

# RELATIONSHIP BETWEEN HOUSEHOLD FINANCIAL WELLBEING AND SEX OF AGRIPRENEUR ALONG FOOD SECURITY VALUE CHAIN FOR POVERTY ERADICATION IN MALAYSIA

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## Abstract

This paper aims to identify the relationship between household financial wellbeing (HFW) and sex of agriculture entrepreneurs (agripreneur) in agriculture economic sector (AES) in Malaysia. This paper is a compilation of three small studies conducted in 3-AES – Pontian, Johor among female respondents in fisheries and aquaculture community; Cameron Highland, Pahang among male tomato farmers; and Kuala Selangor, Selangor among male and female food and beverage micro entrepreneur. This paper focused to 3-AES for poverty eradication. In each AES, the respondents had been sampled according to the population advised by Department of Fisheries, Department of Agriculture and District Office. A special developed questionnaire was distributed to the respondents through self-administered procedure. The Malaysian Household Financial Wellbeing Scale was used to measure HFW. The Chi-square test and descriptive statistics present the findings. There were 213 respondents (53.5% male and 46.5% female respondents) participated in this 3-study. There were 34.28 percent, 32.86 percent and 32.86 percent of respondents in tomato farming, MiSFi and FoBME respectively. Female HWB mean score=68.69 (SD=12.14) is higher than male respondents HWB mean score=61.25 (SD=11.33). The highest mean score=72.2 (SD=11.43) was women MiSFi, then followed by tomato farmers with mean score=61.96 (SD=10.96) and among FoBMEs score the lowest mean=60.09 (SD=10.93). The Chi-square test for Ho obtained significant relationship between HFW, sex and AES. Women in FAC scored the highest HFW and men in FoBMe scored the lowest HFW score. There are three conclusions for this paper. First, the higher the age of women in AES, the higher their HFW. This reflects to the responsible husbands of the women in AES whom are contributing in HFW. Second, among agripreneurs age may be a significant indicator of HFW. Third, HFW, sex and AES had significant relationship in this paper. Thus, policy and programs have to take into consideration of gender, age and AES in promoting the wellbeing of agripreneur households.

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Keywords: Agripreneur; Food security; Household financial wellbeing; Poverty eradication; Value chain

## **Abstrak**

*Kertas ini bertujuan untuk mengenal pasti hubungan antara kesejahteraan kewangan isi rumah (HFW) dan jantina usahawan pertanian (agripreneur) dalam sektor ekonomi pertanian di Malaysia. Kertas ini merupakan kompilasi tiga buah kajian kecil di dalam sektor ekonomi pertanian (AES) di - Pontian, Johor dalam kalangan responden perempuan masyarakat nelayan dan akuakultur (FAC); Cameron Highland, Pahang dalam kalangan petani tomato lelaki; dan Kuala Selangor dalam kalangan usahawan mikro makanan dan minuman (FoBME) lelaki dan perempuan. Kertas ini memfokuskan kepada 3-AES untuk pembasmian kemiskinan. Dalam setiap AES, responden disampel berdasarkan populasi yang dinasihatkan oleh Jabatan Perikanan, Jabatan Pertanian dan Pejabat Daerah. Sa set soal selidik yang dibangunkan khusus telah diedarkan kepada responden melalui prosedur tadbir urus sendiri. Skala Kesejahteraan Kewangan Isi Rumah Malaysia telah diguna untuk mengukur HFW. Ujian Chi-Square dan statistik deskriptif digunakan dalam membentangkan dapatan. Terdapat 213 responden (53.5% lelaki dan 46.5% perempuan) telah mengambil bahagian dalam 3-kajian ini. Terdapat 34.28 peratus, 32.86 peratus dan 32.86 peratus responden terlibat dalam penanaman tomato, MiSFi dan FoBME masing-masing. Skor purata HFW perempuan=68.69 (SD=12.14) adalah lebih tinggi daripada skor purata HFW lelaki=61.25 (SD=11.33). Skor purata HFW tertinggi=72.2 (SD=11.43) adalah perempuan MiSFi, kemudian diikuti oleh petani tomato dengan skor purata=61.96 (10.96); dan dalam kalangan FoBMEs skor purata adalah terendah=60.09 (SD=10.93). Ujian Chi-square untuk Ho mendapati hubungan yang signifikan ( $p < 0.05$ ) antara HFW, sex dan AES. Wanita MiSFi mendapat HFW tertinggi dan lelaki dalam FoBME mendapat HFW terendah. Ada tiga kesimpulan dalam kertas ini. Pertama semakin tinggi usia wanita dalam AES. Semakin tinggi HFW mereka. Hal ini juga menunjukkan bahawa suami wanita dalam AES adalah bertanggungjawab dalam menyumbang kepada HFW. Kedua, usia agripreneur mungkin indikator signifikan untuk HFW. Ketiga HFW, sex dan AES mempunyai hubungan signifikan dalam kertas ini. Oleh itu, polisi dan program perlu ambil kira gender, sex dan AES dalam meningkatkan kesejahteraan isi rumah agripreneur.*

