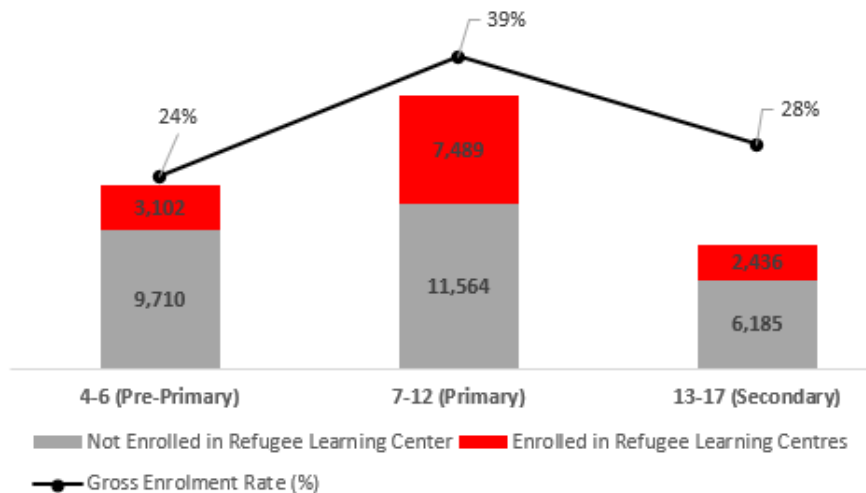


Source: Based on data from (Ministry of Education, 2024)

Among refugee children, only 32.2 percent of those registered with UNHCR attended refugee learning centres², demonstrating the educational disadvantage faced by children without legal status (UNHCR, 2024).

² Even these children attend refugee learning centres, these centres are not officially recognised and their education is not accounted towards degree attainment.

Figure 2: Enrolment in refugee learning centres among registered refugees with UNHCR, 2024



Source: Based on data from (UNHCR, 2024).

Limited access to education leads to reduced skills and earning potential, pushing these children into Malaysia's growing pool of low-wage workers. Their exclusion not only limits their personal economic mobility but also represents a missed economic opportunity for Malaysia, particularly in light of the country's aging workforce.

The exclusion of non-citizen children born in Malaysia from national education system is not just a human rights issue—it is a critical economic challenge. Malaysia is undergoing a rapid demographic transition, with a shrinking working-age population and a rising old-age dependency ratio. Addressing the barriers faced by non-citizen children born in Malaysia is not just a matter of social inclusion but an economic necessity. The next section will examine Malaysia's demographic transition, labour market implications, and the policy considerations necessary to sustain economic growth in the face of an aging population.

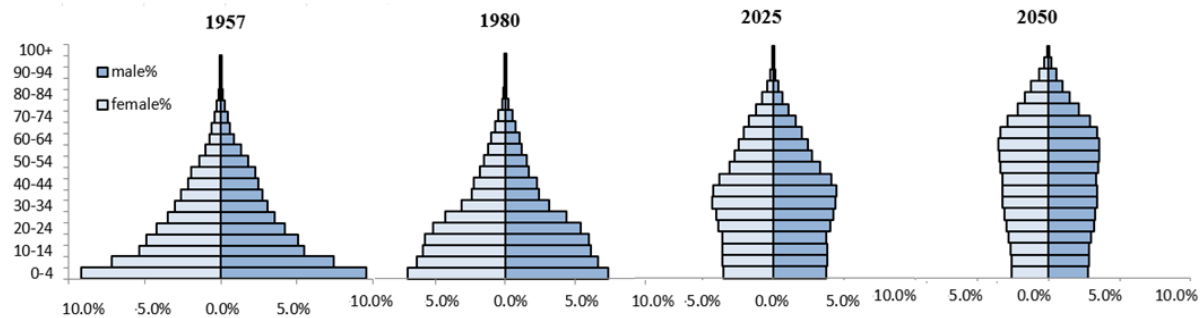
2.2. Demographic Transition and Labour Market Considerations

The challenges posed by exclusion from education in Malaysia should be contextualized within the broader structural shifts shaping the country's long-term development. Beyond the immediate social and economic exclusion faced by stateless and undocumented individuals in the country, Malaysia is undergoing profound demographic changes that will redefine its labour market and social policies in the coming decades. The anticipated decline in the working-age population relative to the growing elderly population, as discussed in detail below, underscores the urgency of fostering an inclusive workforce where no one is left behind. Equipping all individuals—including stateless and undocumented individuals—with education and the opportunity to contribute fully to the labour market is not only a matter of equity but also a strategic necessity for sustaining Malaysia's developmental path. Strengthening labour force participation, enhancing productivity, and implementing effective policy reforms will be essential to ensuring long-term economic resilience in the face of significant demographic transitions.

Demographic Transition

Malaysia's demographic landscape is undergoing profound changes, with significant implications for the long-term developmental path of Malaysia. Most notable is the increasing shift in the population pyramid from a broad mid-section to a flattened shape.

Figure 3: Malaysia's population pyramid, selected years

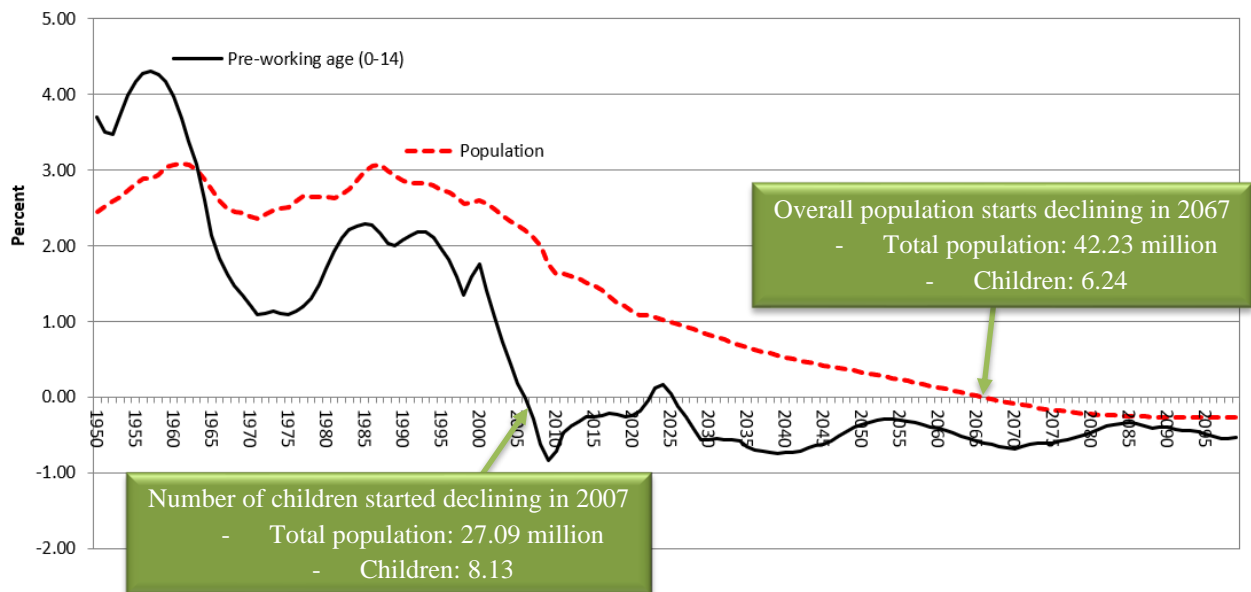


Source: calculation is based on data from (UN, 2022)

This transition marks the end of Malaysia's demographic dividend—a period characterized by a favourable age structure that facilitated economic growth³. While overall population growth in Malaysia is projected to remain positive until 2067, the number of children under 15 years old has been declining since 2007 (UN, 2022). By 2067, when Malaysia's population is expected to peak at 42.23 million, the number of children will have decreased from a high of 8.13 million in 2007 to only 6.24 million (UN, 2022). This paradoxical trend can be elucidated by the reduction in fertility rates, leading to fewer children, and a reduction in mortality rates, allowing people to live longer.

