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Understanding School Feeding in Malaysia

Jarud Romadan Khalidi and Tan Zhai Gen

Khazanah Research Institute

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Authors' email addresses: **Jarud.Khalidi@krinstitute.org, Zhai.Gen@asb.edu.my**

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Summary

- Children in Malaysia suffer from the double burden of malnutrition: undernutrition (including micronutrient deficiency) and obesity. Statistics suggest that many children do not meet the recommended intake of important nutrients. By contrast, consumption of fast food, which typically has adverse nutritional consequences, is common.

- School feeding can address these problems with benefits for children's health, education and social development. Moreover, it reduces household food expenses and increases disposable income, especially important for low-income households. If designed and implemented well, procurement for school feeding programmes can transform local food agriculture and improve smallholder farmers' incomes.

- Two school feeding programmes in Malaysia are the Rancangan Makanan Tambahan (RMT) and Program Hidangan Berkhasiat di Sekolah (HiTS). More critical evaluations must be carried out to assess these programmes. Further cooperation among all relevant ministries and local stakeholders is a prerequisite for improving and extending school feeding.

- There is a need to consider expanding school feeding. While most poor children suffer from malnutrition, including undernourishment, many children from higher-income households also suffer from malnutrition, albeit not from undernourishment. The benefits of school feeding go far beyond health and education, making it a high return investment in our children.

1. Introduction

Every year, governments in developed and developing countries, along with international organisations such as the World Food Programme (WFP) spend millions on school feeding programmes, i.e., the provision of food to school children. Programme designs vary and food distribution modalities can range from on-site morning meals to take-home food rations, depending on several factors including infrastructure constraints, among other things. For example, providing packed fortified[1] snacks is recommended when schools lack proper kitchen facilities. In Malaysia, the best-known school feeding programme is the Rancangan Makanan Tambahan (RMT) which gives free meals to primary school students from low-income households. Aside from RMT, other programmes include the parent-funded Program Hidangan Berkhasiat di Sekolah (HiTS). Despite the ubiquity of these programmes, we know little about why they are needed, how they are implemented and how effective they have been. Furthermore, recent discussions centre on expanding school feeding from a targeted programme to a universal one in Malaysia. This paper aims to give possible answers to these questions by understanding the rationale of running a school feeding programme in Malaysia and reviewing the aforementioned programmes. We also list the merits and demerits of universalism and targeting to contribute to the debate.

2. Why have school feeding programmes?

2.1. Window of opportunity

The nutritional needs of children differ at every stage of life, from the first 1,000 days to adolescence[2]. The most crucial period for child development is the first 1,000 days, i.e., from conception until around the second birthday (UNICEF, GAIN, 2019; UNICEF, 2019). Others argue that the next 1,000 days are almost as important. While ensuring good nutrition in the first 1,000 days remains the priority, ages five to 19 years old provides a second window of opportunity as it is a time of rapid physical development especially during adolescence with the start of puberty (UNICEF, GAIN, 2019; UNICEF, 2019). During this period, children could make up for growth deficits suffered in early childhood with positive effects on children's cognitive development[3] (UNICEF, 2019; Crookston, et al. 2010; Crookston, et al., 2013; Gandhi, et al., 2011; Prentice, et al., 2013). This ability to correct childhood malnutrition is known as catch-up growth. The mechanisms underlying catch-up growth are complex and there is little consensus on how to measure it[4] (UNICEF, 2019). More evidence is needed to understand the extent to which physical

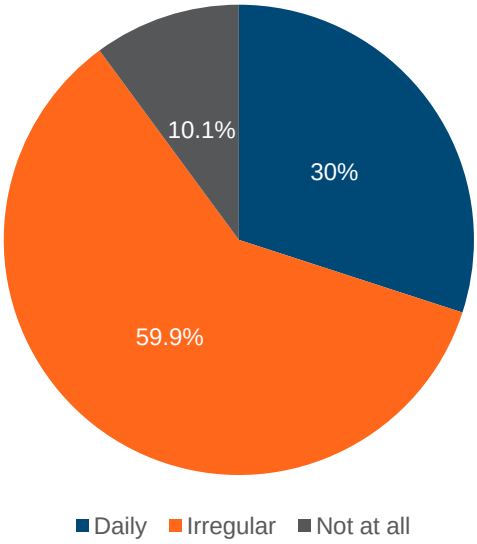
[1] Fortification is the supplementation of micronutrients, such as calcium or vitamin A, to food.
[2] Following UNICEF (2019), adolescents refer to children aged 10-19.
[3] Crookston, et al. (2010) highlight that previously physically stunted 4.5 to six-year-olds in Peru performed just as well in cognitive tests as their continuously normal height-for-age counterparts. Another study of children in Ethiopia, India, Peru, and Vietnam states that children who recovered from physical stunting by age eight performed better than children who remained stunted or experienced faltering growth (Crookston, et al., 2013).
[4] See Handa and Peterman (2016) for a review of these measurements.

and cognitive deficiencies can be corrected during this life stage. Nonetheless, proper nutrition for this cohort is vital for their current (and future) wellbeing. As most children in this age group are in school, the school food environment can be a major determinant of their diet.

2.2. Hunger affects development and learning

As children enter their schooling period, they gain more autonomy in deciding what they eat, especially while they are at school. This contributes to their dietary habits and ultimately, their health status (UNICEF, GAIN 2018; UNICEF, 2019). Given the high stakes involved, it is imperative to understand what our children are eating. In 2017, a survey among school-going children mostly aged 10 to 17 years in Malaysia inquired about their dietary practices[5]. The students were asked whether they eat breakfast every day, a crude indicator of whether children go to school on an empty stomach. Only 30% of the respondents eat breakfast every day while the remaining either have breakfast irregularly (60%) or not at all (10%) (Figure 1). Worryingly, 66.5% of children who do not have breakfast at all attend school in the morning (Figure 2). More than three-quarters of children cited no appetite and no time as the main reasons for skipping breakfast.