*Kata kunci: Usahawan tani; Jaminan makanan; Kesejahteraan kewangan isi rumah; Pembasmian kemiskinan; Rangkaian nilai*

## **Introduction**

Malaysia is a multi-ethnic country with about 32.4 million populations (Department of Statistic Malaysia, 2018). Malaysia can be seen as having a good economic growth; however, there are pockets of poverty and people who are still struggling to combat

this poverty (Hatta & Ali, 2013). According to Deepa et al. (2000) poverty is a situation where households or individuals possess not enough resources or disabilities to meet their current needs on basic consumption such as food, clothes, shelter and education; and hard to sustain life (Sverdberg, 2008). The poverty may lead to malnutrition, high health risk, lack of education opportunities and high safety risk in the community (Wilkinson & Marmot, 2003). Poverty also had been associated with social and psychological consequences such as domestic violence, crime, perceived inadequacy of social investments and low quality of human capital (Rylko-Bauer & Farmer, 2016).

The food security value chain (FoSVaC) means the value adding enterprises to food-based products from raw material to final consumer or industrial products (Hawkes & Ruel 2012). In regards of fisheries AES for example, the value chain starts from producing and selling raw fish to final fish-based processed food products such as fish ball, dried fish and fish meat for *Keropok Lekor* Industry. These value chains support national food security in regards of protein supply to the community. Along these value chains are involvement of poor household members, as agropreneurs. For example, entrepreneurs at the roadside selling *Keropok Lekor*. The enterprises along FoSVaC can be used to combat poverty because food is the first physiological needs. In addition, processed food enterprises are easy to venture because cooking skill is an indigenous knowledge of many people. In a long run it may turn to entrepreneurship activities which also can contribute significantly to national economic development (Musona, 2014; Zumilah, 2010).

There is a gender gap in income distributions (Economic Planning Unit, 2015) in Malaysia. Women are poorer than men especially in rural area (DOSM, 2017; World Economic Forum, 2015; Burda & Hamermesh 2010). Gender equity should be taken seriously in order for Malaysia to achieve Sustainable Development Goal 5 (SDG-5) in year 2030 (Northrop, 2016). There are many households especially in rural areas suffering of poverty (Department of Statistics Malaysia, 2017). Fisheries and farming are agriculture economic sectors (AES) which are associated with rural areas (Belton, 2014) and these communities are usually poor. Women in fisheries and aquaculture community (FAC) are always associated with low academic background and poor (Hussin, Kunjuraman, & Weirowski, 2015; Sultana, 2006). Low academic background is another indicator of poverty besides of staying at rural areas. Men are running a business as primary and women as secondary source of their household income, thus this may cause women to have less focus in their businesses than men; in addition to their low academic background (Sultana, 2006) and gender roles. In the long run, men will be more economically empowered than women; proved by Zumilah (2010) because they developed and scaled up their women micro enterprises.

There is a relationship between poverty and food insecurity (Olufayo, 2012). Poverty may cause the poor to not be able to buy sufficient food for their family consumption

(food insecurity). Therefore, many poor people earn income along the FoSVaC as agripreneur which is a concept to represent micro scale farmers, fishermen, micro enterprises related to agriculture such as food-based micro entrepreneur (FoBME) (Kahan, 2012) in AES. The agripreneurs serve national food security in providing various foods for local consumption as well as for export. They are using the AES along FoSVaC to alleviate poverty, enhance family food security and increase their household financial wellbeing (HFW).

