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DISCUSSION PAPER 6/20 | 27 APRIL 2020

Agriculture Exodus?

Insights from youth aspirations

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Khazanah Research Institute

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Agriculture Exodus? Insights from Youth Aspirations

Ahmad Ashraf Ahmad Shaharudin and Mohd Amirul Rafiq Abu Rahim

Summary

- Agriculture and fisheries are the least preferred sectors among youth. Youth who are interested to work in agriculture and fisheries are mostly male and come from states with large employment in these sectors.

- Almost all in-school youth whose parents work in agriculture and fisheries do not want to work in these sectors. Moreover, almost all youth in tertiary education with at least a parent in agriculture or fisheries study non-agriculture courses. This implies a loss of potential agricultural labour who grew up with some exposure, and perhaps experience and skills, in agriculture.

- A larger proportion of youth in tertiary education who study agriculture is female. However, a large percentage of them do not consider agriculture or fisheries as an ideal sector to work in. Furthermore, less than a quarter of young workers who studied agriculture end up working in agriculture or fisheries sector. This shows a clear education-labour market mismatch.

- Youth who want to work in agriculture or fisheries have low reservation wage. Young workers who work in these sectors also receive smaller wage compared to those in other sectors.

- Youth in school and tertiary education who are interested in agriculture and fisheries are keen to run their own business. Consistently, a large percentage of young workers in agriculture and fisheries are self-employed.

Table of Contents

Summary iii

1. Introduction 1

1.1. Youth and agriculture 1

1.2. The School-to-work Transition Survey 4

Part A: Students (in school and tertiary education) 5

2. Do youth want to work in agriculture? 5

3. What is the profile of youth who are/are not interested to work in agriculture? 6

3.1. Youth who are interested in agriculture come from states with large employment in agriculture 6

3.2. Youth whose parents work in agriculture do not want to follow their parents' footsteps 9

3.3. Male youth are more interested in agriculture and fisheries 13

3.4. Most students who study agriculture are interested to work in the sector 14

4. What are the aspirations of youth who want to work in agriculture? 18

4.1. Youth interested in agriculture or fisheries have a low reservation wage 18

4.2. Less than half of the youth who are interested to work in agriculture or fisheries plan to further study 19

4.3. Youth who are interested in agriculture and fisheries want to run business 20

Part B: Young workers 21

5. What is the profile of young workers in agriculture? 21

5.1. Less than half of young workers in agriculture are tertiary educated 21

5.2. Most young workers who studied agriculture do not work in agriculture or fisheries 22

5.3. Young workers in agriculture and fisheries earn less than many other sectors 24

5.4. Agriculture is not the ideal sector for most young workers working in the sector 25

5.5. Many young workers in agriculture and fisheries are self-employed 26

6. Discussion and policy considerations 28

7. Concluding remarks 32

8. References 32

1. Introduction

The broad objective of this paper is to gain insights on youth interest in agriculture[1] in Malaysia. Based on data from the School-to-Work Transition Survey of Young Malaysians (SWTS) conducted by Khazanah Research Institute (KRI) at the end of 2017 and the beginning of 2018, this paper aims to explore these key questions:

- Do youth in Malaysia want to work in agriculture?
- What is the profile of youth who are/are not interested to work in agriculture?
- What are the aspirations of youth who want to work in agriculture?
- What is the profile of young workers in agriculture?

This paper is divided into two parts. Discussion in Part A is based on the survey conducted among youth in school and tertiary education institutions. Part B presents insights from the survey conducted among young workers. A more detailed explanation about the SWTS is provided in Section 1.2.

1.1. Youth and agriculture

Around the world, rural youth express little interest to work in agriculture. For instance, a study in Ethiopia[2] found that only 9% of the rural youth plan to pursue agriculture as a means for livelihood. A focus groups study[3] of rural youth in seven developing countries found that most respondents aimed for blue and white-collar jobs and no female respondents were interested to work in agriculture. In Malaysia, around 26% of workers in agriculture, forestry and fisheries sector in 2018 are above 50 years old[4]. The average age of paddy farmers in MADA is 60 years old[5]. Meanwhile, only 15% of the 800,000 members of the Farmers' Organisation Authority are below 40 years old, and around 45% are 60 years old and above[6].

The share of agricultural employment out of total employment has been declining around the world. The shift of employment from agriculture to non-agriculture sectors such as manufacturing and services is a common and necessary experience in the process of development and is not inherently a cause for concern[7]. However, this structural transformation has to be supported with increased productivity in agriculture and youth may hold the key for productivity improvement. Box 1.1 discusses briefly the experience of structural transformation of Malaysia.

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[1] The term 'agriculture' when used in a general context, refers to agriculture, forestry, and fisheries. However, when describing the SWTS data, 'agriculture' refers to agriculture & forestry.
[2] Bezu and Holden (2014)
[3] Elias et al. (2018)
[4] DOS (Various years-a)
[5] MADA (2016)
[6] The Star (2016)
[7] Timmer (1988)

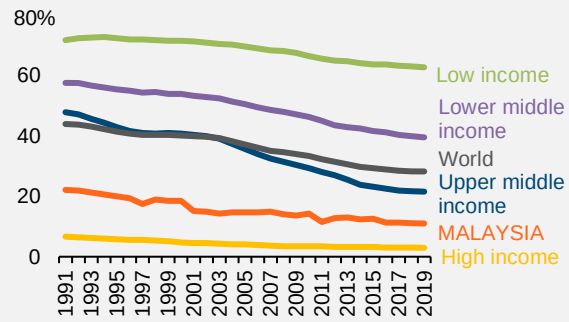
Box 1.1: Agricultural labour reallocation and structural transformation

Around the world, the share of agricultural employment has been declining (Figure 1.1). The decline rate is higher among high income and upper-middle-income groups (Figure 1.2). On the other hand, the structural transformation from an agrarian to an industrial and service-based economy is very slow among low-income countries. Between 1991 and 2019, the share of agricultural employment in low-income countries declined by only 14 percentage points, whereas in high income and upper-middle-income countries, the drop was more than double.

In 1990, 26% of the total employment in Malaysia was in agriculture[8]. By 2018, the share has reduced by 11 percentage points (Figure 1.3). On the other hand, the share of employment in the services sector increased by 16 percentage points within the same time period.

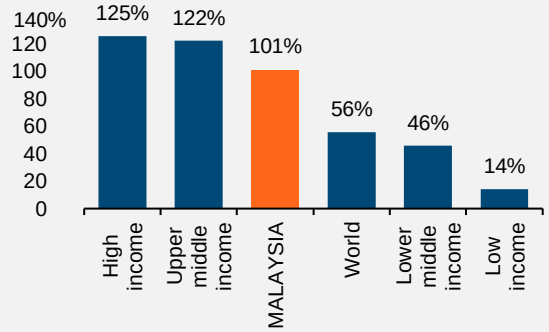
In terms of labour productivity, agriculture, manufacturing and construction sectors have seen a six-fold increase between 1990 and 2018, whereas productivity in the services sector rose by a five-fold. However, in absolute term, the productivity gap between agriculture and manufacturing and services sectors is widening (Figure 1.4).

Figure 1.1: Share of agricultural employment (out of total employment), 1991 – 2019



Source: World Bank (n.d.)

Figure 1.2: Rate of decline in the share of agricultural employment, 1991 – 2019



Source: Calculation based on World Bank (n.d.)

Figure 1.3: Share of employment by sector, Malaysia, 1987 – 2018

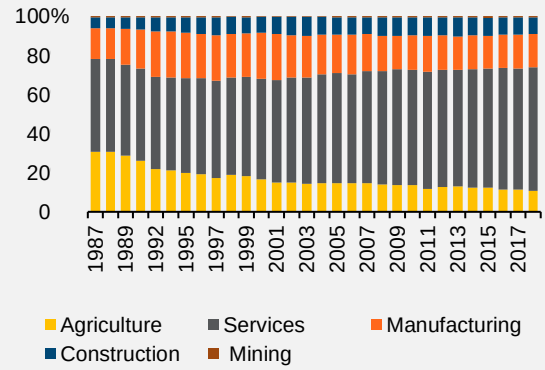
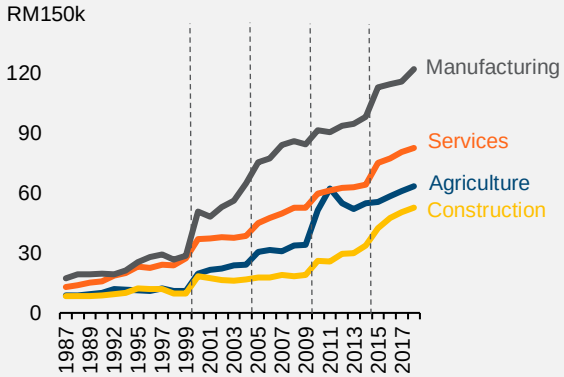


Figure 1.4: Labour productivity by sector, Malaysia, 1987 – 2018 (RM k)



Source: Authors' calculation based on data from DOS (2019d), DOS (2019b) & DOS (n.d.-a)
Note: Labour productivity is GDP at constant prices divided by the number of employed persons

[8] Comprises of agriculture, forestry and fisheries

Box 1.2: Youth unemployment in Malaysia

The total labour force in Malaysia in 2018 was 15.28 million, with an overall unemployment rate of 3.3%. Youth at the age of 25 to 29 years old are expected to have completed their transition from education to the labour market. However, the unemployment rate for youth of this cohort has been above the overall unemployment rate since 2013 (Figure 1.5)[9].

The share of youth (aged 15 – 29 years old) unemployment made up around 80% of the total unemployment in this country (Figure 1.6). In particular, around half of the total unemployment in this country was comprised of urban youth. In fact, the share of urban youth employment has increased by more than 10 percentage points between the year 2011 and 2018. In contrast, the share of rural youth unemployment has decreased by the same percentage points in the same period.

Figure 1.5: Overall unemployment and youth of age 25 – 29 years old unemployment rate, 2000 – 2018

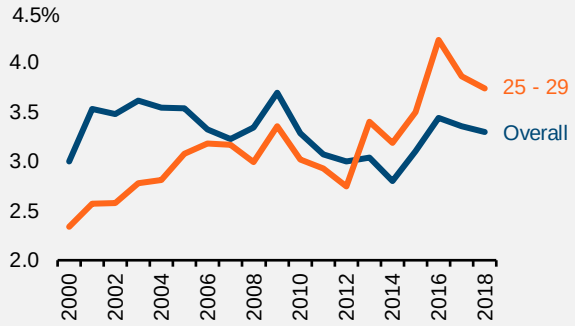
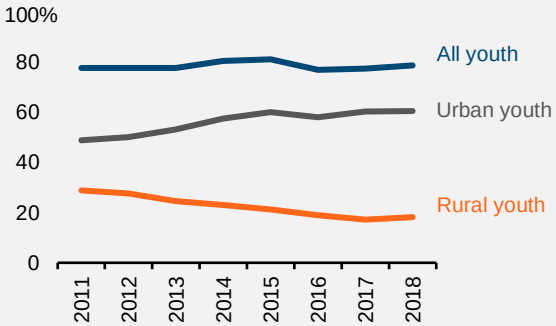


Figure 1.6: Share of unemployed youth (% overall unemployed persons), 2011 – 2018



Source: DOS (Various years-a)

The issue of youth unemployment is not unique to Malaysia. According to the International Labour Organization (ILO), the youth unemployment rate in the Asia Pacific region and the world has risen, from 12.7% and 13.4% in 2012 to 14.1% and 13.7% respectively[10]. ILO estimated that there will be nearly 68 million youth unemployed globally in 2020. However, this estimate was done before the COVID-19 crisis. Considering the impact of this crisis, youth unemployment is expected to worsen. ILO estimated that 3.3 billion jobs worldwide would be affected because of massive economic disruptions due to this pandemic[11].

[9] DOS (n.d.-b) & DOS (2019c)
[10] ILO (2020a)
[11] ILO (2020b)

1.2. The School-to-work Transition Survey

The School-to-Work Transition of Young Malaysians Survey (SWTS) was conducted at the end of 2017 and the beginning of 2018 by KRI to gather information on the education and training profiles, behavioural choices and the labour market condition of young Malaysians[12]. The survey was based on the instrument developed by the International Labour Organization (ILO), which has been conducted in more than 30 developing countries and has undergone multiple improvements over the years[13]. It generates relevant labour market information of youth aged 15 to 29 years old.