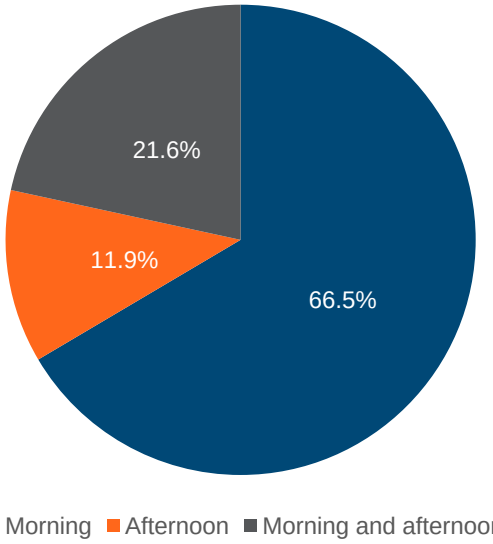
Figure 1: Share of school-going children aged 10 to 17 by the frequency of breakfast consumption, 2017



Source: IPH (2017)

Notes: Irregular means eating breakfast between one to six days per week.

Figure 2: Share of breakfast-skippers by school session, 2017



Source: IPH (2017)

[5] The survey involved children in Standard 4 to Form 5 which usually consists of children aged 10 to 17, respectively.

Energy is essential for concentration and participation in school (UNICEF, 2019). For hungry students, learning becomes more difficult. Breakfast skippers can eat by purchasing food in or outside schools, but there may be little to no healthy options. Ultra-processed foods and sugar-sweetened beverages are easily sold to children in these settings. Hence, it may not be surprising that some children who do not eat breakfast have higher Body Mass Index[6] (BMI) than their peers who do since the former tend to eat more snacks high in calories but low in other nutrients (Utter, et al., 2007).

2.3. Poor diets and nutritional status

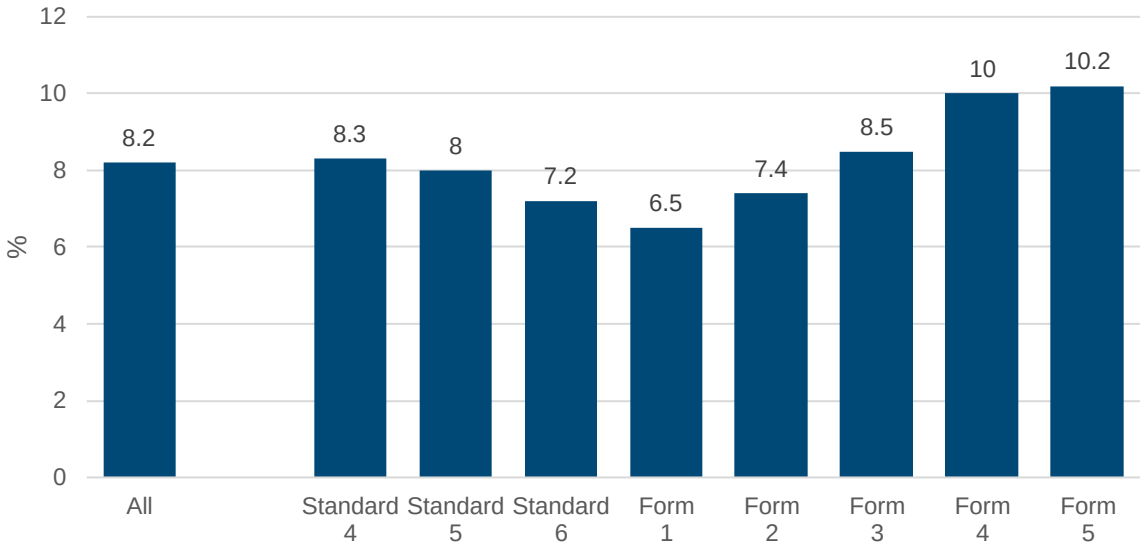
Reviewing children's dietary practices in Malaysia raises other red flags that require an urgent response. Fewer than one-third of 10 to 17-year-olds consume adequate fruits (31.5%), legumes (23.2%), milk and dairy products (23.3%) and vegetables (7.9%). In contrast, fast food[7] consumption is common as 84.4% eat fast food one to six days weekly (IPH, 2017).

Additionally, statistics on children's nutritional outcomes give much cause for concern. Undernutrition affects how children grow and develop and is associated with impaired cognitive function, higher school absenteeism and poor school performance (UNICEF, 2019). Adolescents are especially vulnerable to undernutrition, in part because rapid growth demands good nutrition. In 2017, 8.2% of school-going children aged 10 to 17 years were stunted, i.e., too short for their age. Notably, we see an increasing prevalence of stunting with age, from 8.3% for 10-year-olds to 10.2% for 17-year-olds (Figure 3).

[6] The body mass index (BMI) is a function of a person's height and weight. The formula is $BMI = \frac{Weight\ in\ kg}{Height\ in\ m^2}$. Children are classified as thin, normal or obese based on their BMIs following age-specific classifications by the World Health Organisation.

[7] Fast food refers to ready-to-eat food that can be eaten immediately after purchase. It consists of 1) cooked food, 2) cold/hot food and 3) food that can be eaten without further cooking/heating. Examples include fried chicken, burgers, French fries, chicken nuggets, pizzas, mashed potatoes, and coleslaw.

