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# De-commodifying Pre-school Education in Malaysia: Costed Proposal

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## About Social Wellbeing Research Centre

The Social Wellbeing Research Centre (SWRC), Faculty of Economics and Administration, University of Malaya is a think and do tank in social protection and wellbeing for inclusive development and social cohesion. With an endowment from the Employees Provident Fund, SWRC has been generating and disseminating evidence-based knowledge on related issues for the benefit of all. This is facilitated through engagements and collaborations with leading national and international partners.

The interest in social protection and wellbeing is ever growing in view of an ageing population. Malaysia is also subjected to rising life expectancy and falling fertility rates, the perceived inadequacy of current social security provisions, coupled with the added fear that simply more expenditure may not be conducive to the development and growth objectives of the society. This calls for innovative policy solutions that may be inspired by international experience based on an empirical grounding in national data and analysis.

To support the research in social wellbeing in general and old-age financial protection in particular, the Employees Provident Fund (EPF) of Malaysia has graciously provided an endowment fund to create the nation's first endowed Chair in Social Wellbeing (SWC) at University of Malaya. SWC has the over-riding objectives to help formulate policies to promote better social wellbeing and improve old age financial protection, and to also formulate policies to promote economic growth in an aging society for consideration by the Government of Malaysia.

# De-commodifying Pre-school Education in Malaysia: Costed Proposal

An Input to the Development of Malaysia's Social Wellbeing Blueprint


## SUMMARY

### 1. Policy Proposal

While an increasing share of Malaysian children participate in some form of preschool program prior to entering primary school, such an experience is far from 'leaving no one behind'. Evidence in Malaysia has shown that preschool participation rates are lower among children in low-income households compared with their non-poor counterparts[1]. Nevertheless, an overwhelming and consistent evidence has shown preschool education for all increases cognitive development and would narrow the achievement gap between children from the different income groups. Rigorous evaluations of programs across many countries, that traced long-term effects of preschool attendees, concluded that children who had attended preschool programs would enter school at higher levels of readiness and have higher earnings throughout their adult lives. They are also found to be healthier and less likely to become in conflict with the law later in life. These programs demonstrated clear evidence on their contribution to allow more parents, especially women, to actively pursue careers and earn higher incomes. This increase in family income has been shown to improve children's outcomes as well.

Against this background, this paper presents a policy proposal to provide publicly, through Ministry of Education, preschool education for all Malaysian children as an instrument to unleash productivity gain, increase women attachment to labor market, reduce poverty, and contribute towards a healthy, safe, and equitable Malaysia.

### 2. Cost

The proposed intervention is expected to cost annually RM 3.37 billion for children age 4 and RM 3.34 billion for children age 5, which is 0.21 percent and 0.20 percent of GDP for children age 4 and children age 5, respectively.


[1] For instance, 1 out of 2 children age 4 and 5 in selected low cost flats in Kula Lumpur not enrolled in preschool education (UNICEF, 2018).

Further, the cost, as percentage of GDP, is projected to decline over the projection period benefiting from the demographic profile of Malaysia.
While preschool education is commonly seen as an intervention for advancing educational development, it also should be viewed as an infrastructure component for economic development of Malaysia.

## 3. Strategies Towards Universalization

If immediate universalization is not possible for fiscal reasons, it is proposed to set a defined, agreed and realistic timeline for its progressive realization. Below approaches can be used for progressive expansion of public preschool education:

a. Universalization could be achieved by continuously expanding geographical targeting. For example, publicly provided preschool education could be introduced at a universal level in high risks locations (e.g. serving low cost flats families and rural areas residents) and extended gradually over a defined period of time. The extension could proceed progressively and continuously, from worst-off to better off communities, measured by an indicator considered most appropriate, and that is at the same time easily available and periodically updated.

   There are a host of identification criteria to choose from for sequencing. First, the preschool enrolment rates among children is a key indicator. This can be also complemented with wellbeing measure such as: the national poverty line or poverty head count data; GDP per capita; malnutrition and food insecurity mapping; or the Human Development Index (HDI). Most of these indicators would likely end up identifying the same communities as most disadvantaged, and the selection decision could cross-reference several of the indicators, so as to be analytical and transparent.

b. While the proposal is to cover 2 years of preschool (age 4 and age 5), some benefit-cost analyses have shown a higher return per amount invested for a one-year program than for a two-year program. This suggests that, when resources are limited, it is more beneficial to serve a greater number of children in a high-quality one-year program rather than serving a smaller number of children for two years (Karoly & Bigelow, 2005). So the program can be introduced for children age 5 in the first phase. In a second phase, the program expands to cover children age 4.

c. A combination of ‘a’ and ‘b’ approaches to balance sought objective with available fiscal space.

## 4. Monitoring and Evaluation

Alongside the introduction and gradual expansion of the proposed intervention, monitoring and evaluation are central to the strategy. Collecting and analysing real-time information will not only help identifying problems related to program implementation but will also create a great database that can be used for further improvement of the program. Further, collecting the empirical evidence on the effect of the intervention will be crucial to build broad political and public support for the expansion and continuation of publicly provided preschool education. For solid impact evaluation, it is necessary to collect baseline information at the inception of the proposed system to be able to compare and measure the impact.

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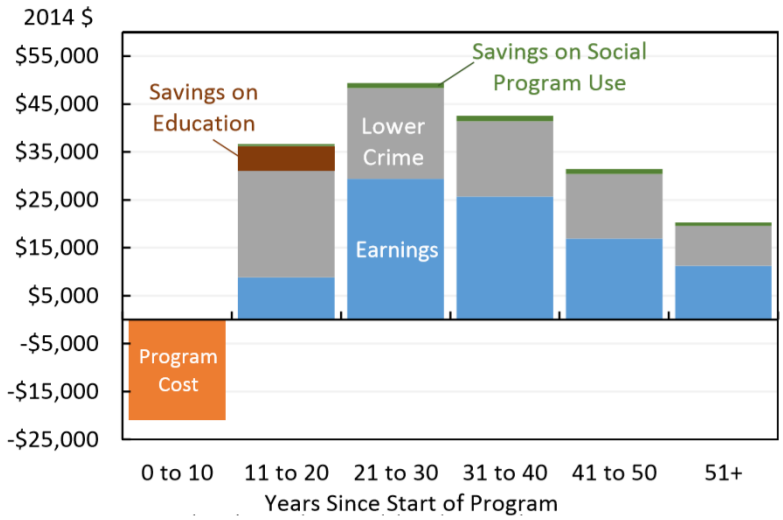
# 1 DE-COMMIDIFYING PRE-SCHOOL IS AN INVESTMENT

Like any other public programs, providing preschool education publicly at zero cost to the parents will incur upfront cost to the government. However, this should be looked at as an investment that yields sizable long-term returns to the child, parents, and the broader community. To illustrate this point, Nobel Prize winner James Heckman and co-authors found that for every dollar spent on a preschool program in the US, the benefits amounted to $7-$10 (Heckman & Mosso, 2014). While some benefits can be expected to actualize immediately (such as immediate increased earnings of parents re-entering the labor force), most of the benefit (such as: reduced crime, higher earnings) are long-term.