SWTS gathered information related to both the supply and the demand side of the labour market. The survey covered five different respondent groups, namely, (i) youth in school; (ii) youth in tertiary education; (iii) young job seeker; (iv) young worker and (v) employer. This paper only uses survey data from (i), (ii) and (iv). We do not discuss findings from the survey conducted among young job seekers and employers as they are not relevant in answering the four key questions that we want to look into in this paper.

In total, SWTS involved 23,785 respondents from all over Malaysia. Relevant to this discussion paper, there were 7,026 youth in upper-secondary education, 3,572 youth in tertiary education and 5,871 young workers surveyed. The survey covered all states in Malaysia and both rural and urban areas.

The survey and sample design were done with the assistance and advice from the Department of Statistics Malaysia (DOS). The Ministry of Education (MOE) and the Ministry of Higher Education (MOHE) provided the sample frames for youth in upper secondary school and tertiary education. Therefore, survey findings from youth in school and tertiary education are considered to be nationally representative. However, findings from young workers are not since there was no sampling frame available.

[12] For more information on the report and the survey methodology, please see The School-to-Work Transition of Young Malaysians report by Khazanah Research Institute (2018)
[13] International Labour Organization (n.d.)

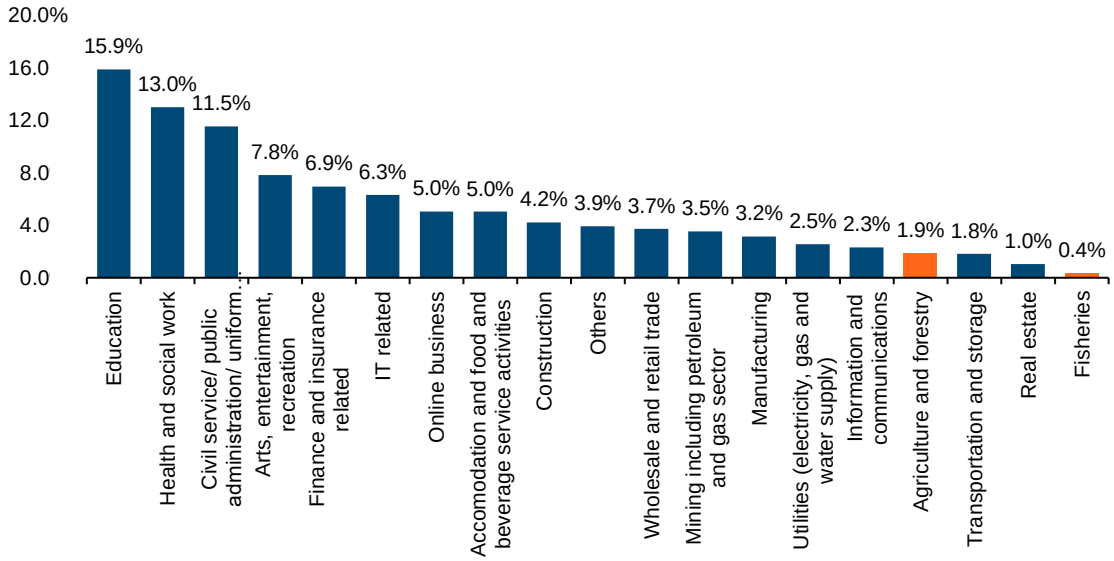
Part A: Students (in school and tertiary education)

2. Do youth want to work in agriculture?

Agriculture[14] and fisheries are among the least preferred sectors among in-school youth (Figure 2.1). Only 1.9% and 0.4% of them consider agriculture and fisheries as their ideal sector respectively. Education, health and social work, and civil service/public administrative/uniform services are the three most favoured sectors among youth in school.

A higher percentage of youth in tertiary education consider agriculture as their ideal sector (Figure 2.2). However, there are some caveats in gauging the interest of youth in a particular sector based on data of youth in tertiary education. First, youth in tertiary education may realign their 'ideal sector' based on their current field of study, which was (willingly or unwillingly) decided by a different set of factors. For example, their field of study could be the result of their own reassessment of their capability based on academic achievement in school. Second, the typical proportion of tertiary-educated workers varies across sectors. Therefore, data based on youth in tertiary education may over-represent sectors that have more related-courses offered in tertiary education institutions.

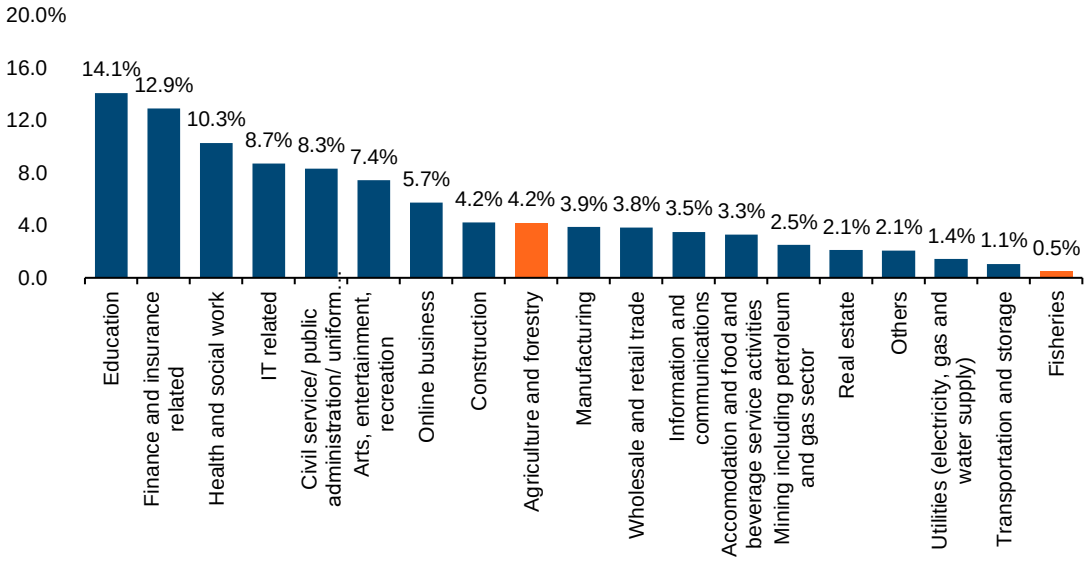
Figure 2.1: Ideal sector for in-school youth to work in



Source: SWTS (In-school youth)

[14] When describing information from the SWTS data, 'agriculture' refers to agriculture & forestry.

Figure 2.2: Ideal sector for youth in tertiary education to work in



Source: SWTS (Youth in tertiary educational institutions)

3. What is the profile of youth who are/are not interested to work in agriculture?

3.1. Youth who are interested in agriculture come from states with large employment in agriculture

In-school youth who are interested to work in agriculture largely come from states with relatively large agricultural employment. Based on data from the Department of Statistics Malaysia (DOS)[15], the top five states with the largest number of employments in agriculture (excluding fisheries) in 2017 are Sabah, Sarawak, Johor, Pahang and Perak (refer Figure 3.3 in Box 3.1). Three of these states are also among the top five states where in-school youth who are interested in agriculture come from, namely Pahang, Sabah, Perak (Figure 3.1).

The largest percentage of in-school youth who are keen to work in agriculture comes from Kedah, a state with the largest paddy granary area. Drawing insight from the case of Kedah where most farmers are paddy farmers and many of them work on inherited land, further research could be done to shed light on the aspect of land ownership and how access to land may influence youth to pursue agriculture[16].

[15] DOS (2019a)

[16] For example, a study in Ethiopia found that lack of access to agricultural land is the main driver driving youth away from agriculture, Bezu and Holden (2014).

States with the largest number of employments in fisheries are Johor, Perak, Sabah, Pulau Pinang, and Pahang (refer Figure 3.4 in Box 3.1)[17]. Three of these states are also among the top five states where in-school youth who are interested in fisheries come from, namely Sabah, Perak and Pahang (Figure 3.2). However, although Pulau Pinang and Johor have high numbers of employment in fisheries, in-school youth in both states are not interested to work in the sector. Both states are rapidly industrialising and urbanising, and youth in those states may find blue-collar and white-collar jobs more appealing.

Figure 3.1: States where in-school youth who are interested in agriculture come from

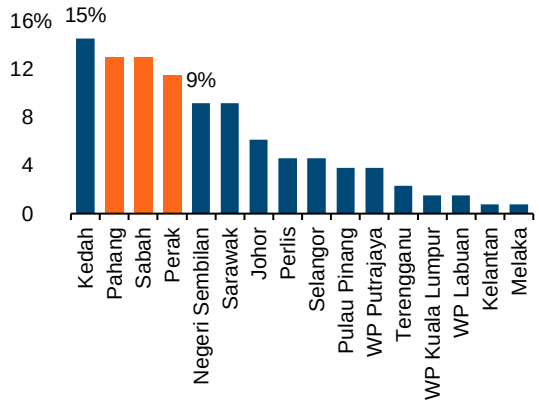
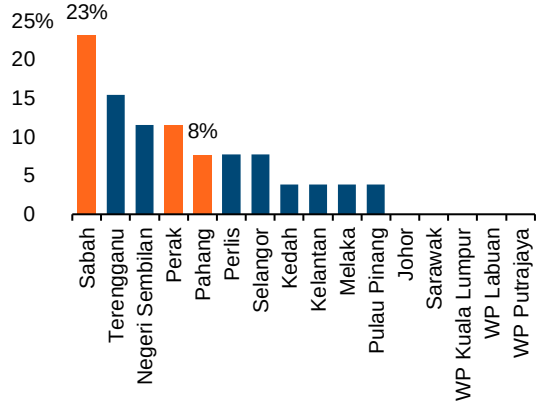


Figure 3.2: States where in-school youth who are interested in fisheries come from



Source: SWTS (In-school youth)
Note: Orange bars are states that fall in both top five largest employment in agriculture/fisheries and top five sources of in-school youth who are interested in agriculture/fisheries

Less than indicating that youth who come from states with large agriculture or fisheries employment are largely interested to pursue agriculture or fisheries, the data presented may actually be more reflective of the disinterest of youth who are in states with small employment in both sectors. This suggests that efforts to persuade youth to join agriculture and fisheries should target youth in states where employment in these sectors are large, i.e. states where youth are more persuadable.

The locality of interest, however, does not necessarily imply interest due to family background. In fact, as will be shown later in Section 3.2, in-school youth who have parents working in agriculture or fisheries are not interested to follow their parents' footsteps. Insofar the data in Figure 3.1 & 3.2 may suggest, states that have large employment in agriculture/fisheries may already have the infrastructure and market that presents opportunities for involvement in these sectors. The visibility of activities related to agriculture or fisheries may also capture the imagination of youth in these states more than it does to youth in states where these activities are not commonly seen. Further research could be done to confirm these two hypotheses.

[17] DOS (2019a)

Box 3.1: Agriculture and fisheries employment and GDP contribution by state

Sabah, Sarawak and Johor are the three states with the largest employment in agriculture and forestry. In 2017, each of the three states employed more than 150,000 workers in the said sector whereas other states employed less than 100,000 (Figure 3.3). Sabah has also one of the largest employed persons in fisheries, along with Johor and Perak. In 2017, each of the three states employed more than 3,000 persons in fisheries whereas other states employed less than 1,500 (Figure 3.4). In terms of agricultural GDP contribution, Sarawak, Johor and Sabah contributed the most—more than RM13,000 million in 2018 (Figure 3.5).