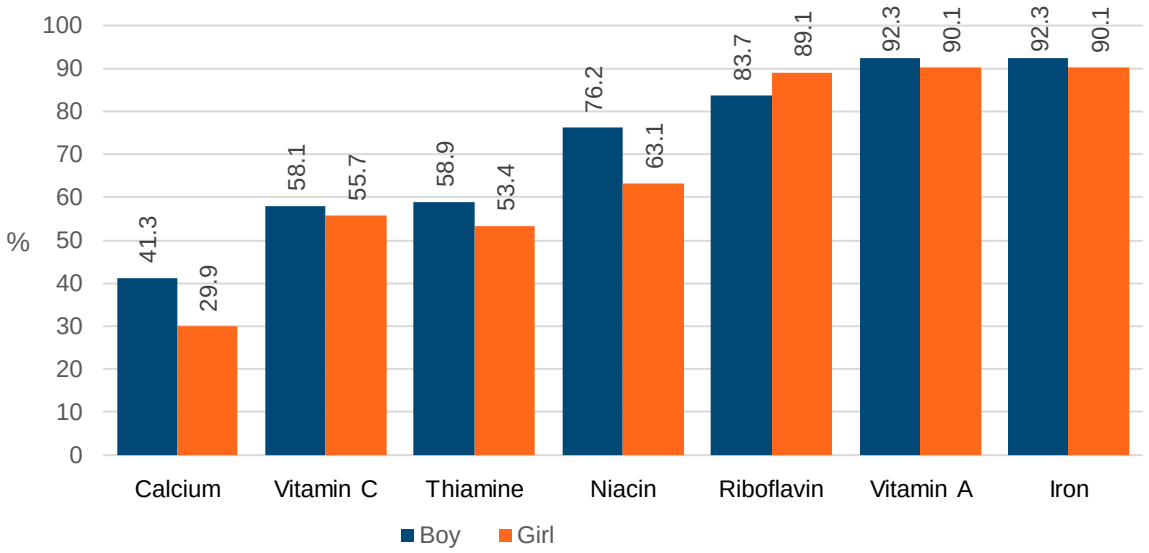
Figure 3: Prevalence of stunting among school-going children aged 10-17 by level/grade, 2017



Source: IPH (2017)

Another type of malnutrition, hidden hunger, i.e., deficiencies of essential micronutrients, undermines the health of children, adversely affecting their learning. For example, anaemia causes children to feel tired and weak, hampering their ability to pay attention in class (UNICEF, 2019). Unlike stunting, hidden hunger is less visible and its effects are often only noticed when it is too late to remedy. A study of school children aged six to 17 by the Nutrition Society of Malaysia (2015) finds that more than half the children met at least 80% of the values prescribed in the 'Recommended Nutrient Intake for Malaysians' for iron, niacin, riboflavin, thiamine, vitamin A and vitamin C. However, only 30% of girls and 41% of boys had the recommended calcium intake (Figure 4).

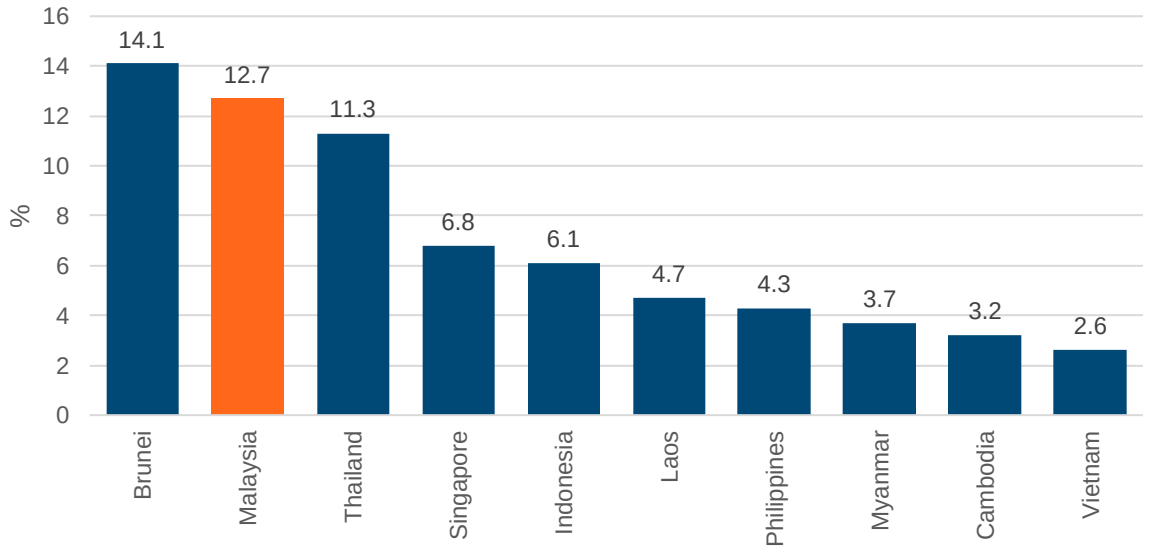
Figure 4: Share of school-going children aged six to 17 who met at least 80% of the recommended nutrient intake of micronutrients by sex, 2013



Source: IPH (2017)

Children in Malaysia also suffer from obesity. Being obese can lead to depression, early-onset diabetes and stigmatization. Obese children are also more likely to be obese in adulthood (UNICEF, 2019). In 2017, one-third of school-going children aged 10-17 were overweight or obese based on their BMIs (IPH 2017). Among ASEAN countries, Malaysia has the second-highest prevalence of obesity among children and adolescents aged five to 19 after Brunei (Figure 5).