³ The expansion of the mid-section of the population pyramids and the declining dependency ratio signals a country is enjoying what is widely referred to as the “demographic window of opportunity”. This occurs when the working-age population expands at a higher rate than the general population, since the expansion of the working-age population, and the concomitant enlargement of the labour force, can present a favourable condition for sustained economic growth path if the country creates sufficient jobs to absorb the rapid entry to the labour market. In Malaysia, this was enjoyed between 1963-2020, during which Malaysia largely succeeded translating this demographic gift into a sustained economic growth path. For further information, see UNICEF Malaysia Working Paper Series WP/2017/001 titled “Malaysia 2050: Economically Productive and Socially Inclusive”.

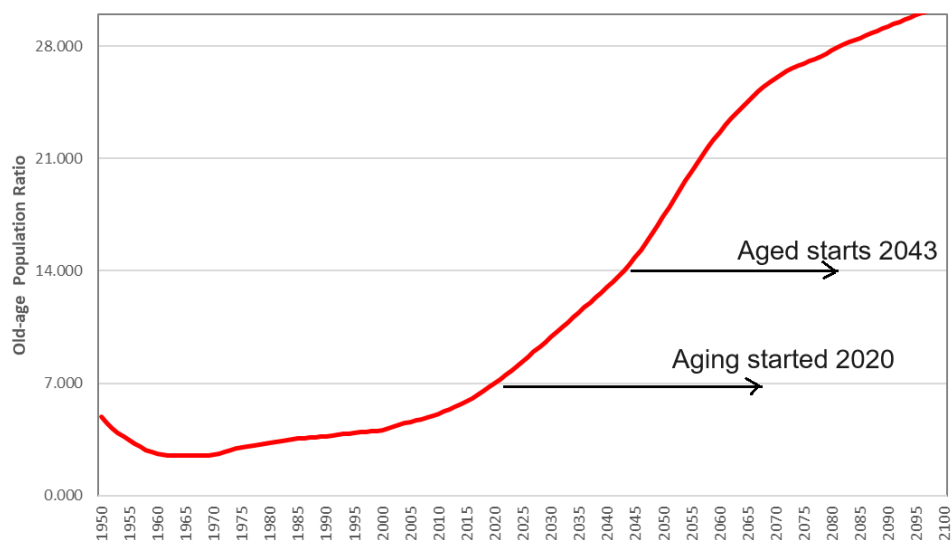
Figure 4: Annual population growth rates for children and general population, percent, 1950 - 2100



Source: calculation is based on data from (UN, 2022)

Consequently, Malaysia is about to experience an accelerated pace of population aging. In 2020, Malaysia was projected to have already transitioned into an 'aging nation,' defined by a post-working-age population (65+) comprising 7 percent of the total population (UN, 2022). This threshold is expected to double by 2043, signalling the nation as an 'aged nation'. This rapid aging trajectory, where Malaysia progresses from an aging to an aged nation in just 23 years, contrasts sharply with historical trends observed in developed nations but is consistent with the broader context of south-east Asia.

Figure 5: Post-working population as percent of total population, 1950-2100

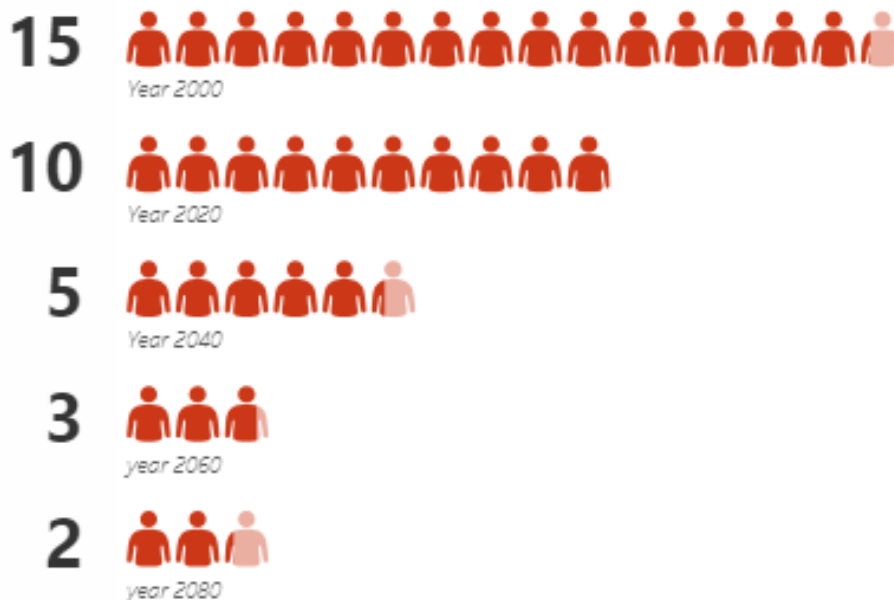


Source: calculation is based on data from (UN, 2022).

This demographic shift has significant implications for the dependency burden on the working-age population and, by extension, the growth path of Malaysia. The decline in the number of children and the corresponding decrease in the young dependency ratio (the ratio of children under 15 to working-age individuals) have been counterbalanced by the rapid increase in the old-age dependency ratio, which measures the number of individuals over 65 per working-age person. This shift reverses six decades of a downward trend in the Total Dependency Ratio (TDR), which combines both young and old-age dependency ratios, and has been increasing gradually since 2022. By 2050, Malaysia is poised to experience a historic milestone: the old-age dependency ratio will surpass the young dependency ratio for the first time. This significant change will substantially accelerate the dependency burden on the working-age population, posing challenges for economic stability and the sustainability of many social benefits such as health care, income security- to name a few.

Looking at it differently, while there were 15 working-age persons to support one senior citizen in 2000, this has been reduced to only 10 working-age persons in 2020 and will further decrease to only 5 working-age persons in 2040. This signifies the immense pressure placed on the long-term branches of social security (old-age income security and health care) as well as on the working-age adults to support senior citizens in the absence of comprehensive public income security for seniors in Malaysia.

Figure 6: Number of working-age persons (age 15-64) for every senior citizen (age 65+), selected years



Source: Calculation is based on data from (UN, 2022).