Figure 3.3: Employed persons in agriculture & forestry, 2017

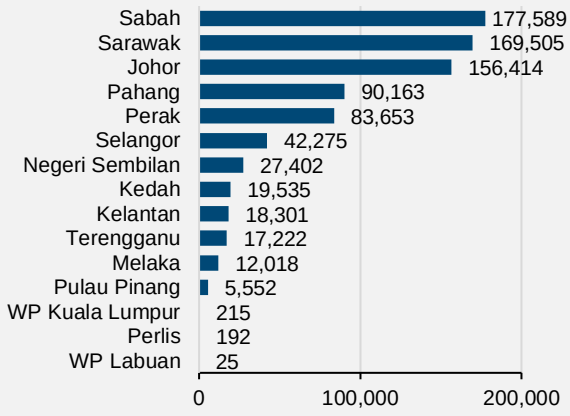
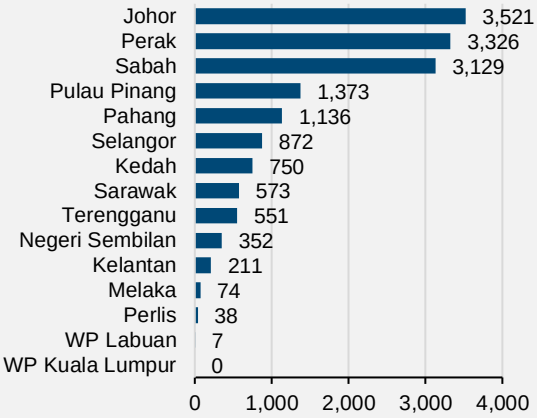
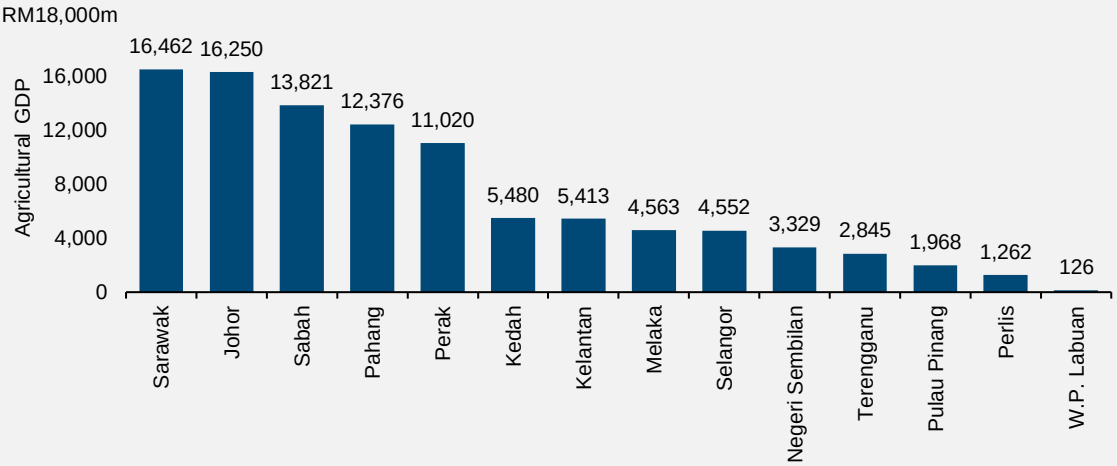


Figure 3.4: Employed persons in fisheries, 2017



Source: DOS (2019a)
Note: 2017 data is the most recent data that segregates agricultural employment by sub-component

Figure 3.5: GDP contribution of agriculture (including forestry & fisheries) (RM million)



Sources: DOS (2017b) & DOS (2019c)
Notes: GDP at constant 2015 prices. GDP figures by state at current prices are not publicly available. 2018 GDP figures are the most recent publicly available data based on DOS's projection in 2017.

3.2. Youth whose parents work in agriculture do not want to follow their parents' footsteps

An overwhelming percentage of in-school youth whose parents work in agriculture and fisheries do not want to work in these sectors (Figure 3.6 & 3.7). This may be evidence of a mass diversion of potential agricultural labour from the sector, an agriculture exodus. To probe further, we investigate whether the scenario where in-school youth do not want to work in the same sector as their parents is a general phenomenon across sectors or is peculiar to agriculture and fisheries sectors. Figure 3.8 shows that in-school youth do not want to work in the same sector as their parents in many sectors but with varying degrees. This phenomenon is more obvious in real estate, fisheries, and agriculture. However, the case of real estate is different than the case of agriculture and fisheries—the number of at least a parent working in real estate is less than the number of in-school youth who want to work in the sector but the case is the opposite for agriculture and fisheries. Most sectors presented by the grey bars in Figure 3.8 can be considered as 'modern' sectors of which the new generation is interested to work in more than the previous generation was.

Figure 3.6: Preference of in-school youth with at least a parent working in agriculture

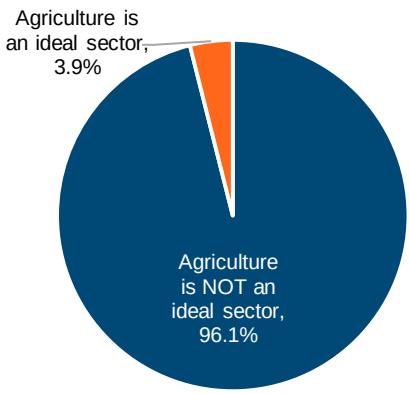
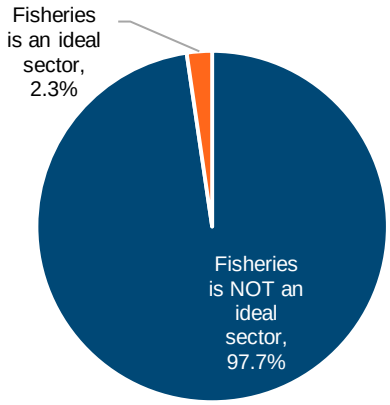
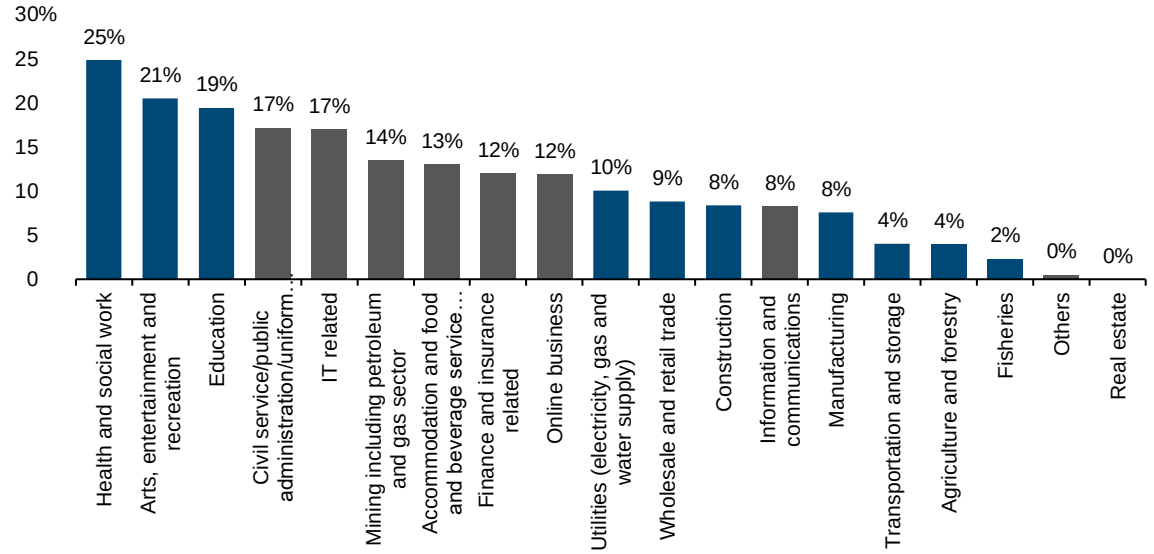


Figure 3.7: Preference of in-school youth with at least a parent working in fisheries



Source: SWTS (In-school youth)

Figure 3.8: Percentage of in-school youth who wants to work in the same sector as their parents (out of parents in each sector)



Source: SWTS (In-school youth)

Notes:

1. **To avoid double-counting, parents who both mother and father work in the same sector is counted as one**
2. **Grey bar represents the sector of which the number of students interested to work in is more than the number of at least a parent works in the sector**

On the flip side, 75% and 89% of in-school youth who are interested to pursue agriculture and fisheries respectively, do not have parents working in these sectors (Figure 3.9 & 3.10). This may be the result of various factors, for example, preference in the type of employment[18] and perceived opportunities in both sectors.

Figure 3.9: Occupational sector of parents of in-school youth who are interested in agriculture

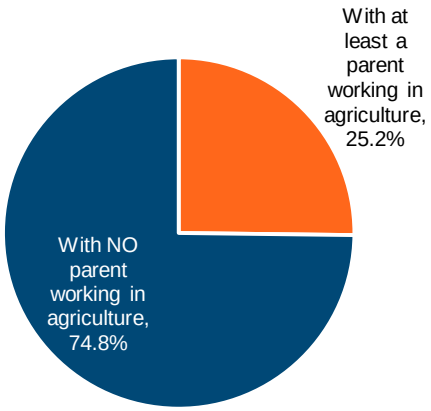
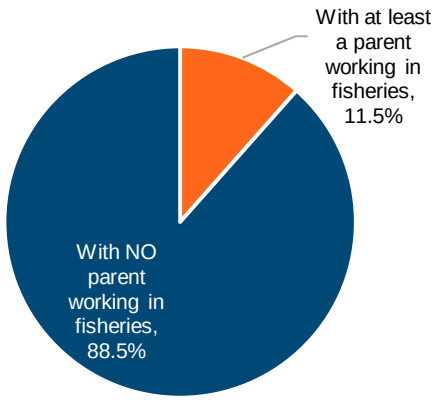


Figure 3.10: Occupational sector of parents of in-school youth who are interested in fisheries



Source: SWTS (In-school youth)

[18] As will be shown later, larger percentages of youth who want to work in agriculture and fisheries plan to start their own business compared to youth who want to work in other sectors.

We investigate whether the expectation of social mobility may be one of the reasons that drive youth out of agriculture and fisheries[19]. We hypothesise that (i) youth whose parents work in agriculture and fisheries deem their family as poor and (ii) in order to be better off, these youth believe that they should work in sectors other than agriculture and fisheries[20]. While we could establish sub-hypothesis (i) through the SWTS data, we could not confirm sub-hypothesis (ii).

However, when comparing with the perception of in-school youth with parents working neither in agriculture nor fisheries, significantly larger percentage of in-school youth with parents working in agriculture and fisheries view their family as poor (Figure 3.11 – 3.13). This may provide a basis to assert the likelihood of sub-hypothesis (ii). Adding weight to this, as will be observed later in Section 4.1, in-school youth who are interested to work in agriculture and fisheries have among the lowest reservation wage compared to those interested in other sectors.

Figure 3.11: Perception of in-school youth whose parents work in agriculture on their family's status

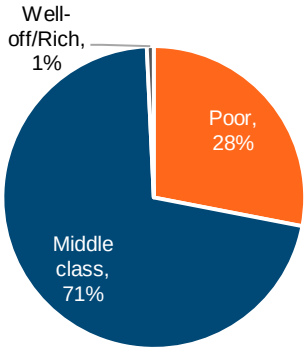


Figure 3.12: Perception of in-school youth whose parents work in fisheries on their family's status

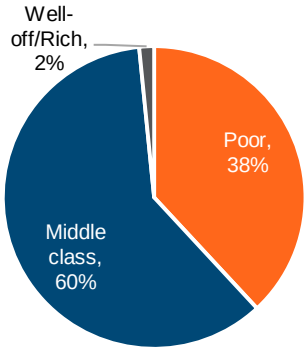
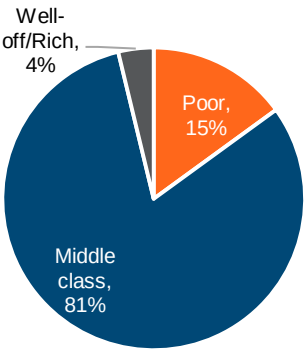


Figure 3.13: Perception of in-school youth whose parents work neither in agriculture nor fisheries on their family's status



Source: SWTS (In-school youth)

[19] Sumberg et al. (2015) note that sociology tend to consider social mobility in terms of movement across occupational groups while economics on income. However, both are inter-related. Since we do not have information on the income of youth's parents, we look at movement across occupational groups.

[20] Sharma and Bhaduri (2009) found that income differential between farm and non-farm occupations is one of the determinants of rural youth withdrawal from agriculture in India.