Figure 5: Prevalence of obesity among children aged five to 19 in ASEAN, 2016



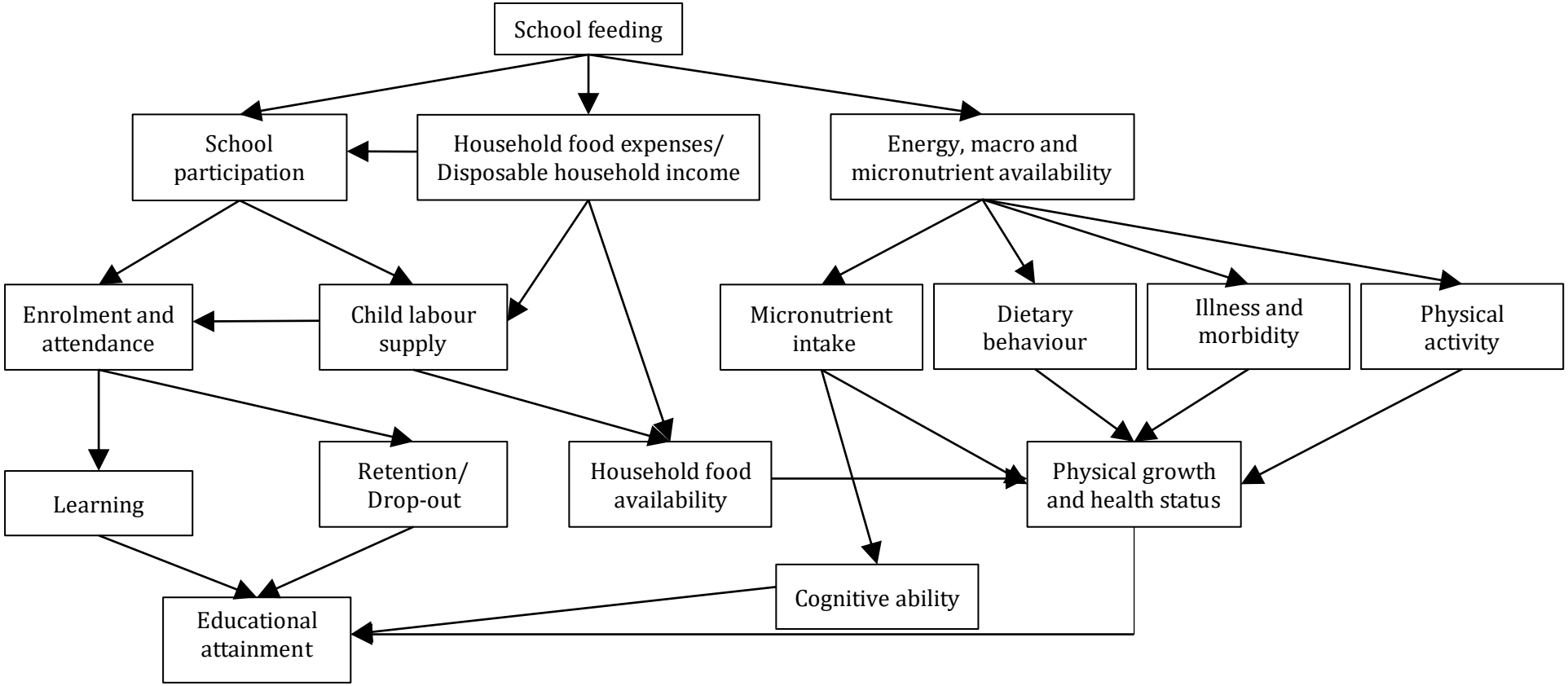
Source: WHO (n.d.)

As school-age children are in a time of rapid (and catch-up) growth, it is crucial that they eat a balanced diet that meets all the nutrition requirements. Unfortunately, data indicates that children in Malaysia are not eating healthy and are going to school hungry. There is also a double burden of malnutrition as indicated by statistics on children's nutritional status. As these children spend much of their time in school, a school-level intervention such as a school feeding programme is appropriate.

3. The impact of school feeding programmes

Generally, school feeding contributes to the nutrition and health needs of children, children's education and social development, social provisioning and improving local food agriculture. A number of these impacts have been succinctly summarised by Drake, et al. (2018) and Adelman, et al. (2008) although other benefits are overlooked, e.g., promoting socialisation and cooperation among children and instilling desirable social skills. Figure 6 shows the interlinked pathways of how school feeding reaches various outcomes.

Figure 6: Pathways of school feeding programme's effects



Source: Adapted from Drake, et al. (2018) and Adelman, et al. (2008)

3.1. Health

School feeding initiatives uphold food security and safety by ensuring the availability of and access to safe and nutritious food for kids. In many instances, school feeding sources food from local producers who are only allowed to supply food stipulated by dieticians and adhere to strict food safety requirements (Wan Manan, et al., 2019).

School feeding explicitly aims to address malnutrition which entails achieving adequate macro and micronutrient supply (Wan Manan, et al., 2019). When combined with fortification, school feeding not only addresses hunger but also reduces micronutrient deficiencies and strengthens children's overall health (Adelman, et al., 2008).

The benefits of school feeding are monitored through anthropometric indicators such as height, weight and waist circumference. Watkins, et al. (2015) conducted a systematic review of evaluations on school feeding programmes and found that most had positive effects on students' height and weight gains. Additionally, school feeding shapes dietary habits that tend to persist to adulthood which improves children's nutritional status and helps prevent diet-related diseases later in life (Hawkes, et al., 2015; Dunn, et al., 2000).

3.2. Education

School feeding combines health with education benefits such as increasing school enrolment and attendance and improving academic performance. A review of rigorously designed studies indicates positive effects on enrolment and retention (Krishnaratne, et al., 2013). Findings on academic performance are more mixed, though some positive relationships have been documented (Drake, et al., 2018). The inconsistent results are likely due to factors specific to the programmes studied, which is a common confounder in evaluations of school interventions (Glewwe, et al., 2013). For example, Vermeersch and Kremer (2004) attribute their negative findings on academic performance to disruptions caused by implementing feeding programmes during school sessions, whereas Powell, et al. (1998) attribute their positive findings to food consumption before school starts.

3.3. Socialisation

School feeding has served as a tool for social inclusion (Tembon, et al., 2015). One example is the Mid Day Meal Scheme in India which requires children of different castes to sit together and share common meals. Thus, the programme provides an avenue to address discrimination based on caste by having children eat together (Samal & Dehury, 2016). Eating together in the school feeding programme has become a social activity where children are given an opportunity to develop inter-ethnic understanding and cooperation as well as social skills as they talk, share, help and learn from one another.

3.4. Local agriculture

School feeding promotes local agricultural production (Wan Manan, et al., 2019). Linking school feeding to local producers is termed 'home-grown school feeding', and helps to stabilise markets, increases (and guarantees) farmers' incomes and promotes the production of healthy food (Alderman & Bundy, 2011; Gordon, et al., 2011; Drake, et al., 2012). According to Tembon, et al.,

(2015), the Qali Warma programme in Peru is an example of school feeding that supports the development and transformation of local agriculture by only procuring produce from local farmers.