For illustration purpose, the graph below shows the long-term return on the preschool program mentioned.

**Figure 1:** Lifecycle Net Benefit Per Child of a Preschool Program in the United States




Source: from (Excutive Office of the President of the United States, 2014) based on (Heckman & Mosso, 2014).

Against this background, preschool education should be viewed as an infrastructure component for economic development in Malaysia. Key arguments in support of this view are listed below.

## 1.1 Declining Number of Children Must be Offset with Improved Productivity

Over the last 10 years, Malaysia's population grew at an average rate of 1.53 percent annually, which is higher than that of South East Asia (1.178 per cent). The growth rate is projected to remain positive for a relatively long period until 2070 (UN, 2019)- a year projected to mark the beginning of declining population for the first time in Malaysia's history.

Despite of this projected population growth over the next few decades, the number of children in Malaysia is projected to decline.

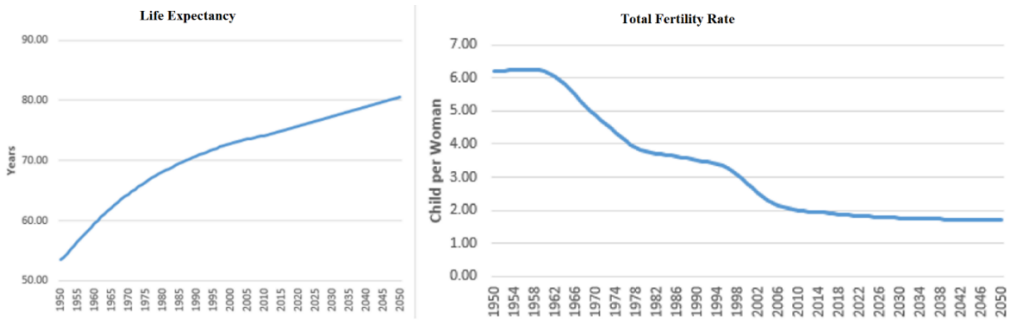
**Table 1:** Population in Million, from Independence 1957 to 2050

| | 1957 | 2017 | 2050 |
|---|---|---|---|
| **Population** | 7.443 million | 31 million | 40.7 million |
| **Children (under 18)** | 3.68 million | 9.056 million | 8.344 million |

Source: Based on data from (UN, 2019)

The pattern of declining number of children while population continues to grow can be explained by two underlying factors: fertility rates and increased life expectancy. Since independence im 1957, Total Fertility Rate (TFR) decreased by almost 70 percent, from 6.1 children per woman to 1.97 children per woman in 2017. It is expected to decline further and reach 1.73 children per woman by 2050 (UN, 2016). At the same time, life expectancy at birth increased steadily and reached 72.9 years as of today, a 15-years increase since independence. It is expected to increase further and add 8 more years by 2050 (UN, 2016).

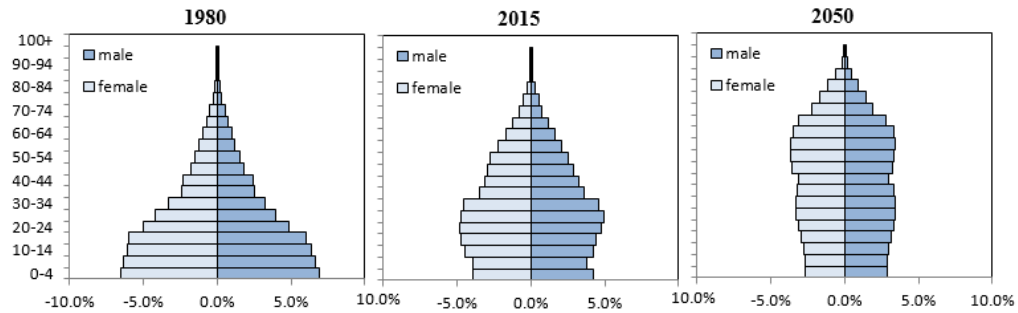
**Figure 2:** Life Expectancy in years (left graph) and Total Fertility Rate, Child per Woman, 1950-2050




Source: Based on data from (UN, 2016)

Due to these changes, Malaysia has seen significant changes in its population structure. Currently, the mean characteristic of the Malaysia's population is the broad middle section of its population pyramid, providing favorable demographic profile for the labor market.

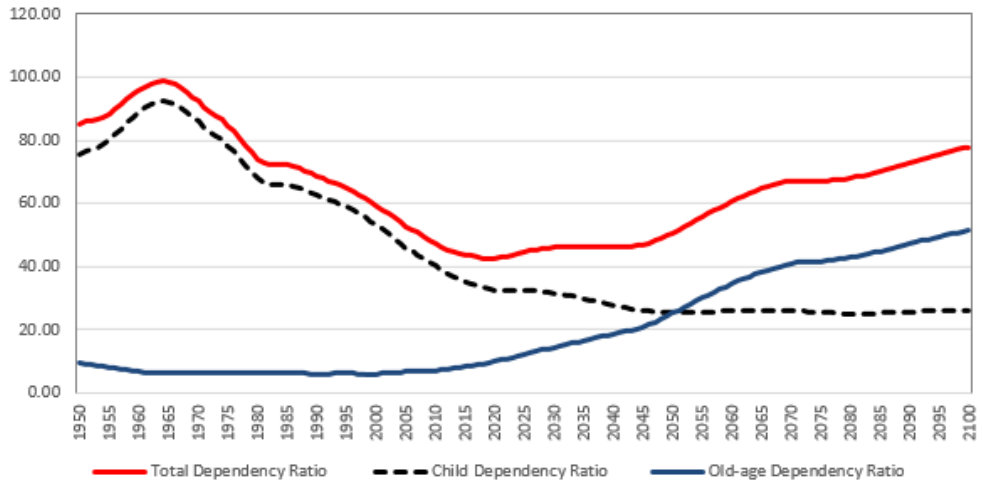
**Figure 3:** Population Pyramid, 1980 - 2050




Source: Author's calculation based on data from UN (2016)

However, the reduction in young dependency ratio (the ratio of children under 15 years of age per working-age person) will be taken over by the rapid increase in the old-age dependency ratio (the ratio of elderly over 65 year-old per working-age person). In fact, the year 2050 will mark a point when old-age dependency ratio will exceed that of young dependency ratio for the first time in Malaysia (in other words, elderly over 65 years-old will exceed pre-working age population age 15 and below).