Around half of the in-school youth whose parents work in agriculture/fisheries and are not interested to work in the same sector as their parents want to work in the education, civil service, and health and social work sectors (Figure 3.14 & 3.15). These three sectors are also the three most popular sectors for in-school youth overall (Figure 2.1). Education and public sector are the most popular choices perhaps because of the job security that these two sectors could provide. Teachers and lecturers in public institutions and public servants could opt for the pension scheme and during an economic crisis, employment in these two sectors is generally safer compared to in other sectors. Meanwhile, jobs in the health sector, such as doctors and dentists, are typically high-paying jobs. Apart from that, both health and education professions are deemed to be noble professions[21].

Figure 3.14: Preferred sector for youth whose parents work in agriculture and are not interested to work in agriculture

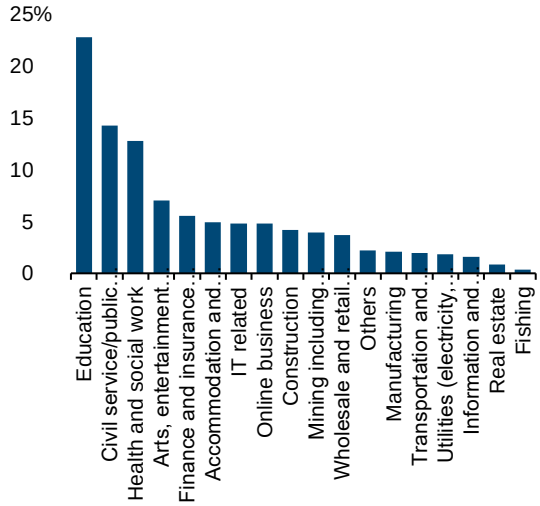
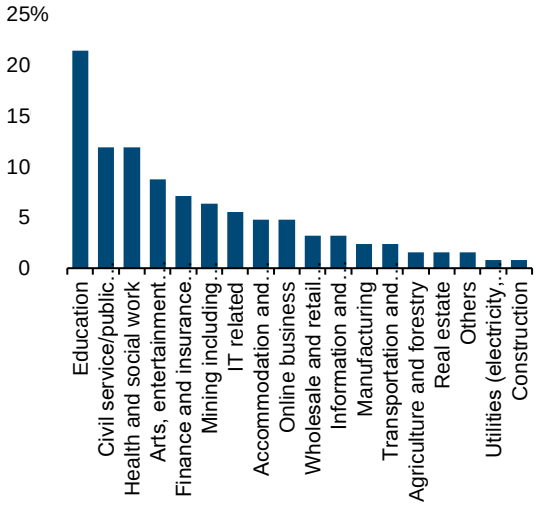


Figure 3.15: Preferred sector for youth whose parents work in fisheries and are not interested to work in fisheries



Source: SWTS (In-school youth)

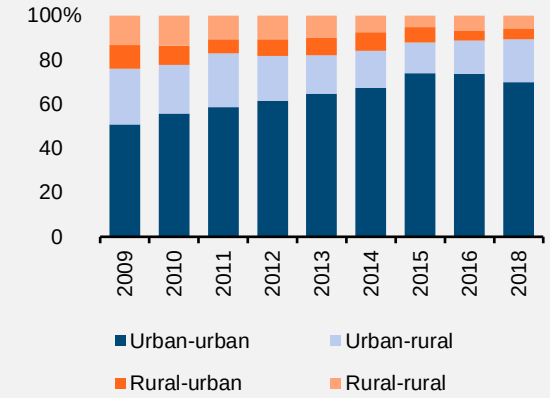
Box 3.2: Is rural-urban migration the main driver of agricultural labour diversion?

The flow of internal migration in Malaysia was mainly urban-urban, followed by urban-rural (urban to rural) (Figure 3.16). In 2018, urban-urban migration constituted 69.8% of internal migration, whereas urban-rural migration was 19.5%. The percentage of rural-urban and rural-rural migrations were relatively small, about five to six per cent (Figure 3.16). The three main reasons for internal migration in 2018 were to follow family (44.2%), for a career reason (24.3%), and for the environment (22.4%).

By age, migrants tend to be at a younger age. The internal migration among the 15 to 34 years of age group constituted about 60% in 2018. In 2012, the percentage was 78.3% (Figure 3.17). The internal migration among the so-called retiree group (> 45 years old) only made up 7.9%.

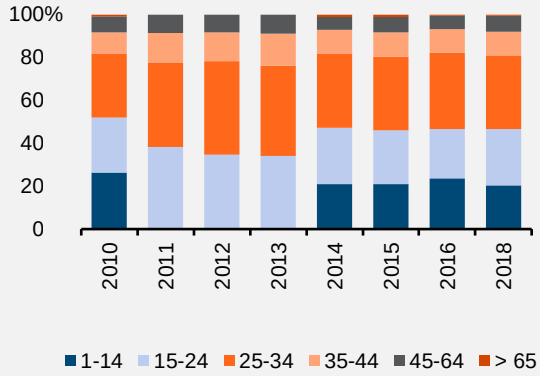
[21] Shahab et al. (2011) & Azman (2013)

Figure 3.16: Percentage distribution of internal migration by stratum, Malaysia, 2019-2018



Source: DOS (Various years-b)

Figure 3.17: Percentage distribution of internal migration by age group, Malaysia, 2019-2018



Source: DOS (Various years-b)
Note: Data for the year 2011 to 2013 does not provide information for ages between 1-14 and > 65 years of age

Insight drawn from Section 3.2 might make one wonder if youth from agricultural family find appeal in migrating to an urban area and this translates into their preference for non-agricultural jobs. If this is the case, the preference for non-agricultural jobs might also be tied to urban attractions that rural area might be lacking such as better amenities, infrastructure, entertainment and networking. In this paper, we could not ascertain if that is the case. However, the percentage of rural-urban migration has been declining by half from 10.6% in 2009 to 4.8% in 2018. On the other hand, the percentage of urban-rural migration has always been higher and from 2015 to 2018 has been increasing from 13.8% to 19.5%. Therefore, rural-urban migration may not be the main driver of agricultural employment diversion, at least for recent years. Further research would help better understand the impact of internal migration on agricultural labour.

3.3. Male youth are more interested in agriculture and fisheries

There is a gender dimension with regards to the interest of youth in agriculture and fisheries. Among youth who are interested in agriculture and fisheries, 57% and 65% respectively are male (Figure 3.18 & 3.19). This is consistent with the scenario in several other countries. For example, focus group discussions conducted in seven developing countries found that no young women cited agriculture-related occupations as their desired occupation[22]. A paper looking at the reallocation of labour from agriculture to manufacturing and services in Africa found that female share of agricultural labour fell more rapidly than its counterpart[23].

[22] Elias et al. (2018)
[23] McMillan and Harttgen (2014)

Figure 3.18: Gender composition of in-school youth who are interested in agriculture

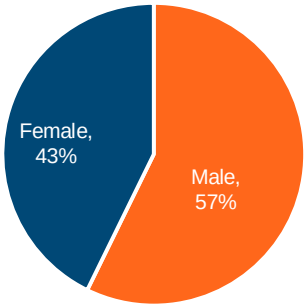
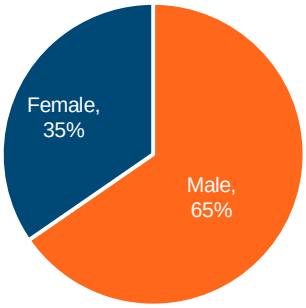


Figure 3.19: Gender composition of in-school youth who are interested in fisheries



Source: SWTS (In-school youth)

In 2018, there were only 22% of women working in agriculture in Malaysia[24]. There are several possible explanations as to why women are not interested in agriculture and fisheries. Almost all inheritance systems tend to put women at a disadvantage in terms of inheriting land[25], including the Islamic inheritance system. This may divert them from considering agriculture as a viable occupation. Perhaps because of this legal restraint too, women do not consider involvement in agriculture especially on land belonging to male members of the family as an occupation, rather as unpaid work, similar to care work. This is supported by the literature that highlights the undercounting of female labour in agricultural production especially in subsistence production, homestead production, and informal sector[26].

Moreover, female youth are more academically inclined compared to male youth. Based on the SWTS report, 70% of female students in school intend to further their studies, compared to 65% of male students. In contrast, 26% of the male in-school youth plan to look for a job or start their own business immediately after school, as opposed to only 22% of the female youth. However, as will be further discussed later in Section 4.2, a smaller percentage of in-school youth who want to work in agriculture and fisheries plan to further study compared to other sectors. This gap in aspiration may be the reason for low female youth's interest in agriculture and fisheries.

3.4. Most students who study agriculture are interested to work in the sector

Based on the survey, only 4% of youth in tertiary education institutions study agriculture[27]. Among those who study agriculture, 65% plan to work in agriculture or fisheries sector (Figure 3.20). This is consistent with the fact that 81% of youth who study agriculture chose the field of study themselves (Figure 3.21).

[24] DOS (2019c)
[25] Doss et al. (2018)
[26] Mazhar et al. (2017)
[27] Refers to agriculture-related courses including agricultural science, agricultural technology, veterinary science, aquaculture, livestock and animal husbandry, and forestry.

A larger percentage of youth who study agriculture but do not plan to work in the sector is female—22% compared to 13% male (Figure 3.20). This is consistent with the insight presented earlier in Section 3.3—female youth are less interested to work in agriculture or fisheries compared to male youth. Nevertheless, there is a larger share of female youth studying agriculture in tertiary education compared to male youth, indicating a clear mismatch.

Figure 3.20: Ideal sector of youth in tertiary education who study agriculture-related courses

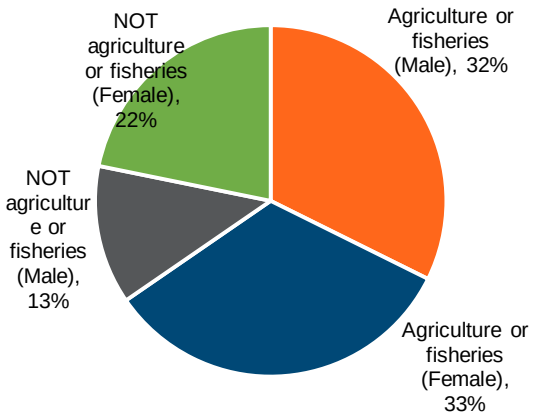
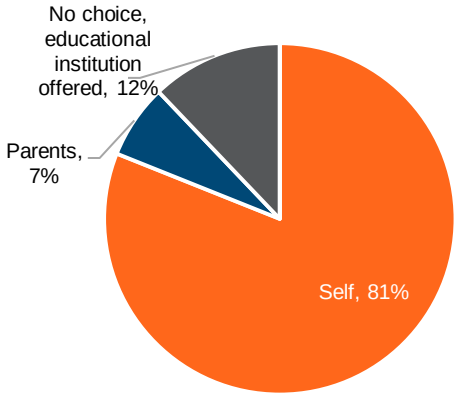


Figure 3.21: Who decided the field of study of youth who study agriculture



Source: SWTS (Youth in tertiary education institutions)

Only 21% of youth in tertiary education institutes who study agriculture have at least a parent working in agriculture or fisheries (Figure 3.22). Meanwhile, 93% of youth in tertiary education who have at least a parent working in agriculture or fisheries study a non-agriculture course (Figure 3.23). This reinforces our finding in Section 3.2 that youth who have parents in agriculture or fisheries are not interested to follow their parent's footstep.

Among youth in tertiary education with at least a parent working in agriculture or fisheries, 66% are female, yet, a smaller percentage of them study agriculture (Figure 3.23). This means that the diversion of educated youth from agricultural family away from agriculture largely comprises of female youth.