3.5. Local community

School feeding also benefits communities by reducing households' food expenses, consequently increasing their disposable incomes (Alderman & Bundy, 2011). With children fed in school, families better manage their finances (Samal & Dehury, 2016). Therefore, school feeding is part of social provisioning, and serve as social safety nets when food and fuel prices rise or droughts and floods lower crop yields and incomes (Drake, et al., 2018). School feeding has spillover benefits to community diets as well when farmers' surplus produce after meeting programme procurement orders is sold in local markets, eventually changing diets. Thus, well-designed school feeding programmes are not only beneficial to school children, but also the community as a whole.

Next, we discuss the different programmes available in Malaysia. Understanding programme details is important as they can determine the effects of the programme (Drake, et al., 2018). For this purpose, we look into the RMT and HiTS.

4. Rancangan Makanan Tambahan

The RMT, or the Supplementary Feeding Programme, is an integrated effort led by the Ministry of Education (MOE) carried out in primary schools. According to the RMT guidebook by the MOE (n.d.a), the general goal is to supplement food provided at home to meet a fourth to a third of primary school children's daily meal requirements. Specifically, RMT aims to:

1. Provide part of the daily protein-energy and other macronutrient requirements of needy children by meeting their caloric and personal growth requirements before the onset of puberty;
2. Create opportunities for formal and informal nutrition education through the consumption of available foodstuff;
3. Complement the Applied Food and Nutrition Project (AFNP)/Rancangan Amalan Makanan dan Pemakanan;
4. Create a focal point for school-community cooperation by involving the Parent-Teacher Association/Persatuan Ibu Bapa dan Guru (PIBG) and community groups; and
5. Provide informal community education on health and nutrition.

4.1. Management

The management of RMT relies on joint efforts at the ministry down to the school levels. The Student Assistance Committee (Jawatankuasa Bantuan Murid) was set up by the MOE to plan, execute, monitor and improve the programme. Starting from 2016, the Finance Division (Bahagian Kewangan) manages the allocation of funds for RMT, while the School Management Division (Bahagian Pengurusan Sekolah Harian) manages operations at the State Education Departments (Jabatan Pendidikan Negeri) and District Education Offices (Pejabat Pendidikan Daerah/Wilayah) through officers who supervise actual operations and serve as intermediaries between the schools and the MOE.

4.2. Target group

Only Malaysian citizens enrolled in government primary schools (Sekolah Kerajaan) or government-aided schools (Sekolah Bantuan Kerajaan) are eligible for RMT. To become eligible, students must meet at least one of the following criteria:

1. Heads of pupils' households earn less than the poverty line income.
2. Students in Orang Asli and Penan schools.
3. Students with special needs.

Eligible students must apply to enrol in the programme as admission is not automatic.

4.3. Programme run

The programme runs for 190 school days in the year. For eligible Muslim students, meals are not provided during the Ramadhan fasting month. Thus, allocations to schools during the fasting month are only based on the number of non-Muslim students.

The programme begins on the first day of school for RMT-continuing students in Standards Two to Six and from 1st February for Standard One students. Standard Two to Six students who did not receive food under RMT in the prior schooling year also start on 1st February.

RMT meals are provided before school starts for on-site consumption so that students do not begin the school day hungry, i.e., breakfast for morning-session students and lunch for afternoon-session students. However, if necessary, food can be provided at recess time instead.

4.4. Funding

Funds are wholly provided by the MOE. Starting in 2015, the allocated budget per student is RM2.50 per day in Peninsular Malaysia and RM3 in Sabah and Sarawak. The allocations for schools are determined as follows:

$$\begin{aligned} &Allocation\ for\ school \\ &\quad = Budget\ per\ student \times Number\ of\ receiving\ students \\ &\quad \times Number\ of\ days\ meals\ are\ provided \end{aligned}$$

4.5. Food supplier

For schools with canteens, food is provided by existing canteen operators. If the canteen operator declines or if the school does not have a canteen operator, the Student Assistance Committee appoints food suppliers among the PIBG members. If the PIBG also declines, the Student Assistance Committee appoints suppliers among the families of teachers or other school staff. Any decision on food supply outside this standard procedure must be approved by the MOE's Finance Division.

4.6. Menu

Food should be from the 20 menus listed in the Food Supply Agreement (Perjanjian Pembekalan Makanan). Examples include nasi lemak, mi goreng and roti canai. The choice of food is based on food availability and student preferences and is reviewed in June every year.

4.7. Program Susu Sekolah

Besides food, RMT students are automatically enrolled in the School Milk Programme/Program Susu Sekolah (PSS) which provides free milk. Additionally, non-RMT students can also participate on a voluntary basis[8]. The PSS was launched in 1983 and is a collaborative programme between the MOE and local milk producers as part of Malaysia Incorporated (MOE, n.d.b). The objectives of the programme are as follows:

1. To encourage the habit of drinking milk.
2. To provide milk to students at higher risk of malnutrition, i.e., poor students.
3. To increase the efficiency of planning, execution and evaluation of the PSS with cooperation from other government agencies under Malaysia Incorporated.
4. To decrease government expenditure through the involvement of private-sector agencies.
5. To increase knowledge, skills and good practices related to food, nutrition and health.
6. To facilitate the development of communities and the dairy industry involved in the production and supply of milk.

Twice weekly, school children are given a carton of 200ml sweetened chocolate-flavoured milk priced at RM1.50 in Peninsular Malaysia and RM1.80 in Sabah and Sarawak sourced from local milk producers selected by the Ministry of Agriculture and Agro-based Industry (Yang Razali, 2019).

4.8. Programme evaluation

Good reception

Past studies suggest that RMT was well received by students and parents. A study by Mohd Shahril, et al. (2000) of 129 schools in Peninsular Malaysia states that 97% of the children liked the food served and 88.6% reported that they ate all the food served. Parents surveyed also appreciated the programme and wanted it to continue assisting poor students (Arop, et al., 2000).