**Figure 4:** Number of Dependents per 100 Persons of Working Age (15-64), 1950-2010

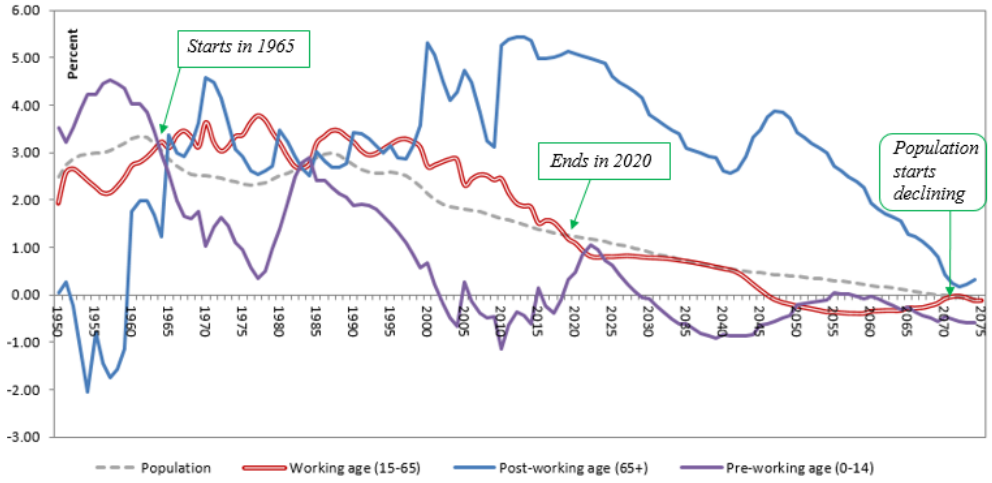



Source: Author's calculation based on data from UN (2019)

While up to this point Malaysia has enjoyed a favorable demographic profile started in 1965, during which the working-age population expands at a higher rate than the general population, **Malaysia is now at the end of this favorable demographic period**, widely referred to as the "demographic window of opportunity"[2].

[2] the expansion of the working-age population, and the concomitant enlargement of the labor force, is a favourable condition for sustained economic growth path if the country create sufficient jobs to absorb the rapid entry to the labor marker as Malaysia indeed did successfully over the period of its demographic window of opportunity.

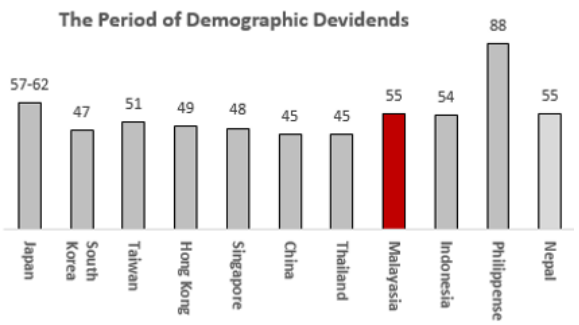
**Figure 5:** Population Growth Rates by Major Age Groups, per cent, and Demographic Window of Opportunity (start and end period), 2000-2100




Source: Author's calculation based on data from UN (2016)

**Table 2:** Length of Demographic Dividends, Years, Selected Countries

| | Year | | Length |
|---|---|---|---|
| | Start | End | |
| Japan | 1930-35 | 1992 | 60 |
| South Korea | 1966 | 2013 | 47 |
| Taiwan | 1963 | 2014 | 51 |
| Hong Kong | 1961 | 2010 | 49 |
| Singapore | 1964 | 2012 | 48 |
| China | 1965 | 2010 | 45 |
| Thailand | 1968 | 2013 | 45 |
| Malayasia | 1965 | 2020 | 55 |
| Indonesia | 1971 | 2025 | 54 |
| Philippense | 1964 | 2052 | 88 |
| Nepal | 1991 | 2046 | 55 |

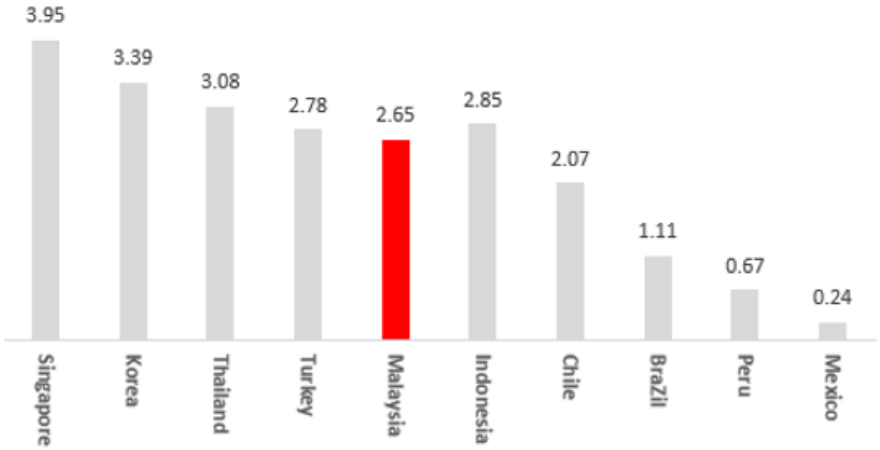



Source: For Malaysia and Nepal, own Calculation Based on data from UN (2016). For other countries, Oizumi (2013) based on UN (2013)

The neoclassical long-run path of economic growth model decomposes economic growth into two components: the growth rate of the employed population and growth of labor productivity**. To offset for the projected trend of declining number of children, Malaysia must ensure productivity gains** i.e. every future worker is more productive. In other words, the demographic dynamics in Malaysia highlights productivity as the main driver for long-term growth path towards the convergence with high-income economies.