Figure 3.22: Parent's occupational sector of youth who study agriculture

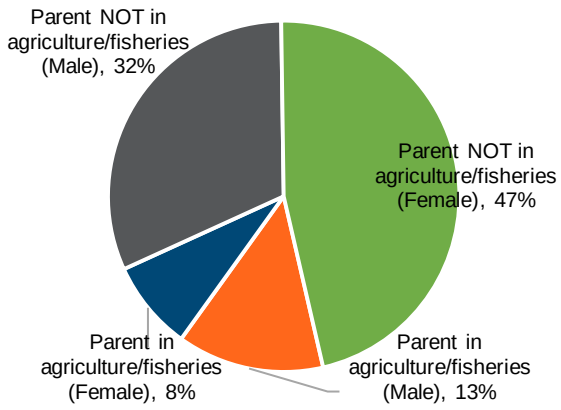
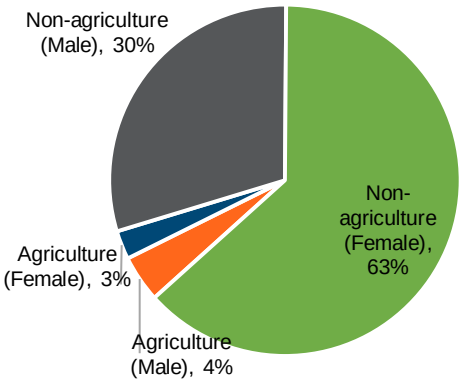


Figure 3.23: Field of study of youth with at least a parent in agriculture or fisheries



Source: SWTS (Youth in tertiary educational institutions)

Box 3.3: Agricultural courses and graduates in Malaysia

The number of graduates of agriculture courses from public and private universities, polytechnic, and community college (not including technical and vocational education and training (TVET) institutions) has been increasing over the years from 2,733 in 2012 to 5,033 in 2018 (Figure 3.24). In the past 5 years, the number of graduates in agriculture ranged from 4,000 to 5,000 a year. The share of graduates in agriculture over total graduates has also been increasing over the years, from 1.1% in 2012 to 1.7% in 2018 (Figure 3.25). As a comparison, the most popular course, business and management, constituted around 10% of the total graduates.

Table 3.1 presented the list of agriculture-related courses offered by public universities.

Figure 3.24: Number of graduates in agriculture, Malaysia, 2012 – 2018

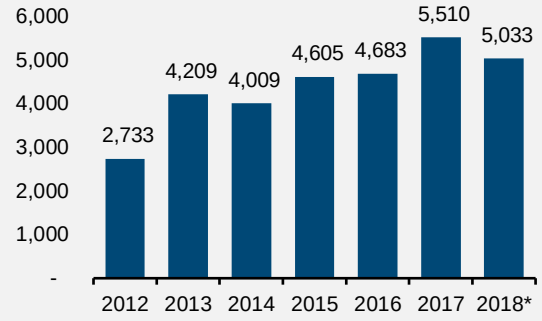
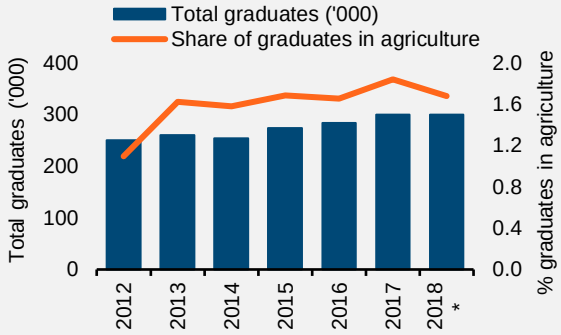


Figure 3.25: Total number of graduates and share of graduates in agriculture, 2012 – 2018



Source: MOE (Various years)
Note: *2018 data is presented differently from data in other years. Authors re-calculated.

Table 3.1: List of agriculture-related courses offered by Malaysian public universities

Public university & agriculture-related diploma and bachelor's degrees	
University of Malaya	**Universiti Putra Malaysia**
Bachelor of Science (Agricultural Biotechnology)	Bachelor of Engineering (Agricultural & Biosystem)
Bachelor of Applied Science (Agrotechnology)	Bachelor of Engineering (Biological & Agricultural)
Bachelor of Applied Science (Animal Husbandry Science)	Diploma in Agricultural Engineering
Universiti Malaysia Sabah	Diploma in Animal Health & Production
Bachelor of Agricultural Science (Crop Production)	Diploma in Food Estate Management
Bachelor of Agricultural Science (Horticulture & Landscaping)	Diploma in Forestry
Bachelor of Agricultural Science (Livestock Production)	Diploma in Fisheries
Bachelor of Forestry Science (Forest Plantation & Agroforestry)	Diploma in Agribusiness
Bachelor of Forestry Science (International Tropical Forestry)	Diploma in Agriculture
Bachelor of Forestry Science (Nature Parks & Recreation)	Bachelor of Education (Agricultural Science)
Bachelor of Forestry Science (Wood Fibre Technology & Industry)	Bachelor of Agriculture (Aquaculture)
Universiti Pendidikan Sultan Idris	Bachelor of Agriculture (Animal Science)
Bachelor of Education (Agricultural Science)	Bachelor of Science (Agribusiness)
Universiti Sultan Zainal Abidin	Bachelor of Bioindustrial Science
Bachelor of Animal Production & Health	Bachelor of Horticultural Science
Bachelor of Agricultural Biotechnology	Bachelor of Forestry Science
Universiti Malaysia Terengganu	Bachelor of Agricultural Science
Diploma in Fisheries	Bachelor of Wood Science Technology
Bachelor of Applied Science (Fisheries)	**Universiti Malaysia Pahang**
Bachelor of Science in Agrotechnology (Aquaculture)	Diploma in Fisheries
Bachelor of Science in Agrotechnology (Crop Science)	Bachelor of Applied Science (Fisheries)
Bachelor of Science in Agrotechnology (Post Harvest Technology)	

Source: MQA (n.d.). Last updated 6 April 2020

Box 3.4: The National Agricultural Training Programme

There are more than 1,000 Technical and Vocational Education and Training (TVET) institutions in Malaysia, 55% of which are public sector institutes[28] under the purview of eight different ministries[29]. Post-secondary level TVET programmes for agriculture is under the purview of the Ministry of Agriculture and Food Industry (MOA). The programme, known as the National Agricultural Training Programme (*Latihan Kemahiran Pertanian Kebangsaan*) aims at providing a new training path for skilled workers in the agriculture sector. There are nine agriculture-related areas offered in this programme, namely (i) plantation, (ii) rice production, (iii) ruminant livestock, (iv) poultry livestock (v) marine aquaculture, (vi) freshwater aquaculture, (vii) fish capture technology, (viii) food processing, and (ix) marketing. Students could either earn a certificate or a diploma (Malaysia Skills Certificate or Diploma in Skills Malaysia). Kolej Pertanian Bukit Tangga was the first TVET institution under the MOA, established in 2004. To date, there are 15 colleges and institutions that offer agriculture TVET programmes.

Source: MOA (n.d.) & UNESCO (2019)

[28] Does not include TVET institutions under the purview of state governments.

[29] The ministries are the Ministry of Human Resources (MOHR), Ministry of Youth and Sports (MOYS), Ministry of Rural Development (MORD), Ministry of Education (MOE), Ministry of Higher Education (MOHE), Ministry of Agriculture and Food Industry (MOA), Ministry of Women, Family, and Community Development (KPWKM) and the Ministry of Defence (MOD).

4. What are the aspirations of youth who want to work in agriculture?

4.1. Youth interested in agriculture or fisheries have a low reservation wage

Reservation wage is "the wage below which youth would refuse a job offer"[30]. In-school youth who expressed interest to work in agriculture and fisheries have the lowest and the third-lowest reservation wage respectively, compared to those who prefer to work in other sectors (Figure 4.1).

Similarly, youth in tertiary education who want to work in agriculture have the lowest reservation wage (Figure 4.2). However, rather surprisingly, youth in tertiary education who want to work in fisheries have the second-highest reservation wage (Figure 4.2). Nevertheless, we shall not pay too much attention to the reservation wage of students in tertiary education since the difference between the sector with the highest and the lowest reservation wage is only RM643. This may indicate that youth in tertiary education, regardless of the sector that they are interested in, have a rather similar reservation wage level[31].

Figure 4.1: Average reservation wage of in-school youth based on their ideal sector to work in

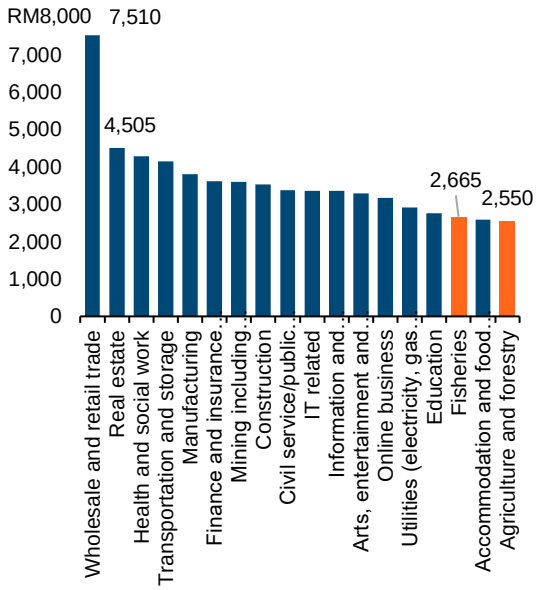
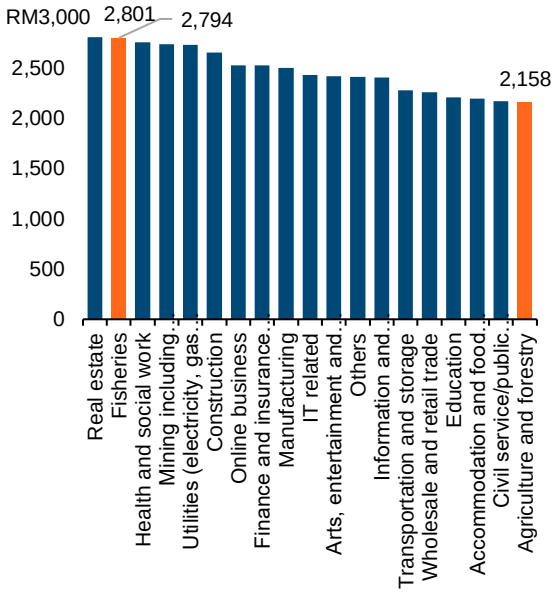


Figure 4.2: Average reservation wage of youth in tertiary education based on their ideal sector to work in



Source: SWTS (In-school youth & youth in tertiary educational institutions)

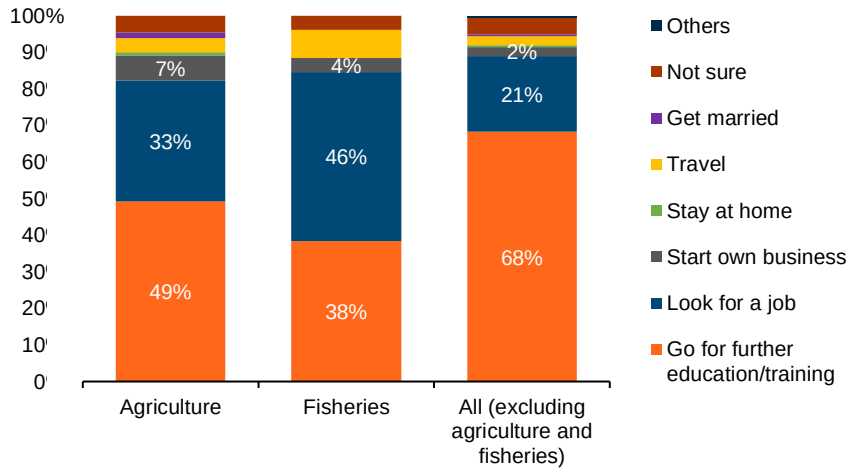
[30] Khazanah Research Institute (2018)

[31] On a side note, observe the adjustment of the reservation wage of youth in tertiary education, which are lower than the reservation wage of in-school youth (granted, however, that the sample groups are different).

4.2. Less than half of the youth who are interested to work in agriculture or fisheries plan to further study

Only 49% and 38% of in-school youth who want to work in agriculture and fisheries respectively, plan to pursue further education (Figure 4.3). This is significantly lower than youth who want to work in other sectors (68%). On the other hand, 33% and 46% of in-school youth who are interested in agriculture and fisheries respectively, plan to look for a job immediately after they finish school compared to only 21% of those interested to work in other sectors. Moreover, more than triple percentage points of in-school youth who want to work in agriculture plan to start their own business immediately after school.