Improving food quality

Reports show that the increased budget allocations over the years parallel a concurrent increase in the nutrient content of the food served, though not all menus met the recommended dietary

[8] According to the MOE (n.d.b), the price of milk sold to students who voluntarily enrol in the PSS may or may not be subsidised by the government. It is unclear under what circumstances the MOE decides to subsidise the price.

intake of calcium, niacin, riboflavin and thiamine (Arop, et al., 2000). The low levels of required minerals and vitamins in food prepared may be due to the modes of food preparation.

Improved health and education outcomes

The most notable impact of RMT is reducing protein-energy malnutrition among children (Kandiah & Tee, 1990). Additionally, Kandiah and Tee (1990) found that mean attendance rates went up in schools with RMT compared to schools without. The MOE lists improvements in children's education performances as an outcome of RMT but it is difficult to draw this conclusion as there are few robust evaluations (Ibrahim, 1997).

Chen (1989) estimated the effects of PSS on students in an Ulu Selangor school and found that protein-energy malnutrition declined significantly after two years. The prevalence of underweight children dropped from 15.3 to 8.6%, stunting from 16.3 to 8.3% and wasting from 2.6 to 1.7%.

Issues with milk supplementation

There are reservations about the inclusion of milk in RMT. Animal-source foods, such as milk, are relatively more expensive in developing countries (UNICEF, 2019). In 2019, milk constituted about 13.5% of the allocated RMT budget (Cheah, 2019). The provision of milk entails high costs of storage, transportation and wastage (WFP, 2007). Additionally, the inclusion of milk in a large, nationwide programme allows dairy importers and producers to benefit from long-term procurement contracts at high preferential prices. This is despite the lack of conclusive evidence that milk is vital for ensuring the nutritional impact of feeding programmes (Bundy, et al., 2009). While it is widely acknowledged that animal-source foods can help resolve key nutrient gaps, other options, such as tempeh and other soy products, are cheaper viable local alternatives to be considered.

4.9. Program Sarapan Pagi

In a statement made in August 2019 by the then Education Minister, Dr Maszlee Malik, a universal school breakfast programme called Program Sarapan Pagi (PSP) was to launch in 2020. The programme caters free breakfast to all primary school pupils in government and government-aided schools and is supposed to run on top of the ongoing RMT programme (Cheah, 2019).

The programme would be rolled out in phases, starting in schools with a higher number of B40 students[9] in each state, provided that these schools have school administrators, canteen operators and communities that are ready to implement the programme. The first phase began on 20th January 2020 involving 100 schools around the country with a total of 37,000 students and 1,600 teachers (MOE 2019; Lee, 2020). The 100 schools were chosen based on the high number of B40 and RMT-eligible students in the schools. The Ministry of Health appointed a nutritionist for each school to advise on the programme's menu. The programme adopts a Grab-

[9] B40 students are students who are from households in the bottom 40% of the household income distribution.

and-Go approach whereby easy-to-eat snacks such as biscuits, bread and pastries that can be consumed within 10 minutes are provided with milk or other healthy drinks. The programme runs between 7 to 8.30 am in the morning session and from 1 to 4 pm in the afternoon session. This phase of the programme costs RM22 million, with the prospects of expanding to more schools and students.

4.10. Future direction

According to the Budget 2020, RMT will continue with an allocated budget of RM295 million, a modest increase from the RM289 million in the previous year. To the best of our knowledge, the latest study on RMT was published in 2000. Hence, there is a need to reassess the programme's benefits and design. According to DOS (2017), the absolute poverty rate was less than 1% in 2016 and has been low for some time. If the eligibility criteria are strictly adhered to, only a small number of students would benefit from RMT. Furthermore, RMT has mainly addressed undernourishment, including hunger, but not hidden hunger nor food-related NCDs. The recent rapid spread of other forms of malnutrition requires reform of the programme to better address them.

The PSP programme is often seen as an enhanced version of RMT by modifying and expanding the latter (New Straits Times, 2020). This brings into question whether PSP will be rebranded as RMT. Following Maszlee's resignation as Education Minister, Prime Minister Mahathir Mohamad, as interim Minister, has argued that the programme should not include the children of the well-to-do, suggesting that a universal programme seems unlikely (Lee, 2020).

5. Program Hidangan Berkhasiat di Sekolah

The Program Hidangan Berkhasiat di Sekolah (HiTS) is a school breakfast programme that relies on private funds, usually from parents. This is in contrast to the RMT which is wholly government-funded and gives out food based on eligibility. Started in 2007, the PIBG from SJK(C) Chin Kwang Wahyu, Parit Jawa, Muar, Johor organised a school and parent-funded school breakfast programme known as the School Meal Program. The programme has since expanded to other interested schools throughout Malaysia and been renamed Program Hidangan Berkhasiat di Sekolah (HiTS) by the Ministry of Health in 2013 (Teo, et al., 2019). Parents must pay a fee to enrol their children in the programme. Certain schools have redirected government funds for RMT to pay for RMT students' participation in HiTS. Some PIBGs have also sponsored disadvantaged students to be part of the programme.

Based on a site visit of a HiTS school (SJK(C) Yong Peng 2) and discussions with nutritionists, PIBGs and school administrators involved in the programme in Johor[10], this section details the programme's foundational structures, mechanisms and evaluations.

[10] The programme design mentioned throughout this paper applies for HiTS schools in Johor. As the programme is modified to meet local needs and capacities, some details may differ for HiTS programmes implemented in other states. However, the conditions that are deemed necessary for the programme's efficacy, such as the ban of other foods aside from HiTS', are fixed.

5.1. Foundational structures

Prior to running the programme, foundational structures must be in place. Namely, schools must have a canteen that meets the demands of HiTS and gain enough support from parents. To fulfil these requirements, we rely on initiatives taken by the PIBG and school administrators.