To unleash productivity potential, investments in both infrastructure and labor skills set are key. While many middle-income countries efforts are focused on closing the infrastructure gap, Malaysia's logistics services are especially strong. It is essential to highlight that investment in infrastructure must be matched with continuous investment in education to maintain high level of labor productivity to compensate for the negative demographic changes as well as to sustain an economic growth path that enables convergence with high income economies. In fact, rising labor productivity accounted for at least half of GDP per capita growth in most OECD countries from 1990 to 2000 (OECD, 2017). For Malaysia, over the period of 1990-2014, labor productivity grew at an average annual rate of 2.65 percent, which is below regional comparators, but compares well with peer countries in Latin America (World Bank, 2016).

**Figure 6:** Labor Productivity Growth, Percent, 1990-2014




Source: Based on Data from (World Bank, 2016)

## 1.2 Pre-school Education is Instrumental to Unleash Productivity

To unlock labor productivity, and subsequently economic growth, education is instrumental. There are three possible justifications:

1- Causal chain flowing from schooling, to skills, to greater worker productivity, to increased growth of national income.

2- The role of education in enhancing innovation in the economy (endogenous theories of growth).

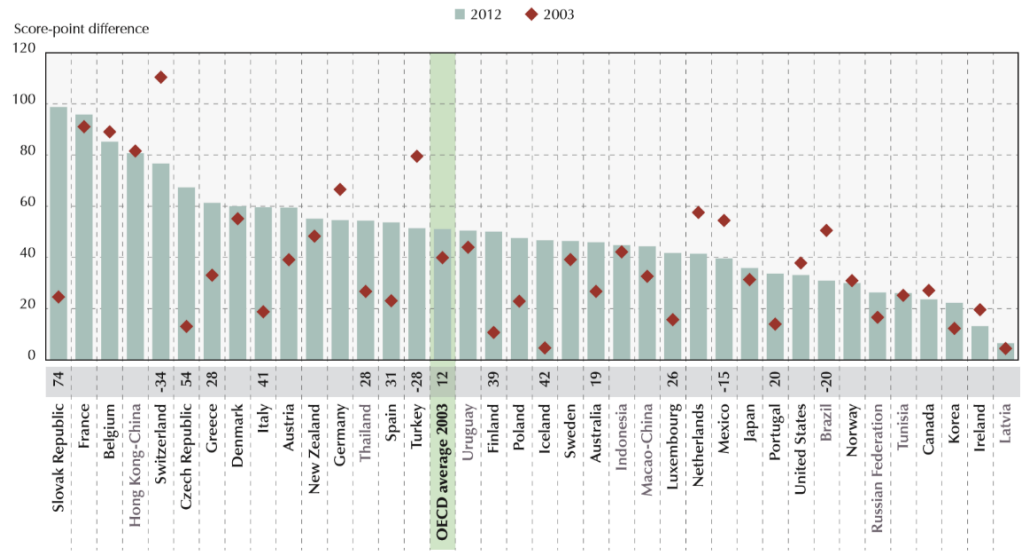
3- The innovation dimension but more from the diffusion than creation perspective, seeing an educated population as crucial for the spread of new processes, products and technologies.

While preschool education is commonly seen as an intervention for advancing educational development, it also should be viewed as an infrastructure component for economic development. Overwhelming evidence across many countries has supported a causal interpretation of the long-term effects of preschool education. In a study using a cohort of British children born in 1958 and traced over a long period, the effects of undergoing any early education (before the compulsory starting age of 5) was found to yield large improvements in cognitive tests at age 7, and remained significant throughout the schooling years, up to age 16 (Goodman & Sianesi, 2005). Further, it was found to be be associated with increased qualifications, employment and earning up to age 33 (Goodman & Sianesi, 2005). Another study on inner-city Chicago schools indicated that publicly-funded intervention begins in preschool and provides up to 6 years of service resulted in similar benefits up to age 28 (Reynolds, Temple, Ou, Arteaga, & Berry , 2011). In France, where preschool is universal and free, a study found that sizable and persistent effects indicating that preschool helps children succeed in school and obtain higher wages in the labor market (Dumas & Lefranc, 2010). Similarly, the expansion of preschool education in Norway during the 1970s was found to result in strong benefits for later educational and labor market outcomes across the population (Havnes & Mogstad, 2011).

Evidence on the importance of pre-school to the long-term productivity gains are not limited to the developed countries. For instance, the expansion of preschool provision in Uruguay was found to result in 27 percentage points more likely to be in school for 15 years-old compared to those who did not go through pre-school (Berlinski, Galiani, & Manacorda , 2008). Similar results were found in Argentina and Bangladesh, where preschool was found to boost primary school achievement (Aboud, 2006).

Examining PISA results consistently show that 15-year-old students who had attended pre-primary education tend to perform better than those who had not attended pre-primary education, even after accounting for the students' socio-economic status. In 2012, in OECD countries that participated in both PISA 2003 and 2012, the difference in PISA mathematics scores between these two groups of students was 51 points – the equivalent of markedly more than a year of formal schooling (OECD, 2014).

**Figure 7:** PISA Score-Point Difference in Mathematics Performance Between Students who had Attended Preprimary Education and those who hadn't




Source: (OECD, 2014).

## 1.3 De-commodifying Pre-school Education Quality Controls the Preschool Learning Experience

Fragmented delivery system of preschool education lacks the potential of mainstreaming quality control measures that assure achieving learning outcomes at this critical stage of the brain development of the child. The low-quality service affects especially the low-income working parents, where their priority is to have an affordable place for their preschool children when they are at work. Most of the time, affordability is at the expense of quality. Nevertheless, many studies have showed that quality of preschool education is a critical factor for the intervention to yield the outcomes discussed earlier. For instance, after controlling for background influences, a study in the UK showed that there were greater long-term gains in later school attainment and future career financial benefits for children who attended a high or medium quality pre-school compared to those who went to pre-schools of low quality (Taggart, Sylva, Melhuish, Sammons, & Sira, 2015). Similar results were obtained in a parallel study conducted in Northern Ireland- children who had attended high quality preschool were 2.4 times more likely to attain the

highest grade in national assessments at age 11 in English, and 3.4 times more likely in Mathematics, than children without preschool (Melhuish, 2010).