As Malaysia navigates this demographic transition, the shrinking ratio of working-age individuals to retirees underscores the urgency of sustaining labour force participation and productivity. Addressing this challenge requires a multifaceted approach, including strategies to enhance workforce retention, support family-friendly policies, and ensure that all potential workers—including stateless and undocumented individuals—are fully integrated into the

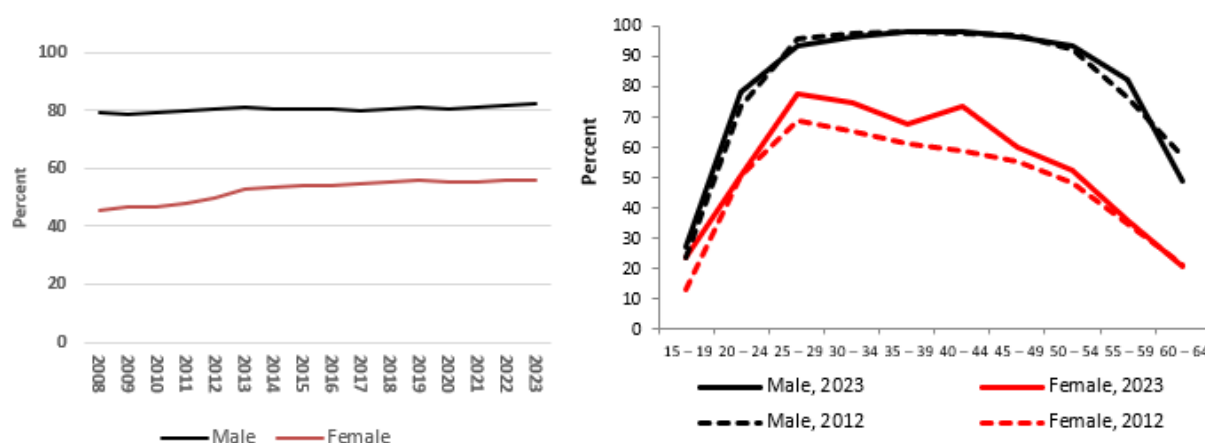
labour market. The next section examines the consequences of these demographic shifts on labour market dynamics and explores how greater inclusivity, particularly for currently excluded populations, could help sustain Malaysia's economic resilience in the face of an aging workforce.

Labour market dynamics

The projected decline in the share of the working-age population presents a major challenge for Malaysia's economic growth trajectory. With fewer individuals in the labour force relative to the total population, the country faces the risk of slower economic growth and labour shortages. To sustain economic momentum in the face of demographic shifts, Malaysia must adopt strategies to expand and optimize its labour supply. One key approach is to increase participation among underrepresented groups, including women; youth; persons with disabilities; and undocumented, and stateless individuals who remain excluded from formal employment opportunities.

Over the past 15 years, Malaysia has made some progress in increasing female labour force participation, which rose from 45.7 percent in 2008 to an estimated 56.2 percent in 2023 (Department of Statistics Malaysia, 2024). Despite this improvement, the gender gap in labour market participation remains wide, with male participation standing at 82.3 percent in 2023 (Department of Statistics Malaysia, 2024).

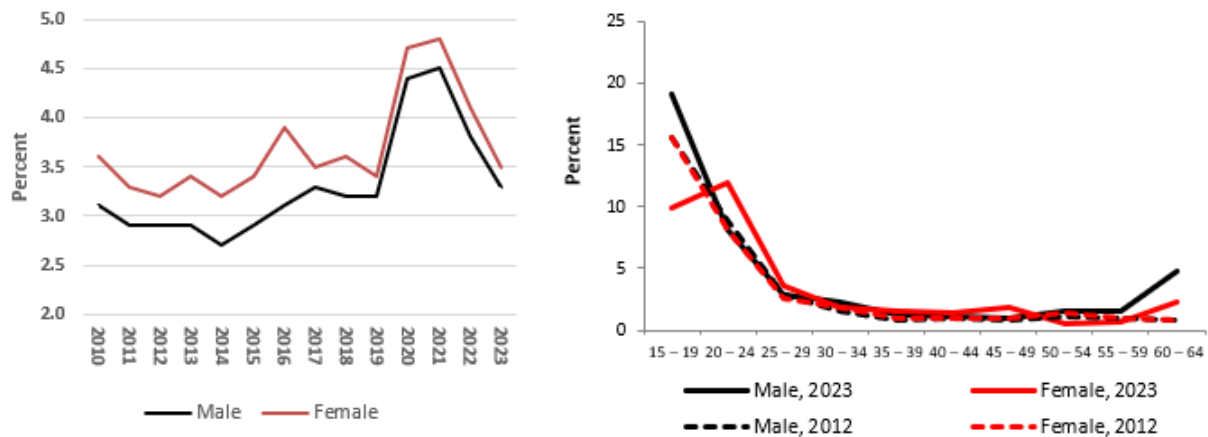
Figure 7: Labour force participation rates by gender and age group, 2012-2023



Source: Calculation is based on data from (Department of Statistics Malaysia, 2024) and (UN, 2022)

Therefore, men constitute the majority of the economically active population, accounting for 60.6 percent of the workforce, while women make up only 39.4 percent (Department of Statistics Malaysia, 2024). Unemployment data by gender and age further reveal that young workers face higher joblessness rates than older workers, while individuals without legal recognition, including stateless and undocumented persons, are locked out of formal labour opportunities altogether.

Figure 8: Unemployment rates by gender and age group, 2012-2023



Source: Calculation is based on data from (Department of Statistics Malaysia, 2024) and (UN, 2022)

Addressing these gender and age gaps requires targeted policies that promote workforce inclusivity, enhance access to education and skills training, and remove regulatory barriers that prevent marginalized groups from contributing fully to the economy.

Beyond challenges related to labour supply, Malaysia's labour market is also characterized by significant wage disparities, which reflect broader inequalities in education, skills, and access to economic opportunities. While underrepresented groups—including undocumented, and stateless individuals—already face barriers to labour market entry, those who do participate often earn lower wages due to limited access to education and training. The exclusion of these individuals from formal schooling not only restricts their employment prospects but also results in lower productivity, which in turn translates into lower wages and fewer opportunities for career advancement. Similarly, women, despite increasing labour force participation, continue to experience wage gaps due to occupational segregation, career interruptions, unequal access to skills development, and gender norms that are biased towards women in leadership positions.

In 2023, female salaried employees in Malaysia earned, on average, 7.88 percent less than their male counterparts, with a median monthly wage of RM 2,464 compared to RM 2,675 for men (Department of Statistics Malaysia, 2024). Wage disparities are even more pronounced across other dimensions, including geography, skill level, and employment sector. The national mean monthly salary was RM 3,441 in 2023, but the median wage was significantly lower at RM 2,602, indicating that higher earnings among top earners skew the income distribution to the right (Department of Statistics Malaysia, 2024). Geographically, median wages ranged from RM 4,443 in Putrajaya and RM 3,469 in Kuala Lumpur to as low as RM 1,750 in Kelantan, RM 1,820 in Perlis, and RM 1,845 in Terengganu, illustrating stark regional disparities (Department of Statistics Malaysia, 2024). Moreover, in 2023, high-skilled workers had a median monthly wage of RM 4,565, compared to just RM 1,599 for low-skilled workers (Department of Statistics Malaysia, 2024).

These disparities pose long-term challenges to Malaysia's economic trajectory, particularly in the context of rapid population aging. With fewer working-age individuals available to drive economic growth, it is imperative that all segments of the workforce—including currently excluded groups—are equipped with the education and skills necessary to maximize their productivity. Allowing large portions of the population to remain in low-wage, low-productivity employment undermines Malaysia's ability to sustain growth and transition to a high-income economy. Addressing wage inequality, therefore, is not just about labour market fairness but also about strengthening Malaysia's human capital base.