To ensure that the canteen infrastructure is sufficient, nutritionists and food technology officers from the district health office (Pejabat Kesihatan Daerah) are enlisted to check on the cleanliness of the kitchen and instil hygienic food handling practices among canteen operators. Depending on the facilities available, cutleries and stainless-steel food containers, preferably that are easily cleaned and appropriately sized, are to be provided. Melamine, plastic ware and polystyrene are not allowed in schools. Other than these physical requirements, the PIBG and school administrators must negotiate with canteen operators on the supply and price of food. One of the conditions stipulated is operators are not allowed to sell other foods aside from those for HiTS. Additionally, operators must undergo training on healthy cooking and observe food safety standards when preparing food. In the case that canteen operators fail to meet the programme's demands, parent volunteers are contracted on a part-time basis to provide food. It is worth noting that parents' involvement as stakeholders would better ensure that the food is well prepared since their children will be consuming the food.

Without enough support from parents, the programme is not financially viable. Therefore, nutritionists and the PIBG engage with parents to convince them to enrol their children. On one hand, nutritionists highlight the positive benefits of a school breakfast programme on children's health and education. On the other, the PIBG has the advantage of social proximity to gain parents' support.

In short, schools should have a clean canteen with the capacity to supply and serve food, a canteen operator who adheres to food hygiene and safety standards and only sells food included in the menu at agreed prices, and enough students under the programme.

5.2. Menu

The menu for HiTS is drafted by nutritionists with at least 60 meals that can be chosen from and the meals served change daily. The aim is to provide a balanced meal at minimum cost. The menu consists of cooked food and can be modified to suit dietary requirements, availability of local ingredients and preferences. Special menus are also prepared for students who have different food allergies or requirements, e.g., catering to vegetarian students.

5.3. Programme flow

Teachers and nutritionists work together to organise and monitor students. To demonstrate how students are managed, we describe in detail the programme flow for breakfast provision in SJK(C) Yong Peng 2, a HiTS school, based on a typical implementation during the 30-minute recess

time[11]. An equivalent lunch programme can also be implemented for students in the afternoon session, providing food during the 30-minute break around mid-afternoon.

Before recess, the canteen operator prepares the food and packs it in individual food containers. Then, a photo of the food is sent to the district health office nutritionists, the PIBG and social media for accountability.

During recess, students enter the canteen accompanied by their teachers, sit at their designated tables and have their attendance taken by an appointed student leader. Before eating, students pray and/or express their appreciation for the food. Students who are not in the programme can buy their meals at a higher price compared to the price paid by those enrolled. After eating, students clean up after themselves and wash the cutleries and containers. Each month, one student from each table is appointed the table's leader whose task is to clean up their respective tables. Table leaders also ensure that all table members finish their food as there is no bin to dispose of leftovers.

After recess, the canteen operator inspects the cutleries, containers and tables and reclean them.

5.4. Encouraging students' participation

Even if students are enrolled, the programme is not effective without their cooperation e.g. if they do not eat the prepared meals. Students can have an aversion to joining the programme if there is no soft-landing period which gives them time to get used to the programme. In the first three months, teachers actively monitor students' eating behaviours and a bin for food waste is provided as students may not be used to eating the food and leftovers are to be expected. Data collected during the early phase of implementation provides valuable information to improve the programme.

5.5. Programme evaluation

Modifying students' behaviour

The conditions and rules installed in the programme's design are to nudge students' behaviours and promote commendable traits. Food is served on the table so that children do not have to run around the canteen to get food, keeping them in order. The bowls to serve food are appropriately sized to abstain children from overeating. Students are also inculcated with good hygiene habits such as washing hands before and after eating, cleaning up the table and so on. Electing and rotating table leaders give all students a chance to be in a leadership role.

While the Healthy School Canteen Guideline developed by the MOE prohibits the sale of various unhealthy foods and beverages, it is common to find chicken nuggets, sausages and carbonated drinks in canteens. The programme is designed to overcome this by allowing operators to sell only HiTS meals for the day, creating a healthy school food environment (Langford, et al., 2014). This benefits non-HiTS students too as they can only buy meals approved for HiTS.

[11] This means that breakfast is served as a mid-morning meal.

Nutrition education

Daily consumption of nutritious and balanced meals exposes students to good diets. Some schools also display educational charts to introduce what constitutes a nutritious meal, the importance of eating healthy and good eating etiquette. Also, some schools run the School Nutrition Programme (SNP), which consists of HiTS and nutrition education sessions by trained teachers. For the educational sessions, teachers use three teaching modules that teach children the importance of hygiene, nutrition and physical activity (Teo, et al., 2019).

Improved health and education outcomes

A study on HiTS combined with nutrition education, i.e., the SNP, shows that the programme improved the nutritional status and education of participating students. Students in the programme slightly lowered their BMI scores compared to the rapid increase among students who were not, suggesting that the programme facilitated steady, healthy growth instead of rapid, unhealthy growth leading to obesity. SNP students also showed faster improvements in cognitive performance and health-related 'quality of life' outcomes compared to non-SNP students (Teo, 2019).

6. Targeting versus universalism

One consideration when designing a programme's model is who should be the beneficiaries. RMT, the national school feeding programme fully funded by the government, is targeted for poor students. HiTS is voluntary, though some assistance is given to disadvantaged students subject to the availability of funds. PSP, on the other hand, was originally conceived to be a universal programme. These different targeting approaches raise questions on which structure is appropriate in the Malaysian context. This section aims to highlight factors that must be considered when deciding who should receive free meals.

Targeting incurs lower total expenditure but increases the risk of exclusion error, whereby children in need are overlooked and excluded. The poverty line income (PLI) used to identify RMT-eligible students has been criticised for being too low and failing to reflect the reality of the poor (Alston, 2019). As noted by Hawati, et al. (2019), methods in targeting must consider a multitude of factors including different cost of living by location and household size. However, in lieu of these criticisms, the government has asserted that these aspects have indeed been considered when giving handouts during implementation (Azmin Ali, 2019). These statements along with the government's initiative to review the PLI are welcomed. Targeting provides benefits to the right people at a lower total cost, but the measure must be done carefully to minimize exclusion error.