Figure 4.3: After-school plan of in-school youth based on ideal sector



Source: SWTS (In-school youth)

The reservation wage is most likely related to the after-school plan of youth. Youth who plan to further study would expect that their wage would reflect their higher level of education. Likewise, youth may devise their after-school plan based on their wage ambition[32]. This could provide a possible explanation as to why in-school youth who want to work in agriculture and fisheries have lower reservation wage since a larger proportion of them do not plan to further study.

It is important to mention here, as pointed by Sumberg et al. (2015), rural youth's aspirational deficit in terms of continuing education does not emerge in isolation, rather, it is the result of youth's responses to their environment. Features inherent in rural areas, such as poorer school quality, limited role models and social networks restraint the 'aspirational mobility' of rural youth. In addition, social norms and pressures in rural areas may reinforce the traditional ways of living, further limiting youth's aspirations.

[32] It is beyond the scope of this paper to ascertain the direction of causality (if there is) between after-school plan and reservation wage.

4.3. Youth who are interested in agriculture and fisheries want to run business

More youth in school and tertiary education who are interested to work in agriculture and fisheries want to have their own business compared to those who are interested in other sectors. This preference is more prevalent among youth in tertiary education.

Around a quarter of in-school youth who are interested to work in agriculture or fisheries want to run their own business compared to only 15% among those who want to work in other sectors (Figure 4.4). Similarly, 40% and 28% of youth in tertiary education who want to work in agriculture and fisheries respectively, want to run their own business compared to only 22% among those who want to work in other sectors (Figure 4.5). This, together with insight from Section 4.2 indicates that youth who are interested in agriculture and fisheries are more entrepreneurially inclined.

Figure 4.4: Ideal type of work for in-school youth

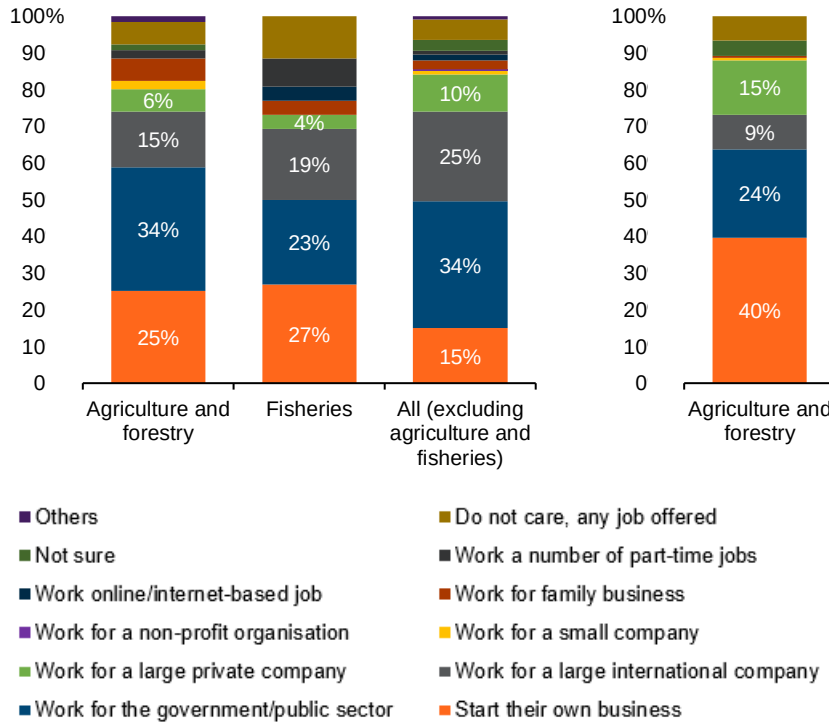
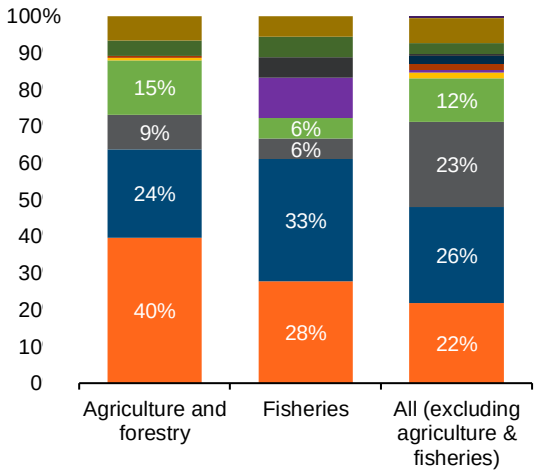


Figure 4.5: Ideal type of work for youth in tertiary education



Source: SWTS (In-school youth & youth in tertiary educational institutions)

Box 4.1: Government's initiatives for young agropreneurs

In the latest policy document of the Ministry of Agriculture and Food Industry[33] (MOA), *Hala Tuju Kementerian Pertanian dan Industri Asas Tani: Prioriti dan Strategi* 2019 – 2020, the ministry underlined several initiatives to nurture young entrepreneurs in agriculture (agropreneurs). One of them is to establish National Young Agropreneur Council that would carry out activities such as forums and training involving students in higher education institutes. The ministry also provides in-kind grants up to RM20 thousand along with technical advice assistance for young agropreneurs to develop agricultural projects.

Source: MOA (2019)

Part B: Young workers

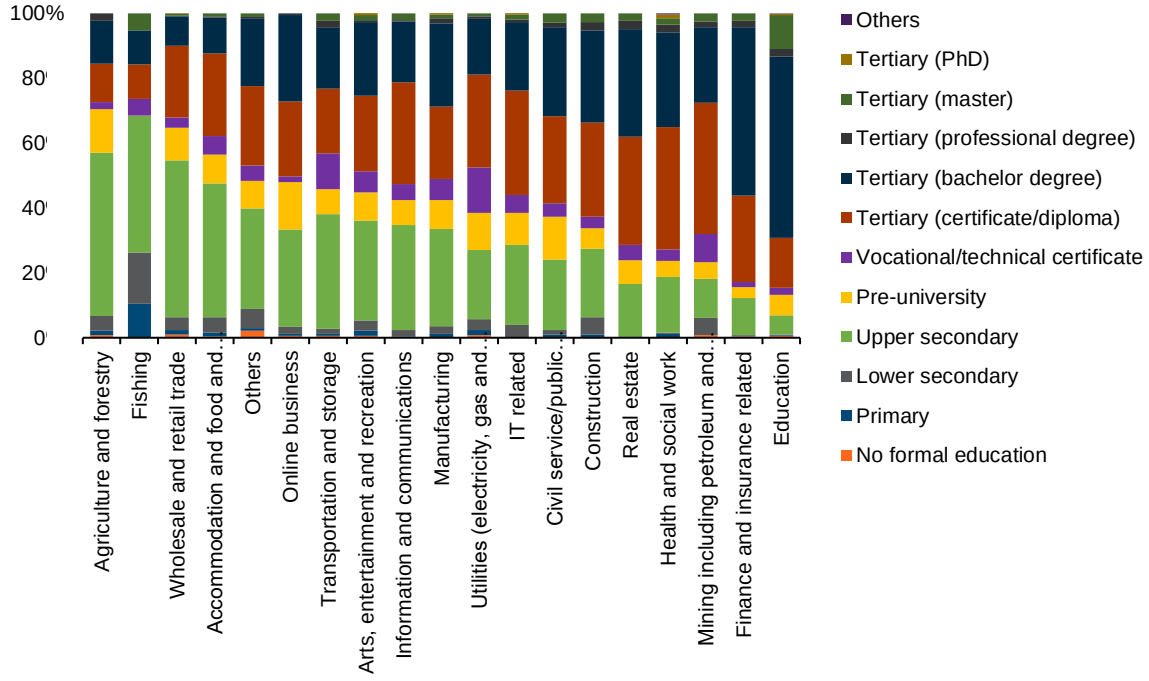
5. What is the profile of young workers in agriculture?

5.1. Less than half of young workers in agriculture are tertiary educated

70% and 68% of youth working in agriculture and fisheries do not have either vocational training or tertiary education (Figure 5.1). In contrast, only around 43% of youth working in sectors other than agriculture or fisheries do not have either vocational training or tertiary education. This finding is line with the finding in Section 4.2 that a smaller percentage of in-school youth who want to work in agriculture or fisheries plan to further their study compared to those who want to work in other sectors. In addition, literature, for example as reviewed by Thebe (2018), point out that educated youth tend to aspire for 'high status' occupations instead of agriculture.

[33] Formerly Ministry of Agriculture and Agro-based Industry

Figure 5.1: Level of education of young workers by sector



Source: SWTS (Young workers)

5.2. Most young workers who studied agriculture do not work in agriculture or fisheries

Overwhelming 83% of young workers who received either vocational training or tertiary education in agriculture[34] do not end up working in agriculture or fisheries sector, 51% are female[35] (Figure 5.2). This indicates a clear mismatch—although there are less vocational-trained and tertiary-educated young workers in agriculture, a large percentage of those who studied agriculture do not work in agriculture or fisheries.

This mismatch could be the result of various factors. First, there could be a gender dimension at play. As shown earlier in Section 3.3 and 3.4, female youth are less interested to work in agriculture or fisheries but a larger percentage of youth who study agriculture are female. Second, the wage level in the agriculture and fisheries sector may not match the reservation wage of tertiary-educated youth and lead them to work in other sectors (Box 5.1 & Section 5.3). Third, the agriculture and fisheries sectors in Malaysia are still labour-intensive[36] and may not value

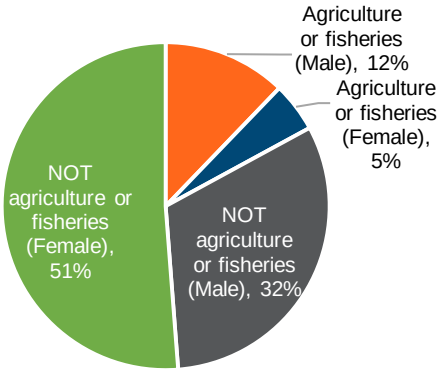
[34] Refers to agriculture-related courses including agricultural science, agricultural technology, veterinary science, aquaculture, livestock and animal husbandry, and forestry.

[35] Note that SWTS data based on young workers are not nationally representative and the sample is biased to female (60.2%). However, this does not change the narrative of the finding here—overwhelming 91% of female young workers out of the total female young workers who studied agriculture do not work in the sector.

[36] As shown by the labour productivity gap between agriculture and manufacturing and services (Box 1.1)

education as much as the ability and experience of manual labour, hence, there are fewer job opportunities for graduates. Hurd and Johnson (1967) note that there is evidence that education cannot initiate changes in the occupational sphere, and this may result in 'education devaluation' where education has little or no value in providing employment.

Figure 5.2: Occupational sector of young workers who studied agriculture



Source: SWTS (Young workers)

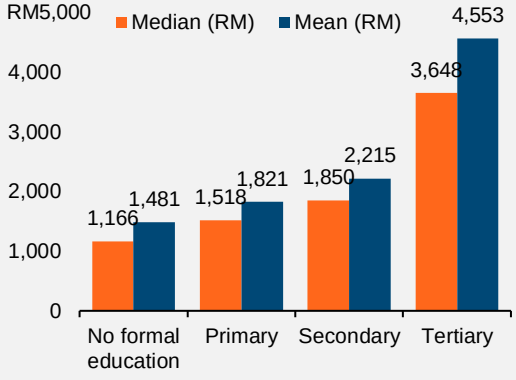
If we assume 80% of 5,033 graduates of agriculture courses (Box 3.3) do not end up working in agriculture or fisheries, there are approximately 4,026 educated labour dispossessed from these sectors, and most of them are female. Note that the figures in Box 3.3 do not include graduates from technical and vocational education and training (TVET) institutes. If the number of TVET graduates are considered, the loss of educated labour from agriculture sector could be larger.

Box 5.1: Wage based on education attainment

The monthly median and mean wage of workers with tertiary education in 2018 was RM3,648 and RM4,553 respectively.

On the other hand, the monthly median and average wage of workers in agriculture, forestry and fisheries sector were RM1,392 and RM1,865 respectively (Box 5.2). These are close to the median and mean wage of workers with primary education and around a third of the median and mean wage of workers with tertiary education.