Investing in education and skills development is central to closing these gaps, as higher levels of education are strongly associated with increased productivity and earnings potential. The benefits of education extend beyond individual career prospects, generating broader economic and social returns that contribute to a more dynamic and resilient workforce. The next chapter examines these social and private returns on education, highlighting why inclusive and equitable access to education is not just a moral imperative but an economic necessity for Malaysia's long-term growth.

3. Social and Private Returns on Education

Investments in human capital, particularly in education, yield significant benefits at both the individual and societal levels. At the national level, the social returns on education include a more literate workforce, greater civic engagement, and increased economic productivity, all of which contribute to long-term national development. At the individual level, private returns on education manifest in higher wages, improved employability, and lower risks of unemployment. These dual benefits highlight the critical role of education in fostering inclusive and sustainable economic growth.

Figure 9: Individual (Private) and Social Benefits of Education

	Individual/family	Community/society
Monetary	Higher probability of employment Greater productivity Higher earnings Reduced poverty	Higher productivity More rapid economic growth Poverty reduction Long-run development
Nonmonetary	Better health Improved education and health of children/family Greater resilience and adaptability More engaged citizenship Better choices Greater life satisfaction	Increased social mobility Better-functioning institutions/service delivery Higher levels of civic engagement Greater social cohesion Reduced negative externalities

Source: (World Bank, 2019)

Empirical evidence suggests that both social and private returns to education can be substantial. A global review spanning over 60 years and covering 139 countries found that the private average global rate of return to an additional year of schooling is approximately 9 percent annually, a figure that has remained stable over decades. The returns are particularly high for secondary education, with private returns averaging 15.1 percent and social returns averaging 11.8 percent (Psacharopoulos & Patrinos, 2018). These findings reinforce the argument that education is not only an investment in individual well-being but also a fundamental driver of national economic resilience.

Table 1: Education Returns by Income Group and Education Level, percent

Per capita income level	Private		Social	
	Secondary	Higher	Secondary	Higher
Low	18.7	26.8	18.1	13.2
Middle	17.7	20.2	12.8	11.4
High	13.2	12.8	10.3	9.7
Average	15.1	15.8	11.8	10.5

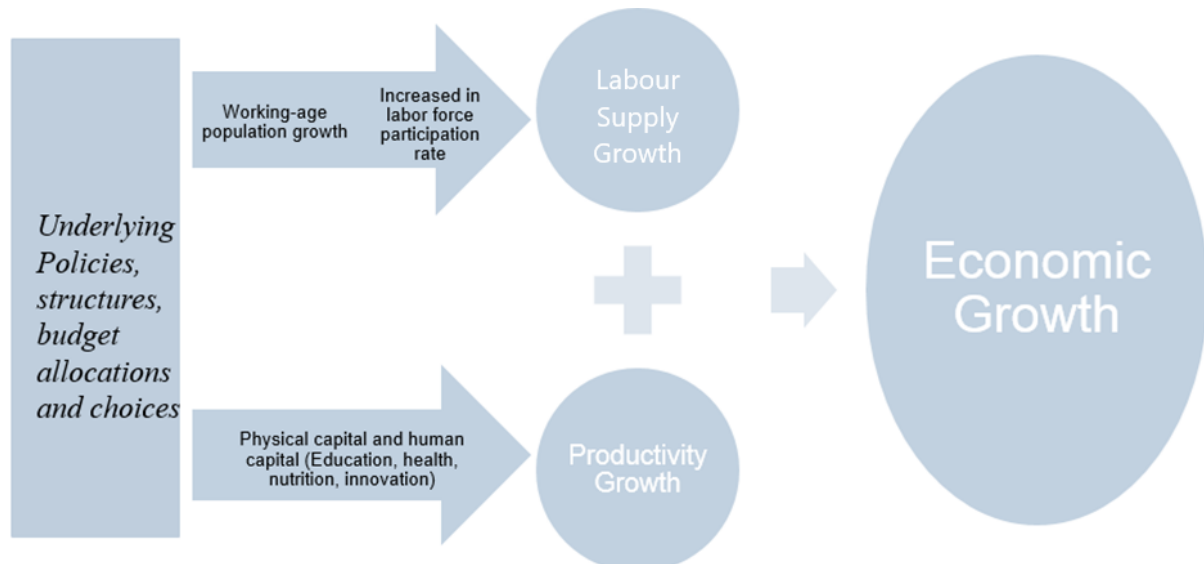
Source: (Psacharopoulos & Patrinos, 2018)

3.1. Social Return on Education: Education, productivity, and economic growth

Investing in education generates substantial social returns, producing widespread economic and societal benefits that extend beyond individual gains. These benefits include enhanced economic growth, reduced poverty and inequality, increased social mobility, improved health outcomes, and strengthened civic engagement. Empirical evidence consistently underscores the significant role of education in economic development. For example, a comprehensive review by the World Bank found that each additional year of schooling is associated with a 10 percent increase in a country's GDP per capita, highlighting the strong link between education and national prosperity (Montenegro & Patrinos, 2014).

To contextualize this potential within Malaysia's development trajectory, the neoclassical long-run growth model decomposes economic expansion into two key drivers: the growth rate of the employed population and the growth of labour productivity.

Figure 10: Economic Growth Decomposed

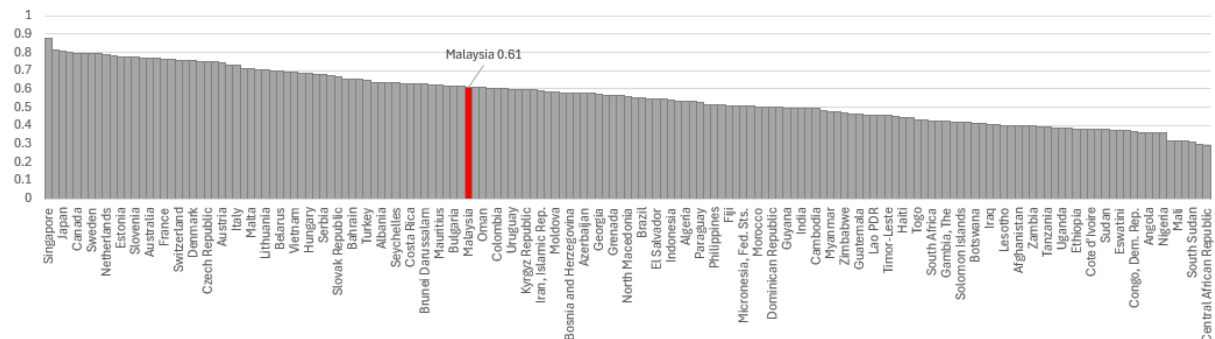


As discussed earlier, Malaysia is experiencing a demographic shift marked by a declining working-age population, which limits labour supply and poses long-term challenges for economic expansion. Given these constraints, boosting labour productivity is essential to sustaining economic growth. Evidence from OECD economies suggests that rising labour productivity accounted for at least half of GDP per capita growth between 1990 and 2000, underscoring its importance in high-income economies (OECD, 2017). However, Malaysia's productivity levels continue to lag behind those of its peer countries.

A key indicator of Malaysia's human capital performance is the Human Capital Index (HCI), which measures the productivity of the next generation of workers relative to a benchmark of complete education and full health. As of 2020, Malaysia's HCI was 0.61, indicating that a child born in Malaysia would achieve 61 percent of their potential productivity when reaching adulthood, assuming complete education and full health. This score is lower than that of several

countries in the region and other emerging economies. For instance, South Korea has an HCI of 0.80, China 0.65, Turkey 0.65, and Vietnam 0.69.