On a related note, a targeted plan leaves the poor vulnerable to the cliff effect. This term refers to situations where welfare recipients lose benefits after receiving a pay hike that pushes their income above the eligibility threshold (Albelda & Carr, 2017). In this context, once a household earns income above the PLI, the child is no longer eligible for RMT (nor other poor-targeted assistance) which may leave him worse off than before. According to Beasley and Kim (2018), the value of school meals as a proportion of income is significant, especially for poor families. For example, the value of a school meal under the World Food Programme's school feeding programme in Sierre Leone is equivalent to about 10% of an average recipient household's

income (Buckowski, 2019). For families with several children, that adds to substantial costs. This stresses the relevance and importance of ensuring the needy are included. Both exclusion errors and the cliff effect do not apply to a universal programme.

Another issue with targeting in school feeding is the occurrence of school food shaming, a situation where recipients are stigmatised and ridiculed in front of their peers for receiving food assistance (Leos-Urbel, et al., 2013; Ruffini, 2018; Bundy, et al., 2009). In this case, recipients do not eat the food and the objectives are not achieved despite incurring costs for implementation. Evidence suggests that this can be resolved by running a universal programme. In 2003, New York City changed its policy on school feeding by making breakfast free for all students, from a policy using differential pricing based on family income. Researchers found that participation increased for eligible students, suggesting that some eligible kids chose not to eat when the programme was just for poor kids (Leos-Urbel, et al., 2013). Another pathway of how universal programmes increase participation of the poor is by eliminating administrative obstacles. Targeted programmes often require students and their parents to apply and by eliminating enrolment paperwork, eligible students who did not sign up could still gain access (Ruffini, 2018). Students who were not eligible participated in the programme too (Leos-Urbel, et al., 2013). As children from different walks of life gather to eat the same food, positive values such as mutual understanding and cooperation can be instilled.

Insofar, discussions have focused on the wellbeing of the poor. However, poor nutrition and bad eating habits are not problems of the poor alone. While there are no statistics of stunting by income groups, the figures for relatively well-off states provide simple indications. In Johor, Kuala Lumpur and Putrajaya where absolute poverty is almost eradicated[12], stunting is still prevalent among Standard Four to Form Five students with figures reaching up to 8% in 2017 (DOS, 2017; IPH, 2017). Furthermore, as Malaysia faces the threat of the double burden of malnutrition, school feeding can educate kids on the importance and benefits of adopting a healthy diet. While undernutrition is arguably more concentrated among the poor, the opposite may be true for obesity. Expanding the programme to include all students can be a solution.

While these pro-universalism arguments are valid based on past experiences, the cons of a universal programme should not be ignored. Targeting incurs lower total costs compared to universal provision. One may argue if the rising costs from increasing coverage outweighs the benefits. Furthermore, with constrained budgets, an allocation increase to a universal school feeding programme may crowd out other beneficial school programmes. In South Korea, the Free School Meal Programme initiated in 2011 provides free lunches to all students regardless of their socioeconomic status. After the implementation of the programme, researchers noted that the share of students with high fitness grades, i.e., physically fit students shrank and this took place concomitantly with a budget cut for physical education (Baek, et al., 2019). The substitution of physical education with the school feeding programme was cited as an unintended outcome.

The decision on whether a school feeding programme should be targeted or free for all is context-specific. The developments related to children's health in Malaysia and the pros and cons of

[12] The poverty rate in these states was 0%.

universalism/targeting must be understood clearly to design school feeding programmes that assist those in need.

7. Concluding remarks

Malaysia requires interventions at schools to address two related problems involving children: poor eating habits and malnutrition. Children's rapid development underscores the need to make sure children eat right. Experiences of school feeding show that providing free meals to students can resolve these issues and gives other benefits including improving education outcomes, better socializing students, invigorating food agriculture, generating higher and more stable incomes for food farmers, and assisting households by reducing food expenses and improving food supply.

Critically analysing the structure of the RMT and HiTS programmes is beyond the scope of this paper; however, several lessons can be taken from reviewing the programmes' designs and evaluations. To better assess and improve these programmes, more rigorous studies are needed. Most RMT studies were conducted in the late 20th century. HiTS is a relatively new programme that has shown promising findings but more should be done to validate its design. Another issue involves targetting. As the percentage of officially recognised poor households is almost zero, the eligibility criteria for any school feeding programme in the country should be modified to include other hungry and undernourished non-poor children. The diet-related issues of children in Malaysia have also evolved to include hidden hunger and obesity. Any school feeding programme should address these problems as well. One possible way is by ensuring that only food approved for school feeding is sold in canteens, as seen in the Johor HiTS schools which forces students to only eat healthy food during the school day and minimize access to junk food and soft drinks.

There is an urgent need for better cooperation among the different ministries and with other public stakeholders in improving the implementation of school feeding. The Ministry of Education, the Ministry of Health and the Ministry of Agriculture and Agro-based Industry have direct stakes in improving school feeding and must better coordinate to ensure its success. At the school level, nutritionists from the district health office can contribute by creating or modifying diversified menus and to monitor canteens to meet nutrition and food safety standards. HiTS has also demonstrated the active roles that parents can play in school feeding programmes. Farmers, preferably from close by, can provide safe and healthy produce, which is not only good for the children but also the farmers and the community as a whole. School administrators must be active and continue to monitor the programme to further improve it.

The continual association of school feeding with assisting the poor is misleading and ignores the programme's immense potentials in many areas. While the universal provision of school meals will rack up a hefty bill, we must recognise that school feeding is not only a nutrition intervention but also an investment in children. Various studies have found impressive benefit-cost ratios for most school feeding programs, many of which would be even higher due to unaccounted impacts (Jamison and Leslie 1990; Schuh 1981). If better designed and implemented, a universal school feeding programme would be an important step to better address various challenges facing the next generation. Our children are our future. Thus, it is our responsibility to make sure that every child, regardless of status, realises their right to safe, nutritious and affordable food.

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