Figure 5.3: Median and mean wage based on education attainment, 2018

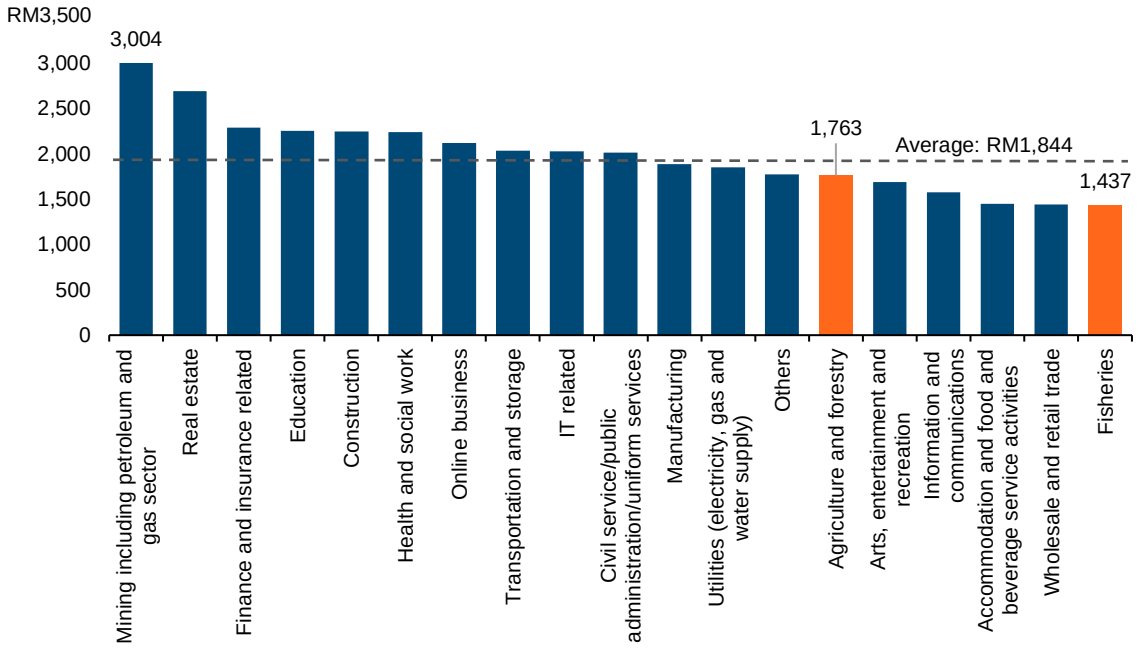


Source: DOS (2019e)

5.3. Young workers in agriculture and fisheries earn less than many other sectors

Similar to the average reservation wage of youth who want to work in agriculture and fisheries, the average wage of young workers in both sectors are among the lowest (Figure 5.4). Young workers in fisheries and agriculture received on average RM1,437 and RM1,763 respectively, which is below the average wage of RM1,844 of young workers.

Figure 5.4: Average monthly wage of young workers by sector



Source: SWTS (Young workers)

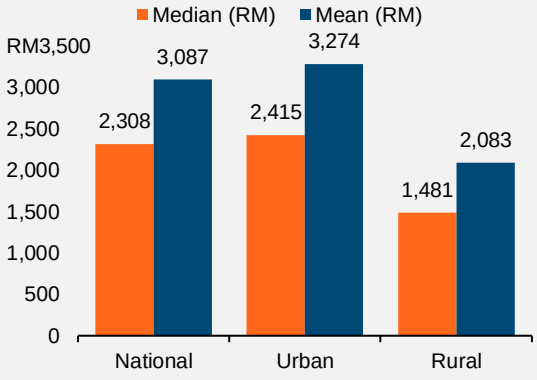
Box 5.2: Wage across strata and sectors in Malaysia

In 2018, the monthly median and mean wage of workers in Malaysia was RM2,308 and RM3,087 respectively (Figure 5.5).

Based on sector, the agriculture, forestry and fishing industry registered the lowest figure for both median and mean wages—RM1,392 and RM1,865 respectively (Figure 5.6). These figures are not only below the national median and mean but also the rural median and mean.

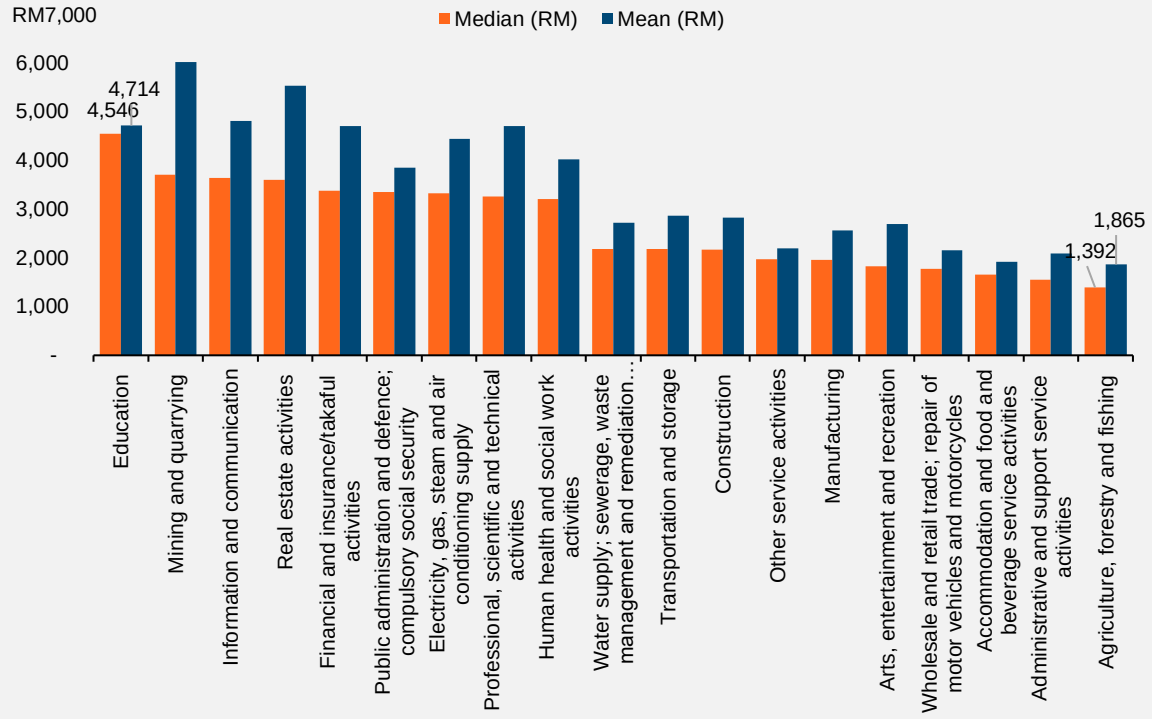
The mean wage of the highest paying sector, which is education, is 2.5 times more than the mean wage in agriculture, forestry and fishing.

Figure 5.5: Monthly median and mean wage by stratum (RM), Malaysia, 2018



Source: DOS (2019e)

Figure 5.6: Median and mean wage by industry (RM), Malaysia, 2018



Source: DOS (2019e)

5.4. Agriculture is not the ideal sector for most young workers working in the sector

More than half of the young workers who work in agriculture and fisheries sectors do not consider those sectors as their ideal sector (Figure 5.7 & 5.8). This could mean that these workers may be on the lookout for opportunities in other sectors or it may translate into less than optimum productivity or innovation assuming that these workers may not be fully passionate in their work.

Figure 5.7: Ideal sector of young workers working in agriculture

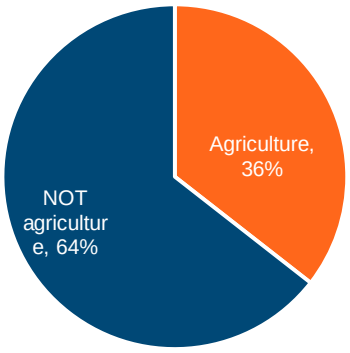
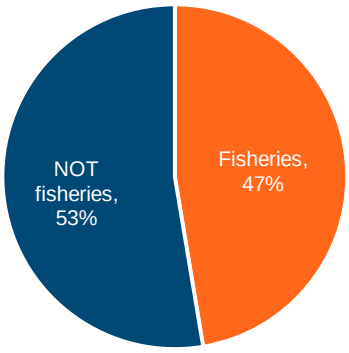


Figure 5.8: Ideal sector of young workers working in fisheries



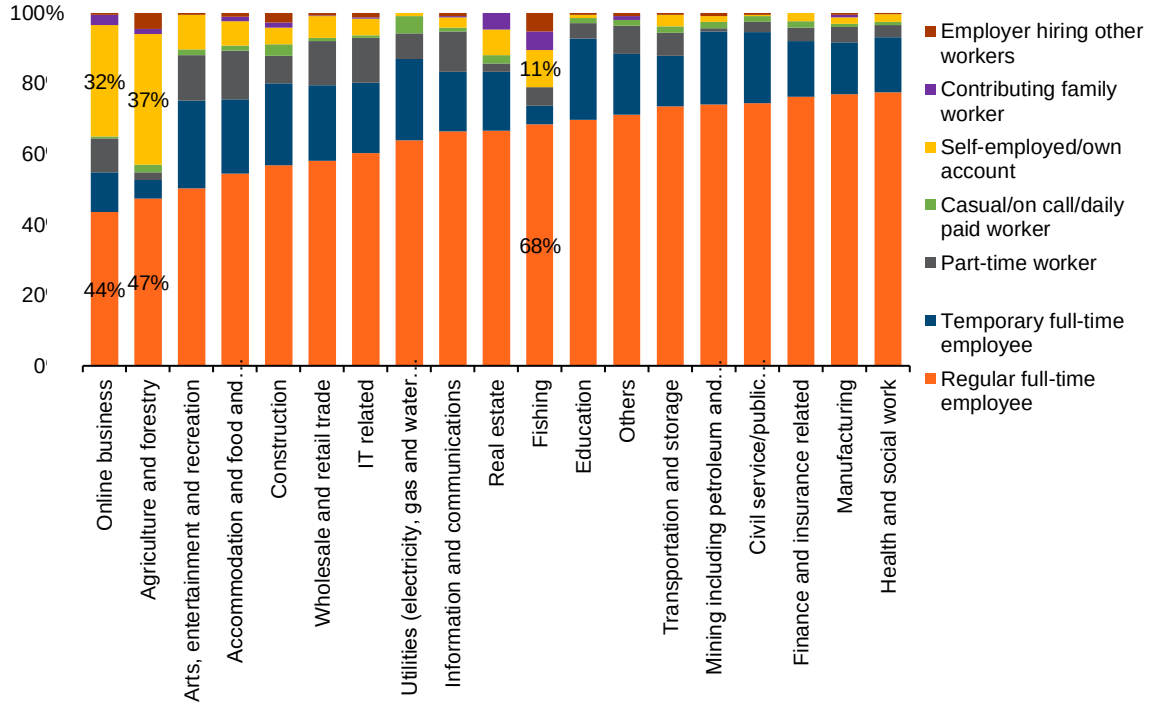
Source: SWTS (Young workers)

5.5. Many young workers in agriculture and fisheries are self-employed

Agriculture has the largest share of self-employed young workers (37%), while fisheries have the third largest (11%) after online business (32%) (Figure 5.9). This is consistent with the preference of youth in school and tertiary education as described in Section 4.3.

Less than half of young workers in agriculture are regular full-time employees. Fisheries have the largest percentage of contributing family worker (5%). See Box 5.3 for an auxiliary discussion on self-employed and unpaid family workers in agriculture.