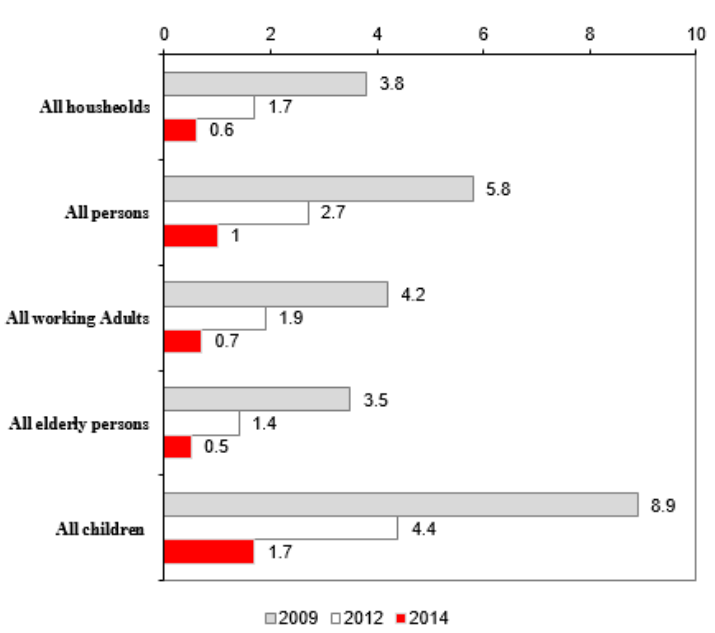
Therefore, efforts to widen access to preschool to improve performance and equity by reducing socioeconomic disparities must put in place measures to ensure that extending coverage does not compromise quality. Evidence suggested that de-commodifying preschool education achieve scale at the same time quality control assurances. In the United States, examination of five state-run programs showed large improvements on achievement test scores (Wong , Cook , & Barnett , 2008). In a study covering 65 countries by the OECD, literacy at age 15 was found strongly associated with preschool participation in countries where a large proportion of the population use preschool, where preschool is for more months, and where there were measures to maintain the quality of preschool (OECD, 2014).

## 1.4 De-commodifying Pre-school Education Contributes to Lowering Child Poverty Rates and Inequality

Malaysia is among the leaders in developing countries that have made sustained and rapid progress in tackling poverty and improving the quality of life of the population (UNDP, 2013). Between 1970 and 2014, the incidence of absolute poverty decreased from almost 50 percent of the population in the 1970s to only 0.6 percent in 2014 (Economic Planning Unit, 2015). More recent decrease in the incidence of poverty was also coupled with an overall income distribution improvement. Gini coefficient declined from 0.441 in 2009 to 0.401 in 2014. Mean monthly household income of the bottom 40 percent of the households' income group increased at higher rate than the income of the overall population (Economic Planning Unit, 2016).

Like many countries, poverty in Malaysia has an age dimension. The proportion of children in both absolute poverty is higher than the proportion of working age adults or elderly persons in poverty (Redmond , Praino , & Sidiquee , 2017).

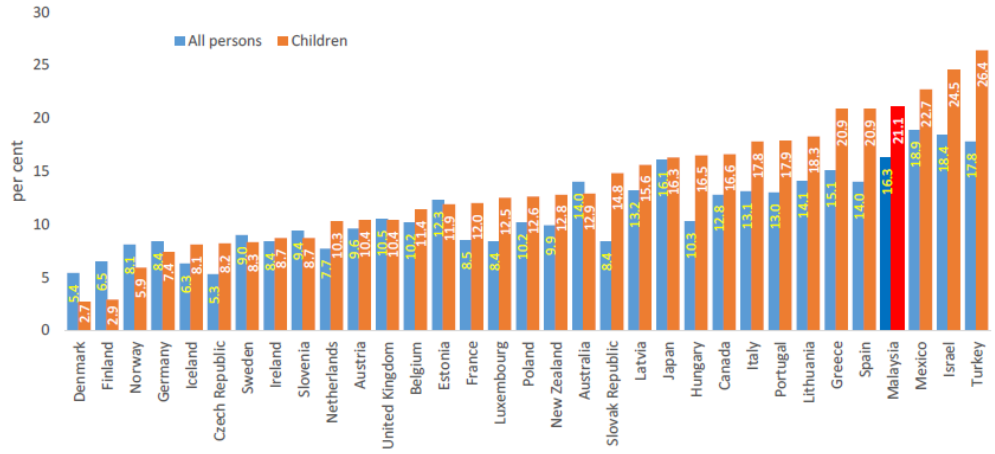
**Figure 8:** Absolute Poverty Rate by Age Groups, 2009, 2014




Source: Based on data from (Redmond , Praino , & Sidiquee , 2017)

It is to be highlighted that poverty among children is very sensitive to the poverty line used. For instance, if the poverty line is doubled, the percentage of children live in poverty will increase from 1.6 percent to 15 percent, which indicates the high vulnerability of households with children as many non-poor are hovering around the poverty line (Redmond , Praino , & Sidiquee , 2017). Similarly, using a relative poverty measure similar to that of OECD countries, defined as households with less than half median income, the proportion of children living in poverty is at 21.1 percent, higher than that of all persons in Malaysia and also still high in comparison with that in other OECD countries (Ragayah H.M.Z, 2002).

**Figure 9:** Relative Poverty in OECD countries and Malaysia, 2014




Source: From (Redmond , Praino , & Sidiquee , 2017)

De-commodifying preschool education impact on the reduction of poverty and inequality can be seen in three routes:

1- Intergenerational upward mobility: preschool education, as discussed earlier, provides significant benefits for later educational attainment and labor market outcomes (higher participation rates and higher earnings). Nevertheless, inequality in early child development is reflected in, and exacerbated by, differences in access to and utilization of education programs by income and educational attainment. Participation in early childhood education is higher among children from highly educated and high-income families in Malaysia[3]. De-commodifying preschool learning will bridge the gap between the haves and the have nots.

2- Freeing up the household budget from direct expenses paid to private providers of preschool education. This point highlights that even when there is a 'crowd out' effect (i.e. children that switch from private programs to the free public programs), there are still gains because families can use the savings to make other positive investments in their children. This is especially important as lower-income families tend to have more children.