Figure 11: Human Capital Index⁴, Country Comparisons, 2020



Source: Based on data from (The World Bank, 2025).

For Malaysia, prioritizing educational investments is not just a policy option but an economic necessity to sustain economic growth. It serves as a powerful catalyst for economic growth through multiple interconnected mechanisms:

- 1- Causal chain: Education equips individuals with essential skills, enhancing worker productivity and increasing national income (Hanushek, 2008).
- 2- Endogenous theories of growth: higher educational attainment fosters innovation by enabling individuals to develop and implement new technologies, stimulating economic dynamism (Romer, 1990).
- 3- The innovation dimension but more from the diffusion than creation perspective, seeing an educated population as crucial for the spread of new processes, products, and technologies (Lucas, 1988).

The urgency of addressing Malaysia's educational disparities is amplified by its aging population. As the country moves beyond its demographic window of opportunity, ensuring a high-quality labour force is essential to offset the economic effects of a shrinking workforce. A well-educated population is not only more productive but also more adaptable to labour market shifts, enabling sustained economic growth despite demographic constraints (Psacharopoulos & Patrinos, 2018).

Beyond its economic advantages, education also plays a crucial role in promoting social stability. Studies indicate that higher levels of education are associated with lower crime rates, as greater access to economic opportunities reduces the likelihood of engaging in criminal activities (Lochner, 2011). Furthermore, education has been linked to improved public health outcomes, with research showing that each additional year of schooling contributes to lower

⁴ The human capital index ranges between 0 and 1. The index is measured in terms of the productivity of the next generation of workers relative to the benchmark of complete education and full health. An economy in which the average worker achieves both full health and full education potential will score a value of 1 on the index. For further explanation, please visit World Development Report 2021: Data for Better Lives.

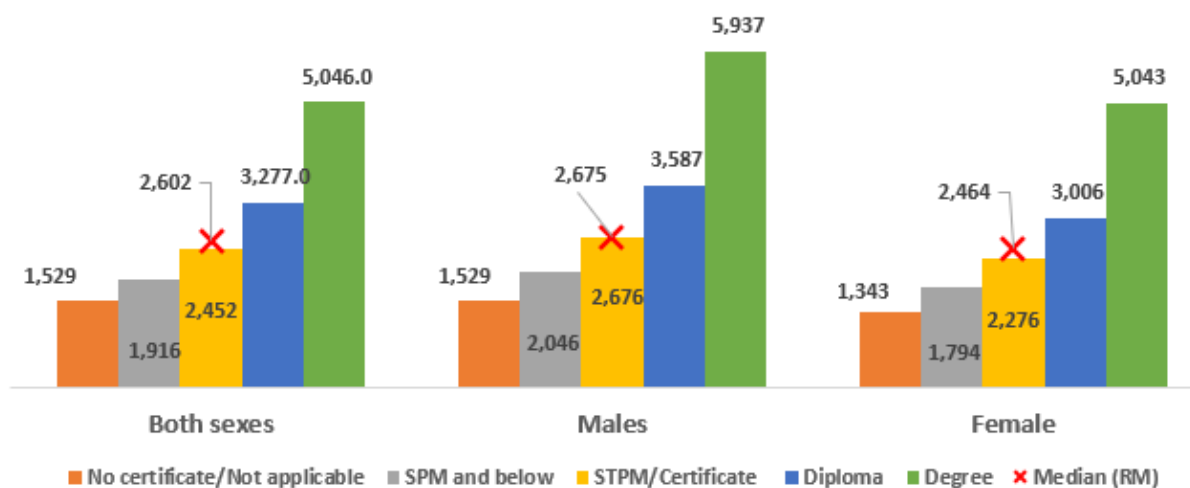
mortality rates and better overall wellbeing (Lutz, 2018). These broader societal benefits reinforce the need for sustained investment in education as a pillar of national development.

3.2. Private Return on Education in the Labour Market

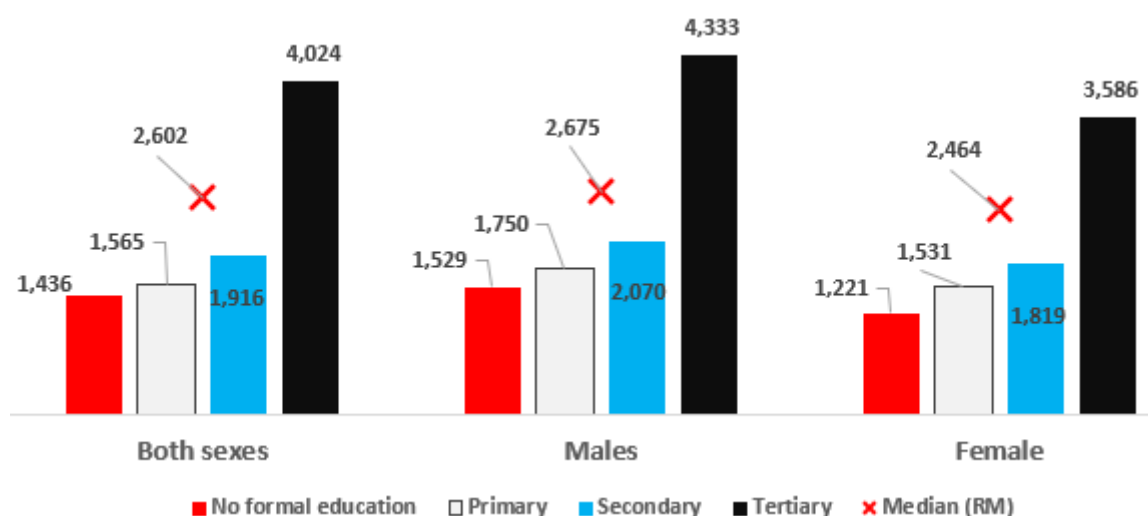
Education is a key determinant of earnings and economic mobility. At the individual level, there is a well-established positive relationship between educational attainment and wages, as higher education levels often lead to the acquisition of specialized knowledge and skills that increase productivity and enhance labour market value. Studies across different economies consistently show that individuals with more years of schooling earn higher wages than those with lower educational attainment⁵. The World Bank's *World Development Report 2018* emphasized the role of education in promoting economic growth and reducing poverty (The World Bank, 2018). Additionally, long-term analyses of returns to education across multiple countries and time periods reinforce the strong economic benefits associated with higher education (see Table 1).

For example, in the United States, the latest data from the U.S. Bureau of Labour Statistics indicate that in the third quarter of 2024, the median weekly earnings for workers with a bachelor's degree were USD 1,533, which is a multiple of 1.62 of the median weekly earnings for workers with only a high school diploma, estimated at USD 946 (U.S. Bureau of Labor Statistics, 2025). In Malaysia, the comparable ratio is significantly higher: an employed worker with a bachelor's degree earns a median wage that is a multiple of 2.63 of that of a worker with only a high school education (Department of Statistics Malaysia, 2024).