Figure 5.9: Employment status of young workers by sector

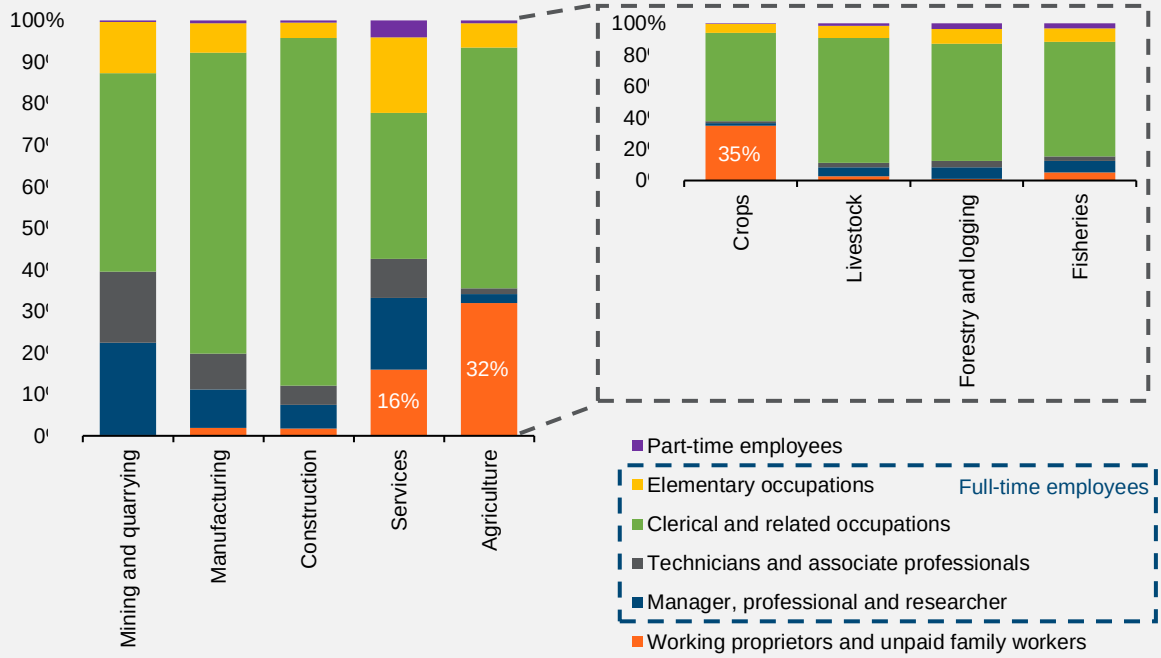


Source: SWTS (Young workers)

Box 5.3: Self-employed and unpaid family workers

Across the five major sectors, agriculture has the largest proportion of working proprietors (self-employed) and unpaid family workers (32%), double the percentage points of the services sector (16%). It is worth highlighting that the agriculture sector has the lowest proportions of manager, professional and researcher, and technicians and associate professionals compared to other sectors. Within the agriculture sector, the crops sub-sector by far has the highest percentage of working proprietors and unpaid family workers (35%).

Figure 5.10: Employment by kind of economic activity and employee categories, 2017



Source: DOS (2019a)

6. Discussion and policy considerations

Loss of labour from agricultural families

An overwhelming percentage of in-school youth whose parents work in agriculture do not want to work in those sectors (Section 3.2). In fact, the majority of youth from agricultural family pursue non-agriculture education (Section 3.4). This implies a loss of potential agricultural labour who grew up with some exposure, and perhaps experience and skills, in agriculture. The hope for social mobility may be one of the reasons that drive these youth out of agriculture.

On the bright side, a large percentage of youth who are interested in agriculture comes from non-agricultural family and from states with large agricultural employment. These states may already have the infrastructure and market that presents opportunities for involvement in these sectors.

Policy considerations:

- A greater incentive should be offered to youth who come from agricultural family to continue agriculture, such as by providing special scholarships or allocating quota for them to pursue education in agriculture-related courses. These students may also be given privileges for job placements in agricultural agencies and quasi-government entities upon meeting certain requirements.

- In addition, efforts by the federal and state governments to persuade youth to join agriculture should target youth in states with a significant agricultural economy.

Loss of educated female labour

Female youth are less interested to work in agriculture (Section 3.3 and 3.4). In fact, more than 90% of the young female workers who studied agriculture do not work in the agriculture sector (Section 5.2). There could be various reasons for this. First, the normative proportion of educated labour in agriculture is smaller compared to other sectors, whereas, female youth are generally more academically inclined. Besides, the average wage in the agriculture sector is also low compared to the average wage of tertiary-educated workers. Second, women may face hurdles in gaining access to land[37], one of the main factors of agricultural production. Third, when women carry out an agricultural activity, they may not consider it as an economic activity especially when it is homestead-based. Instead, they may consider it as 'helping the husband or other male family member'. This is evident in the undercounting of female labour in agriculture. From above, two inter-related issues need to be addressed—education and gender in agriculture.

[37] Problems in getting access to land is not only a women's issue, but also a youth's issue in general as highlighted by Berckmoes and White (2016). For example, the control of family land may only be released from the older generation to youth after the former passed away.

Policy considerations:

- The agriculture sector in Malaysia needs to evolve into an advanced sector, both in terms of hard technology adoption and innovation in processes, to accelerate its productivity. This would require a knowledgeable and innovative workforce. Education may help produce this type of workforce. However, by acknowledging the current education-labour mismatch, perhaps formal agricultural education as to how it is offered in universities and colleges now needs to be rethought. A reassessment of agricultural education is needed to ensure its practicality in the real world while continue providing theoretical knowledge that paves the way for new breakthroughs. It should also cater to different capabilities of youth. Skills-based agricultural training (see Box 3.4) could be a medium to educate youth who are not very academically inclined.

- Structural change in agriculture of which promotive work—work that allows real incomes and capabilities to be enhanced and for capital to be accumulated—becomes the norm is necessary to attract youth into agriculture[38]. Related issues with regards to low remuneration and the over-reliance of manual labour work in the sector need to be tackled. This involves forcing players in the sector to innovate and adopt advanced technology[39] and addressing bottlenecks along the agricultural supply chain (such as price distortions). The government should also give more attention to agricultural research and development. Nevertheless, modernization in agriculture, albeit necessary, do not automatically attract youth into the sector[40]. Other context-specific issues, such as access and return to assets (land, capital, etc.), need to be addressed as well.

- Policy to encourage youth participation in agriculture should also be gender-sensitive. Similar to many programs that aim to inspire women to join science, technology and mathematics (STEM) field, programs could be carried out in schools and universities targeting women to spur interest in agriculture. Legal matters and cultural norms with regard to women's access to land should also be given attention.

Agricultural entrepreneurship

Youth who are interested in agriculture are more entrepreneurially inclined. Based on the SWTS data, young workers in agriculture has the highest percentage of self-employment. The government recognised this and has carried out several initiatives to support young agropreneurs. In fact, a former agricultural minister at one point introduced the slogan 'Agriculture is business' (*Pertanian adalah perniagaan*).

[38] Sumberg et al. (2015)

[39] The availability of cheap foreign labour may disincentivize agriculture from adopting technology. Based on the Labour Force Survey 2018, the proportion of foreign workers in agriculture is more than 30%, the highest compared to other sectors, DOS (2019c).

[40] Sumberg et al. (2015)

However, it is important to not confuse self-employment and petty enterprise in the informal sector as entrepreneurship that is considered promotive work[41]. The precarity and low profitability of self-employment in agriculture may drive even the entrepreneurially inclined youth away from agriculture.

Almost 90% of agricultural establishments are small and medium enterprises (SMEs)[42]. About 40% are micro-enterprises. In addition, a study by Nur Thuraya Sazali and Siti Aiysyah Tumin (2020) highlights that a large proportion of agricultural workers are non-standard workers, which means they do not have standard employment arrangements, hence are not covered under most social protections. Even if they are self-employed, they are not formally registered.

Policy considerations:

- Protection for self-employed workers (e.g. self-employment insurance) and small agribusinesses (e.g. farm insurance) should be strengthened and expanded to encourage more participation in agriculture for two reasons. First, as shown earlier, youth, including from agricultural family, are interested to work in education, public sector and health sector. Employment in these sectors is deemed secure with ample social protection. While entrepreneurship is naturally riskier, one would be more willing to take the risk knowing that there is some extent of protection in the event that one's business goes south. Second, youth who are already running an agricultural business should be helped from escaping agriculture when facing difficulty[43].

- Agricultural education should also emphasise agribusiness knowledge and management skills. Youth should not only learn the sciences of agriculture but also how to manage finances, monitor commodity markets, build stakeholders' relationships and do marketing. These skills are better learned through hands-on training such as through a structured internship. Besides, the government should also consider developing non-formal education programmes such as apprenticeship-based learning arrangements (see for example Australian Apprenticeships programme that covers various industries including agriculture)[44].

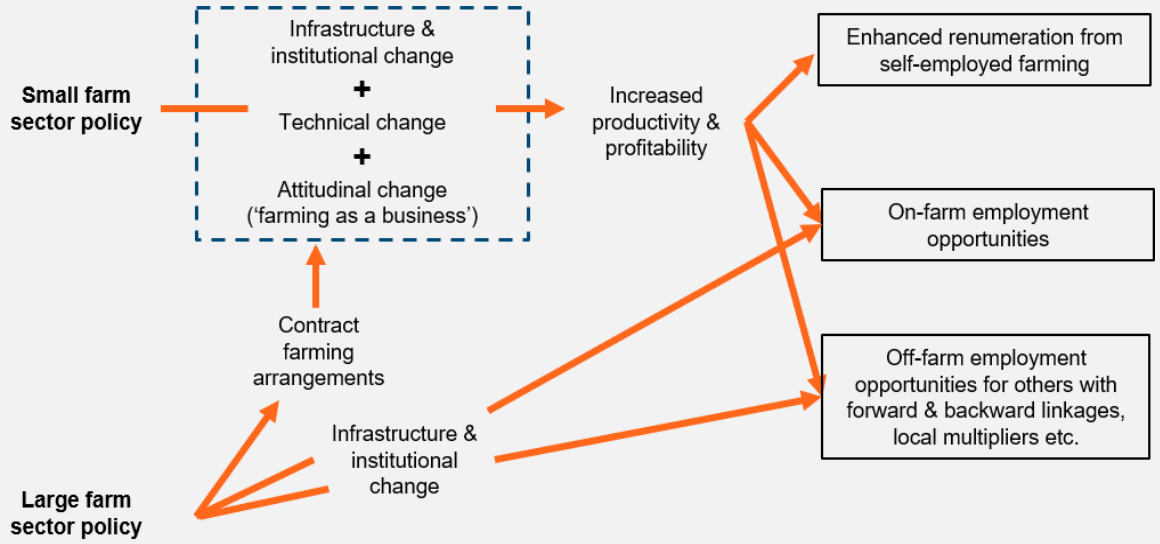
[41] Ibid. As defined previously, promotive work is work that allows real incomes and capabilities to be enhanced and for capital to be accumulated.
[42] DOS (2017a). The ten per cent large agricultural establishment is likely involved in the industrial cash crops industry, such as oil palm and rubber.
[43] See Section 5.4 that shows young workers who are already working in agriculture but consider the sector as not their ideal sector
[44] Australian Government (2019)

Box 6.1: Agricultural policy and employment

There are three means of employment in agriculture as summarised by Sumberg et al. (2015), namely, self-employment in the small farm sector, on-farm employment, and agriculture-related off-farm employment (Figure 6.1). Policy to attract youth into agriculture needs to be cognizant of the interplay of the larger economic and social processes and local factors that mediates the dynamics of change in the agriculture sector and how it affects youth[45].

The efficacy of small farm sector policy in increasing the productivity and profitability of smallholder agriculture through infrastructure and institutional change, technical change, and attitudinal change could increase quality employment in the agriculture sector. Meanwhile, good large farm sector policy not only could directly provide quality on-farm and off-farm employments but could also strengthen smallholder agriculture through contract farming arrangements. Well-developed forward and backward linkages of the primary production sector could offer more off-farm employment opportunities.

Figure 6.1: Agricultural policy and employment framework



Source: Sumberg et al. (2015)

[45] Sumberg et al. (2015)

7. Concluding remarks

The agriculture and fisheries sectors are run by an ageing workforce. More youth is needed to join these sectors to ensure their sustainability and improve their productivity. However, youth are not interested to join these sectors.

Policy to encourage more youth participation in agriculture and fisheries should look into, among others, factors that drive youth from agricultural-family away from these sectors, the gender dimension in agriculture and fisheries, and mitigating the risks faced by agricultural entrepreneurs. There are also several aspects that should be researched further to better understand factors that may dissuade youth from joining agriculture and fisheries such as remuneration and job security.

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