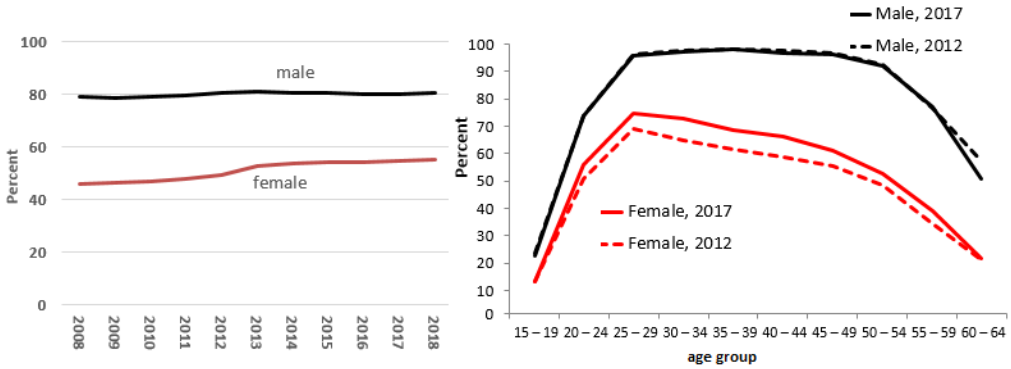
3- Publicly provided preschool services increase women participation in the labor market, which increase the household incomes. This point is discussed in next section.

[3] As pointed out later, as one example, only 1 out of 2 children age 4 and 5 attend preschool program for residents in low cost flats in Kuala Lumpur (UNICEF, 2018).

Strong country evidence supports that preschool contributes to reduced socioeconomic inequalities and long-term poverty. In France, this was shown as a result of children from less advantaged backgrounds benefitted more than the more advantaged (Dumas & Lefranc, 2010). In Switzerland, the impact of preschool expansion was associated with improved intergenerational educational mobility with children from disadvantaged backgrounds benefiting most (Bauer & Riphahn, 2009). In Norway, subsidized child care had strong positive effects on reducing welfare dependency where further analyses indicate that girls and children with low-educated mothers benefit the most from child care (Havnes & Mogstad, 2011). In the United States, a meta-analysis of 84 programs shows that early childhood education increases cognitive and achievement scores by 0.35 standard deviations on average, or nearly half the black-white difference in the kindergarten achievement gap (Duncan & Magnuson, 2013).

## 1.5 De-commodifying Pre-school Education Contributes to Increased Women's Participation in Labor Force

Malaysia has shown a noticeable improvement in female participation over the past decade, during which female labor force participation increased by almost 10 percentage point between 2008 and 2018, currently estimated at 55.3 percent, but still significantly less than male participation rate, estimated at 80.5 percent for the same year (Department of Statistics, 2011-2017).



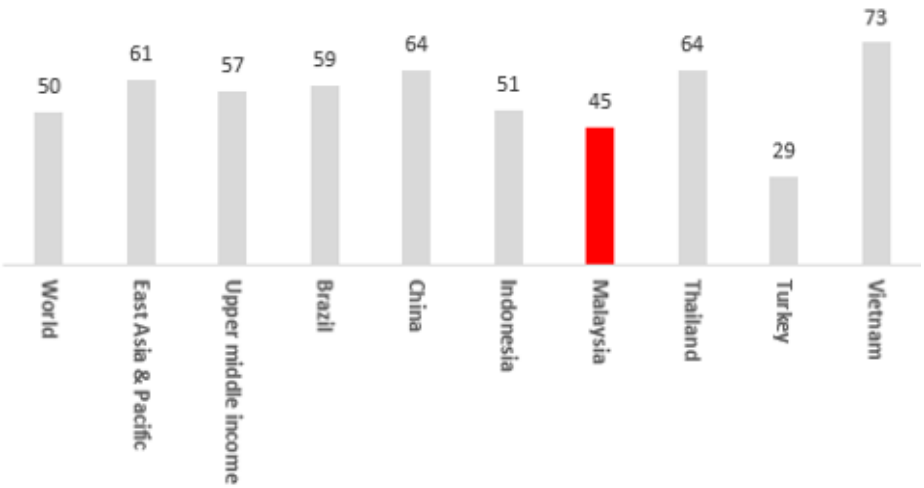

Source: Based on data from (UN, 2016) and year (Department of Statistics, 2011-2017).

The increasing trend in women participation highlights **the need for affordable preschool education to help parents meet their work and family responsibilities**. Preschool education supports parents, especially

mothers, to increase their employment and earnings knowing their children are being well cared-for during the hours they are at work.

But despite of this increase in women participation in the labor market, Malaysia is still currently one of the lowest in terms of its female labor force participation in the region and in comparisons with countries at the same level of economic development.

**Figure 10:** Female Labor Force Participation Rate, Percentage of Female age 15+, Country Comparison, 2015[4]




Source: Based on Data from (World Bank, 2016)

In addition to increased productivity, discussed earlier, inclusive labor market can also partially offset potential slowdown in growth momentum with shrinking working-age population relative to the overall population. Specifically, Malaysia can partially counter the reduction of the labor supply due to demographic changes by ensuring female labor force participation increase to its potential. Providing better access to and lowering the cost of high-quality preschool education can significantly increase mothers' employment rates and household incomes. The **existing literature confirms that lower childcare costs boost maternal employment.** Although estimates vary, most studies find that a 10 percent reduction in childcare costs

[4] Note that the rate is different than the reported rate by national statistics office in Malaysia for 2015, which is 54.1 percent. The reason is the different definition as the World Bank uses the age for the work-age population 15-64, where department of statistics uses the age group of 15-59.

increases maternal employment 0.5 to 4 percent (Herbst, 2010) (Connelly & Kimmel, 2003). Increased attachment to the labor force and increased work experience translate into long-term earnings gains for parents. By increasing the amount of resources available to the family, these earnings gains can also improve childhood outcomes including their adult earnings capacity when children reach adulthood (Excutive Office of the President of the United States, 2014).