Figure 12: Average median monthly earnings of workers by different education levels and gender, RM, 2023



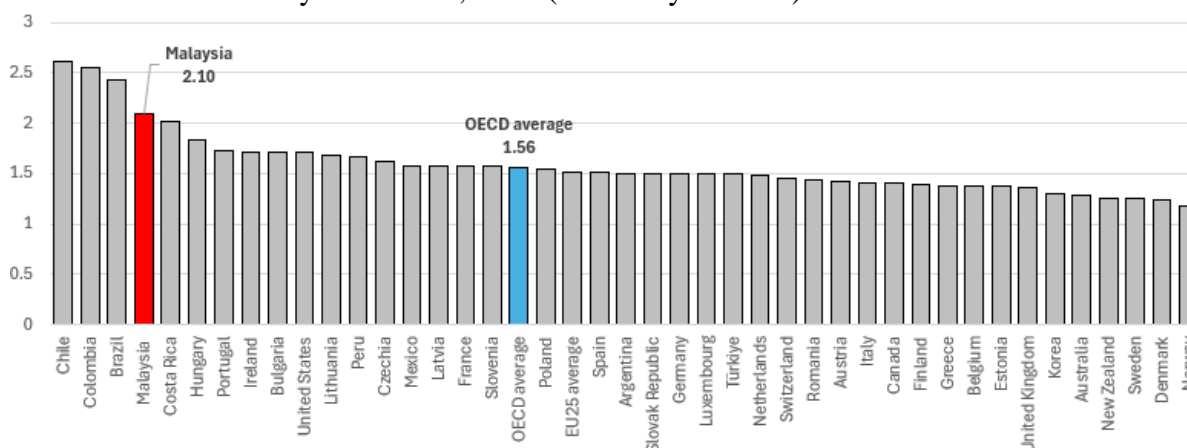
⁵ It is important to note that the relationship between education and wage is not always linear or straightforward. There are many other factors that can impact an individual's earning potential, such as the industry they work in, their job experience, and the local labour market conditions. Additionally, there are systemic issues, such as discrimination, that can impact wages and career advancement opportunities for certain groups, even if they have similar levels of education as other workers.



Source: Based on data from (Department of Statistics Malaysia, 2024).

To facilitate international comparisons, defining the education premium as the ratio of earnings of an employed worker with tertiary education relative to the earnings of a worker with secondary education, the education premium in Malaysia is estimated at 2.10 (Department of Statistics Malaysia, 2024). This is significantly higher than the OECD average of 1.56 (OECD, 2024), underscoring the exceptionally high private returns to education in Malaysia. The wider earnings gap between tertiary and secondary education in Malaysia suggests that the labour market places a substantial premium on higher education, reinforcing the need to expand access to tertiary education as a means of enhancing economic security and upward mobility.

Figure 13: Relative earnings of workers with tertiary education as a multiple of earnings of workers with secondary attainment, 2022 (for Malaysia 2023)

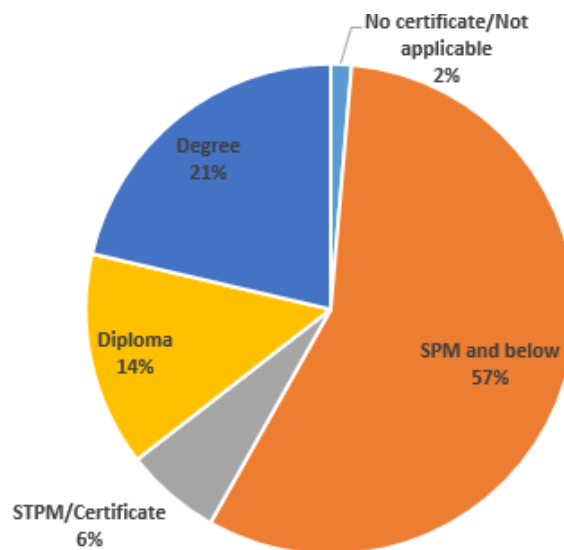


Source: Based on data from (OECD, 2024) and (Department of Statistics Malaysia, 2024)

While Table 1 demonstrates that the individual rate of return to education tends to decline as countries' income levels increase, Malaysia's persistently high education premium suggests that its labour market dynamics resemble those of economies at risk of being trapped in middle-income status, rather than transitioning toward a high-income model. Typically, as a country

progresses, the expansion of higher education leads to a greater supply of skilled workers, reducing the wage premium associated with education. However, Malaysia diverges from this expected trend, with a disproportionately high wage gap between workers with tertiary education and those with lower qualifications. One possible explanation for this paradox is Malaysia's oversupply of low-educated workers. Labour market statistics indicate that 65 percent of the workforce holds an upper secondary education qualification (STPM certificate) or lower, limiting the availability of highly skilled labour and sustaining high wage premiums for degree holders (Department of Statistics Malaysia, 2024).

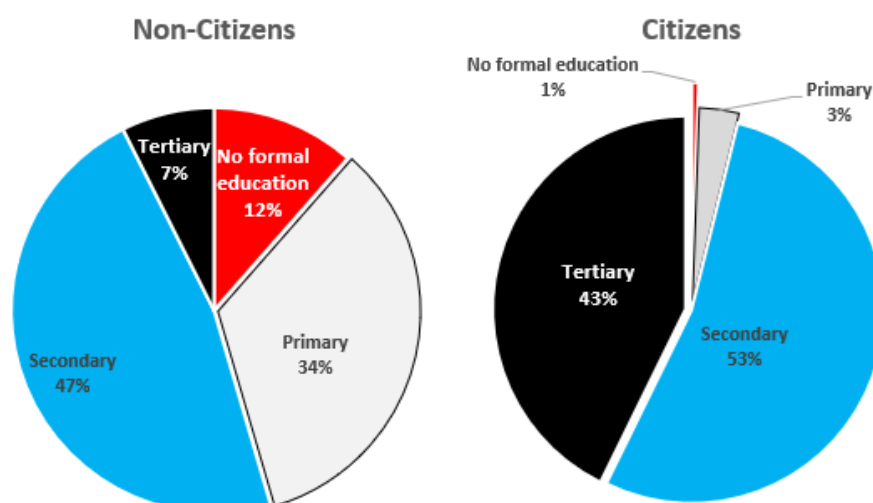
Figure 14: Distribution of workers by academic degree, 2023



Source: Based on data from (Department of Statistics Malaysia, 2024).

It is important to note that Malaysia's labour force statistics include non-citizen labour force participants, totalling 1.436 million workers, representing 12.4 percent of the labour force in 2023 (Department of Statistics Malaysia, 2024). Among non-citizen labour force participants, nearly 93 percent have secondary education or lower, compared to 47 percent of citizen labour force participants. This discrepancy highlights that a significant portion of the workforce is composed of low-skilled workers, which influences wage structures and labour market outcomes.

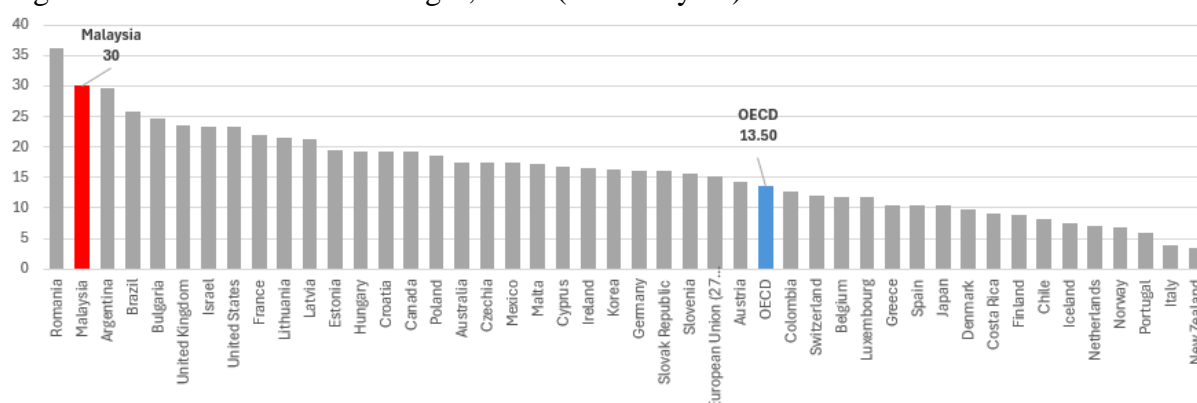
Figure 15: Distribution of workers by academic degree, by citizenship, 2023



Source: Based on data from (Department of Statistics Malaysia, 2024).

This oversupply of low-educated workers, both citizens and non-citizens, increases the wage premium for education, as employers compete for a relatively small pool of highly educated individuals. As a result, Malaysia's income distribution is increasingly skewed. The incidence of low pay—defined as the percentage of workers earning less than two-thirds of the median wage—is alarmingly high, affecting over 30 percent of the workforce. This is more than double the 14 percent low-pay incidence rate observed in OECD countries, indicating significant labour market segmentation and wage inequality (IMF, 2024).

Figure 16: Incidence of Low Wages, 2023 (or latest year)



Source: Based on OECD data 2024 and (Department of Statistics Malaysia, 2024)

These structural weaknesses in Malaysia's labour market, particularly the high wage premium for education alongside a persistent low-wage workforce, indicate that necessity to ensure and promote equitable access to education to meet the demand of modern labour market. However, the private returns to education extend beyond higher wages and better employability. Education enhances individual capabilities in several ways that directly contribute to personal and economic well-being:

- Higher job security: Individuals with higher educational attainment are more likely to be employed in stable, formal-sector jobs, reducing the risk of job displacement and unemployment.
- Increased social mobility: Education can provide individuals with the skills and knowledge they need to advance in their careers, opening pathways for leadership roles, increased job satisfaction, and move up the social and economic ladder.
- Improved health outcomes: Education is linked to better health outcomes, including lower rates of chronic diseases, better mental health, and longer life expectancy
- Increased adaptability in the labour market: In a rapidly evolving economy, individuals with higher education are better equipped to transition between jobs, acquire new skills, and adjust to technological advancements, making them more resilient to economic disruptions.

The consequences of these labour market imbalances and educational disparities extend far beyond individual earnings. When a significant segment of the population is systematically denied access to education—such as non-citizen children born in Malaysia—the economy suffers from unrealized productivity and foregone economic growth. The next chapter will estimate the extent of this economic loss by quantifying the forgone returns to education due to the exclusion of non-citizen children born in Malaysia, highlighting the broader implications for Malaysia’s long-term development.

4. Estimating the Loss from Education Deprivation among Non-Citizen Children Born in Malaysia

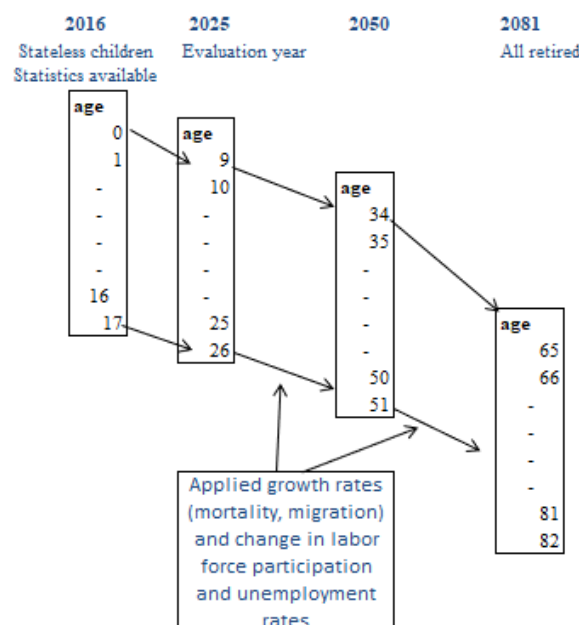
The ability to provide precise estimates of the economic loss resulting from education deprivation among non-citizen children born in Malaysia is constrained by the lack of comprehensive data on their socio-economic conditions. However, the analysis below utilizes the best available statistics to derive reasonable estimates.

4.1. Estimating and Projecting a Cohort of Non-Citizen Children Born in Malaysia

The first step in estimating the loss from education deprivation among non-citizen children born in Malaysia is to define a representative cohort that serves as the basis for quantifying the economic impact of their exclusion from formal education. As previously discussed, the former Home Minister stated in 2016 that 290,437 non-citizen children aged 17 and below were born in Malaysia. However, this figure was not disaggregated by age, posing a challenge for precise demographic analysis. To address this limitation, it is assumed that the age distribution of non-citizen children born in Malaysia mirrors that of the general population. This assumption enables the estimation of a single-age distribution for non-citizen children born in Malaysia as of 2016, forming the foundation for subsequent projections and labour market assessments.

This cohort is then projected forward for 65 years, from 2016 to 2081—the year when the youngest members of this cohort reach age 65 and exit the labour force. The projection follows the cohort method, applying single-year and single-age modelling, consistent with the medium-variant population projections provided by the UN Department of Economic and Social Affairs (UNDESA). By applying age-specific labour force participation rates to the projected cohort over time, it is possible to estimate the number of individuals in the cohort who would have participated in the labour force throughout their working lives. The following diagram illustrates the methodology applied and the resulting projection of this interest group.

Figure 17: Cohort Evolution based on Demographic and Labour Force Participation 2016-2081



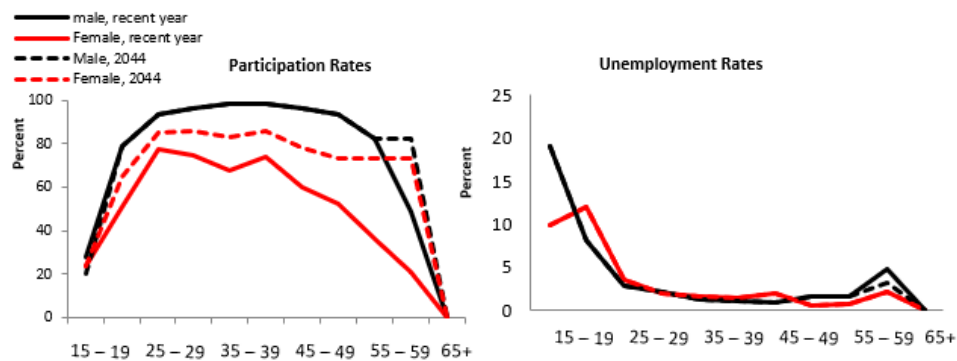
4.2. Labour Force Assumptions and Projections

The projection model incorporates explicit assumptions regarding labour force participation rates and unemployment rates:

- Labour force participation rate: The male labour force participation rate by age group in 2023 is assumed to remain constant throughout the projection period, except for those aged 60–65, where a gradual increase is assumed until 2044, after which it remains stable. For females, labour force participation is projected to increase gradually across all age groups until 2044, after which it stabilizes.
- Unemployment rate: Age- and gender-specific unemployment rates from 2023 are assumed to remain unchanged over the projection period, except for males aged 60–65, where a slight decrease is expected until 2029, after which it stabilizes.