## 1.6 Pre-school Education is a 'Positive Externality'

Long term benefits for preschool education are not only limited to the child and family, but also yields positive 'spill over' to the society as a whole, also termed as positive externality. Evidence suggests that preschool education can generate an array of benefits to the society. It can lower conflict with the law later in life. Lower crime translates into benefits to society from increased safety and security as well as lower costs to the criminal justice system and incarceration (Excutive Office of the President of the United States, 2014). Preschool education can result in better health outcomes. For instance, an evaluation of a large scale preschool program in the United States demonstrated a significant reduction in child maltreatment rates (Temple, Judy & Arthur J. Reynolds., 2007). Other programs showed that those who had preschool education were 7 percentage points less likely to be in poor health and over the longer-term (Deming, 2009), participants have fewer health problems and males had lower obesity rates at ages 12 and 13 (Carneiro, Pedro & Ginja, 2014).

Therefore, the estimated benefits to society from investing in preschool education are large and go beyond the estimated increase in earnings for children as they become adults. Similar to other public investments with positive externality, the reliance on private sector price mechanism to allocate resources will be inefficient. It will ignore those social return in the market-clearing price and quantity of the service. The resulted equilibrium point does not maximize the welfare of the society. Therefore, a policy intervention of de-commodifying preschool education will allow for maximal benefit to the society as a whole, with more demonstrated outcomes for those are undersupplied i.e. the lower-income households.

# 2 COSTING PROJECTION

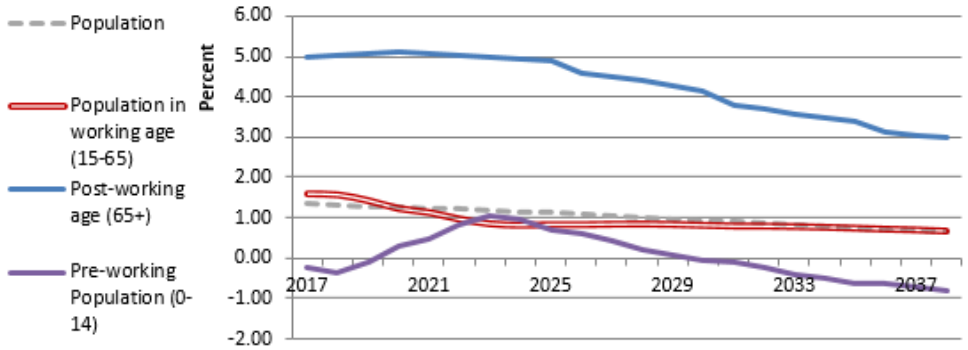
In public policy, it is very important to cost proposed policy recommendations over a long period to capture potential demographic dynamics. To arrive at projection estimates for de-commodifying preschool education in Malaysia, the paper first project the underlying socioeconomic envelope before proceeding with costing the intervention.

## 2.1 Projection of the Socioeconomic Profile

Demographic model:

For the demographic projection, the study uses the medium-variant population projection made available by the United Nations Department of Economic and Social Affairs, Population Division (UN, 2019). The data set is disaggregated by sex and single-year age.

**Figure 11:** Population Growth Rates by Working Status, 2017 - 2037



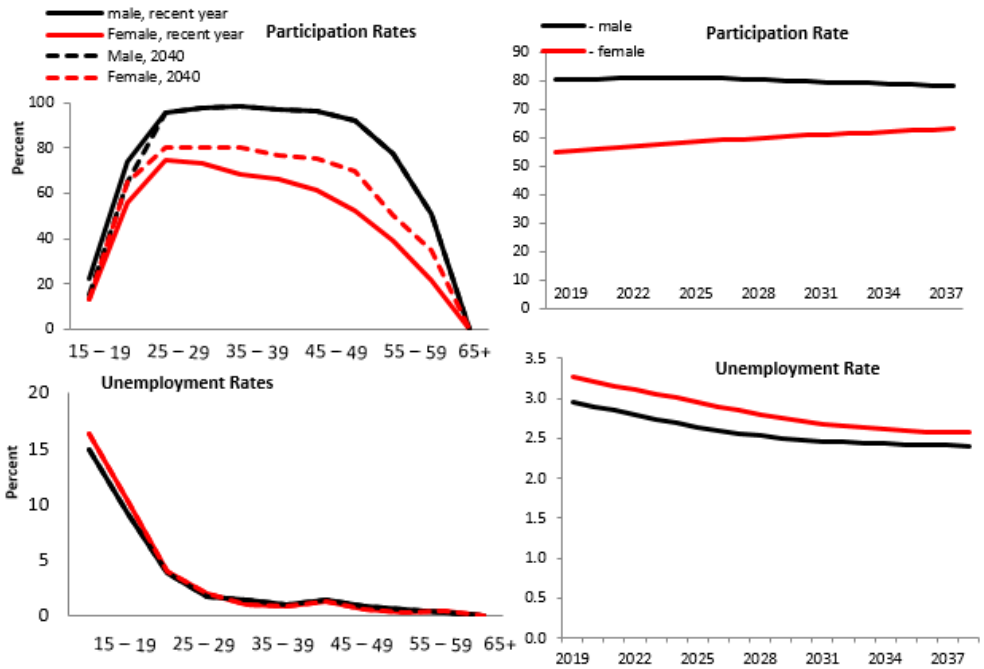

Source: Author's calculation based on (UN, 2019)

Labor Market Model:

Labor market model is directly built on the population model. Assumptions were made explicitly on participation rates and unemployment rates. For the participation rate, it is largely assumed that the force participation rates by age group of 2017 will stay the same over the projection period for the male working-age population. However, female participation rates are assumed to increase modestly in certain age groups as shown below. For the unemployment rate, it is assumed that age and gender-specific unemployment rates in 2017 are expected to remain the same over the projection period. The overall slight decrease in unemployment rate over the

projection period is basically resulted from the change in the demographic structure of the underlying population.

**Figure 12**: Labor Market Model's Projection: Unemployment and Participation Rates, by gender and Age-groups




Applying age and gender-specific participation rates and unemployment rates on the working-age population (obtained from the population projection) for each year of the projection period produces the sought labor force disaggregated by age, gender, and working status (economically active, economically inactive, employed, and unemployed)..