The resulted overall slight decline in unemployment rate is primarily driven by shifts in the demographic structure of the projected population.

Figure 18: Unemployment and Participation Rates, by Gender and Age-groups, 2023-2044



Source: Assumptions based on data from (Department of Statistics Malaysia, 2024)

By applying these age- and gender-specific participation and unemployment rates to the projected working-age population among the cohort for each year of the projection period, the model estimates the labour force composition, disaggregating individuals within the cohort into categories of economically active, economically inactive, employed, and unemployed.

Figure 19: Projection employed persons among a cohort of non-citizen persons who were children in 2016, in thousands, 2023-2081



4.3. Estimating the lost cash flow

As discussed earlier, education deprivation reduces the income potential of labour force participants (see Figure 12), leading to significant long-term economic losses. One of the main challenges in estimating the lost cash flow is the lack of data on the education levels of non-citizen children born in Malaysia, which determines their potential earnings upon entering the labour market. To overcome this limitation, the study relies on proxy data to arrive at reasonable estimates. These include:

Administrative data from the Ministry of Education: In 2024, only 10,076 children without documentation in Malaysia were enrolled in public schools across all levels—primary, middle, and secondary (see Figure 1) (Ministry of Education, 2024).

UNHCR data on refugee education: Among the 40,486 children registered as refugees, only 13,027 were enrolled in refugee learning centres, reflecting a gross enrolment rate of just 32.2 percent (see Figure 2) (UNHCR, 2024).

Given the large number of non-citizen children born in Malaysia, these figures highlight their extremely low level of access to education. Additionally, both datasets indicate a decline in enrolment rates as children transition from primary to secondary education. Thus, it is reasonable to assume that non-citizen children born in Malaysia experience substantial educational deprivation compared to the general population. As they grow up, this educational disadvantage contributes to the oversupply of low-wage earners in the labour market, as discussed earlier.

To quantify the economic impact of this deprivation, the study translates education loss into foregone earnings that could have been achieved if the cohort of non-citizen children born in Malaysia had access to education at the same level as their citizen peers. In 2023, the median monthly income for citizen labour force participants was RM 2,675 for males and RM 2,464 for females (Department of Statistics Malaysia, 2024). These medians reflect the distribution of workers by education level, as shown in Figure 14.

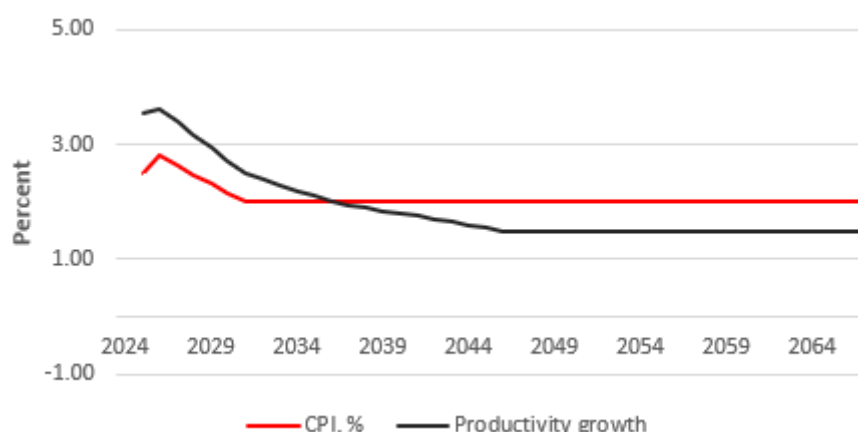
While there is no direct data on the median wages of undocumented workers, the study uses the median earnings of non-citizen labour force participants (migrant workers) as a reasonable proxy. In 2023, the estimated median wages for non-citizen workers were RM 1,598 for males and RM 1,399 for females (Department of Statistics Malaysia, 2024). This assumption is justified by the fact that non-citizen workers tend to have lower education levels compared to citizen workers (see Figure 15), a pattern that likely mirrors the education levels of stateless and undocumented persons in Malaysia.

Using these wage differentials as a measure of the loss from education deprivation, the study estimates an annual income loss of RM 12,924 for male labour force participants and RM 12,780 for female labour force participants in 2023.

For the projection period, real wages are assumed to grow in line with labour productivity. Between 2020 and 2024, labour productivity in Malaysia grew at an average annual rate of 1.678 percent (IMF, 2024), though this period was heavily influenced by the COVID-19 pandemic. In 2024, labour productivity was estimated to grow at a higher rate of 3.616 percent. Based on these trends, the study assumes that labour productivity growth will reach 2.5 percent by 2029, gradually decline to 2.0 percent by 2034, and then stabilize at 1.5 percent from 2044 onward.

For inflation, the Consumer Price Index (CPI) was recorded at 2.8 percent in 2024 (IMF, 2024). It is assumed that the inflation rate will gradually decline to 2.0 percent by 2029 and remain stable throughout the projection period. The GDP deflator is assumed to be linked to the CPI and will converge to the same rate from 2034 onward.

Figure 20: Growth Rates Assumptions, Consumer Price Index and Labour Productivity, percent, 2021-2061



Source: Calculation is based on (IMF, 2024).

Taking inflation into account, nominal wages and wage differentials are projected over the entire forecast horizon. Multiplying the annual wage differential by the corresponding cohort of employed cohort of individuals (as projected in Figure 19) yields the total cash flow that could have been generated, had this cohort received education at the same level as their citizen peers.

To discount these future cash flows to present value in 2025, the study applies three social discount rates (3, 5, and 7 percent). The table below presents the total estimated loss in absolute Ringgit Malaysia terms as well as a percentage of Malaysia's GDP in 2025.

Table 2: Present Value of Discounted Future Cash Flow That Could Have Been Generated if a 2016 Cohort of Non-Citizen Children Born in Malaysia Received Education at the Same Rate of Citizens Peer, Billion RM, 2025

	Social Discounting Rate		
	3%	5%	7%
Discounted Cash Flow, Billion RM	208,198	130,749	87,846
Discounted Cash Flow, % of GDP in 2023	9.47	5.95	4.00

4.4. Results interpretation

It is important to correctly interpret these estimates. The findings do not imply that if non-citizen children born in Malaysia were provided education equivalent to their citizen peers, Malaysia's GDP would immediately increase by 4.00–9.49 percent. Instead, the results indicate that over the course of their productive years, the aggregate earnings of the studied cohort of individuals born in Malaysia would have been significantly higher, thereby contributing to the economy more substantially. The discounted present value of this earnings differential is estimated to be equivalent to 4.00–9.49 percent of Malaysia's GDP in 2025. This represents a substantial economic cost associated with education deprivation.

It is also important to note that the estimates provided in this chapter capture only the direct earnings loss due to educational disparities. However, education deprivation imposes broader economic and social costs beyond wage differentials. As discussed earlier, the lack of education affects job security, career advancement, and productivity, all of which contribute to long-term economic inefficiencies. Additionally, lower education levels are associated with higher social costs, including greater dependence on informal employment, increased vulnerability to economic shocks, and reduced social mobility. The study did not also include potential increase in tax collection that might have resulted from higher wage levels.

Therefore, while this chapter quantifies the income loss due to education deprivation non-citizen children born in Malaysia, it represents only a **lower bound** of the total economic cost. The broader implications of education exclusion—including its impact on productivity, innovation, and overall economic resilience—are likely even more significant.

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