Macroeconomic Model:

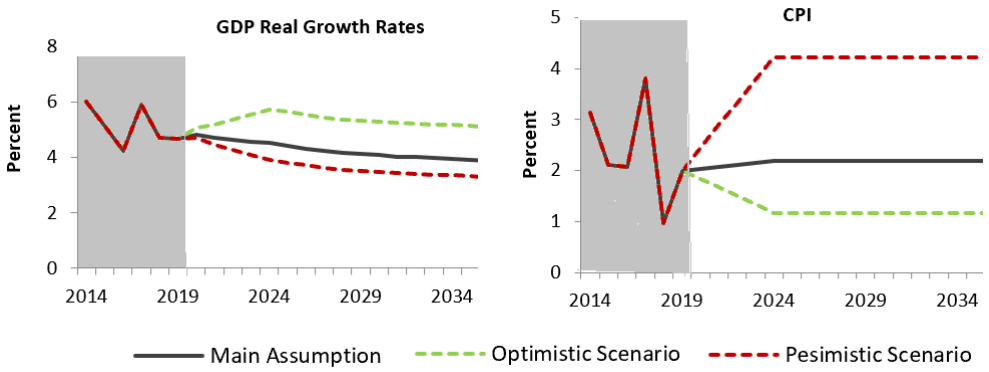
The model is built on the neoclassical long-run path of economic growth, which decomposes growth into two components: the growth rate of the employed population and labor productivity (reflecting technological progress, human capital, and capital/labor ratio). The growth of employment is fed directly from the labor force model. Over the period of 2013-2018, labor productivity in Malaysia grew at an average annual rate of 3.28 percent. The study assumes that this rate will remain the same over the projection period. For the inflation rate (CPI), the average annual rate over the past 5 years, which was estimated at 2.86 percent, is expected to remain the same over

the projection period. GDP deflator is linked to CPI and starting from 2028 the two rates are equated.

**Table 3:** Summary of Main Macroeconomic indicators, 2020-2034

| Economic Indicators | 2020 | 2024 | 2028 | 2034 |
|---|---|---|---|---|
| GDP, current prices, billion RM | 1,635,134 | 2,130,054 | 2,744,862 | 3,962,567 |
| GDP per capita, current , RM | 50,520 | 62,705 | 77,475 | 106,249 |
| Inflation (CPI), percent | 2.04 | 2.19 | 2.19 | 2.19 |
| GDP growth, real | 4.82 | 4.51 | 4.17 | 3.95 |
| Labor productivity growth, percent | 2.93 | 3.01 | 3.01 | 3.01 |

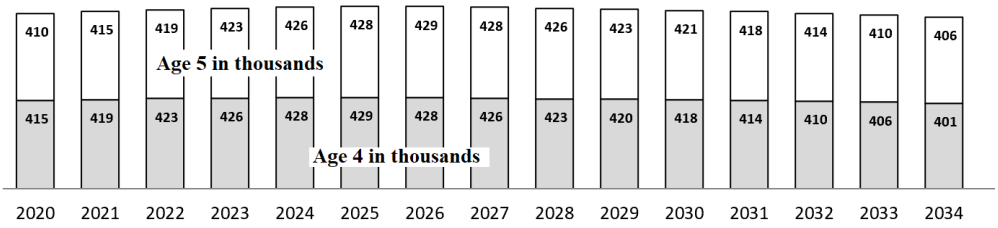
**Figure 13:** Projection Results: GDP Growth in Real Terms and CPI



## 2.2 Projection of Cost of De-commodifying Preschool Education

The study proposes a coverage ratio of 80 percent of children age 4 and 5. This assumption is based on the fact that many households will continue to send their children to private schools[5], which is consistent with programs similar to the proposed[6]. Applying this rate into the corresponding age groups that was already projected gives the number of children to potentially benefit from the proposed public preschool education.

**Figure 14:** Costing Results: Number Children Benefiting from Proposed Public Preschool Education in thousands, 2020-2034



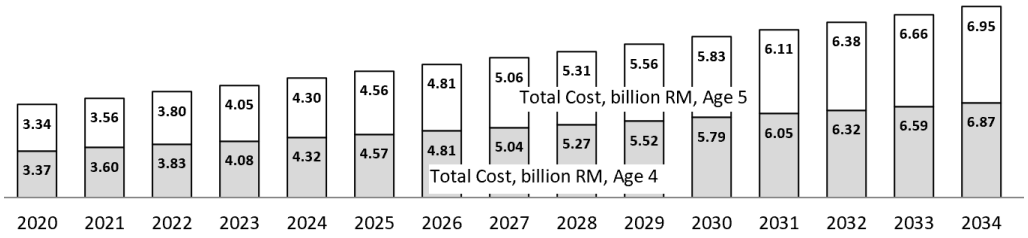

Source: Calculation is based on data from UN (2019)

Cost per child is assumed to follow the pattern of public spending on primary school, lastly was reported at 16.1 percent of GDP per capita (Ministry of Education, 2017). This ratio is assumed to be fixed over the projection period. The total benefit amount spent is calculated as the product of the beneficiaries and the benefit amount for each year in the projection period. The following figures summarize the overall cost expressed in RM.

[5] Note that percentage of children attend private schools in Malaysia is at -------. Therefore, it is likely that similar rate will be observed at preschool level, which is the basis for this assumption.

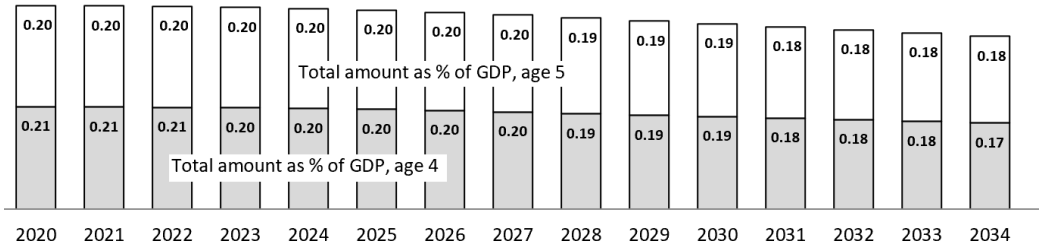
[6] These assumptions are meant as a starting point. They (and many other parameters eg benefit amount) can be changed in the costing tool and immediately one can see the cost implication of any change.
Note also that rates above are interpolated between the specified years

**Figure 15:** Total Expenditure of in Billion RM, Age 4 and Age 5, 2020-2034




As number of children decline slightly, it is expected that the overall cost will decline as share of the overall economy.

**Figure 16:** Total Expenditure as Percentage of GDP, Age 4 and Age 5, 2020-2034



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