This paper focuses on three AES namely; micro and small scale fisheries activities (MiSFi), micro and small scale tomato farmers (MiSmaF), and food and beverage micro entrepreneur (FoBME) because these are the 3-AESs popular for poverty eradication (Zumilah, 2010) in Malaysia. First, most of the fishing village folks live in a small community and are involved in MiSFi, and usually they are poor because MiSFi AES is a high risk economic sector due to income uncertainty, climate change and masculine in nature; thus hard for FAC members especially women and vulnerable groups to earn income (HLPE, 2014). The MiSFi and MiSmaF involve masculine activities that are not suitable for women and vulnerable groups. Thus, women are usually not directly involved in MiSFi and MiSmaF AES (Yahaya, 1994). Women are mainly contributing in processing and retailing of fish-based products or other agriculture products such as tomato, fruit and vegetables (Thorpe, Pouw, Baio, Sandi, Ndomahina, & Lebbie, 2014); and homestay entrepreneurs (Hussin, Kunjuraman, & Weirowski, 2015). Second, MiSmaF is sensitive to climate change and suffering of high operation cost (Sova *et al.*, 2012). It is also masculine in nature but less masculine than MiSFi. It is easy to start MiSmaF especially among men due to less skill is needed in small scale of farming activities.

Third, FoBME is micro in size, for poverty eradication, as family business, low profit and popular among women (Zumilah, 2010; Robb & Wolken 2002; Rosa *et al.*, 1996; Kalleberg & Leicht, 1991). Men have higher financial literacy and greater in financial decision-making responsibility than women (Zyphur, Li, Zhang, Arvey, & Barsky, 2015). The Characteristics of Business Owners (CBO) indicates that the mean annual sales of female-owned enterprise are roughly 80% lower than male-owned enterprise (Fairlie & Robb, 2009). Despite of poor livelihood, micro and small scale agripreneurs are significant due to their contribution for national food security as well as to help the country to combat poverty. Nevertheless, is their HFW well taken care of? Especially the women and vulnerable groups whom their involvements in AES are not counted (Bayeh, 2016; Reinhard, 2008; Youngblut, 2000). In order to assist them, their profile and the HFW relationship with sex and AES are important to understand. Therefore, this paper aims to answer these following research questions:

- i) What were the profiles of agripreneur?
- ii) What were the levels of hfw of agripreneur?
- iii) Was there any different of HFW by AES and sex of agripreneur?

The objectives of this paper were:

- i) To profile the backgrounds of agripreneur.
- ii) To identify the levels of hfw of agripreneur in different aes
- iii) To measure the relationship between HFW, AES and sex of agripreneur?

A Ha in this paper was: There was a significant relationship between HFW, AES and sex of agripreneur.

## Methods

This paper is a compilation of three sub-studies conducted in 3-AESs and in 3-region of Peninsula Malaysia – Bottom (Melaka, Negeri Sembilan and Johor state), Middle (Selangor, Perak and Penang) and Top Region (Kedah, Perlis, Kelantan, Terengganu and Pahang). There are 3-AES focus namely MiSFi, MiSmaF and FoBME. Johor state was randomly sampled for MiSFi AES; Selangor was randomly sampled for FoBME, and Pahang was randomly sampled for MiSmaF AES. Finally, the districts in each state were sampled and Pontian Johor (first sub-study), Kuala Selangor, Selangor (second sub-study), and Cameron Highlands Pahang (third sub-study) were selected (Table 1). Data from these three sub-studies combined and a Chi-square test and descriptive statistics present the findings and to test Ha: There was no significant relationship between HFW, AES and sex of respondents.

**Table 1: Sampling Table (n=235)**

Zone/State	District	Sub-district	Village	N	n
Bottom/Johor	Pontian	Ayer Masin	Air Masin	86	35
			Kukup Laut		35
Top/Pahang	Cameron Highland	Ringlet	Ringlet Village Bertam Valley Village	91	37 36
Middle/Selangor	Kuala Selangor	Puncak Alam	Night Market Puncak Alam	92	92

All data was collected in January to February 2018 by using a questionnaire consist of 2-part namely respondents' backgrounds and the Malaysian Personal Household Wellbeing Scale (Jariah, 2007) to measure HFW. Data was collected among female Chinese respondents in fisheries and aquaculture community (FAC) for first sub-study. Chinese ethnic was chosen because many researches had been done among Malay ethnic in FAC.

The MiSFi AES is a masculine sector and women in FAC are vulnerable to poverty regardless of ethnicity. Ayer Masin was selected randomly from 11 sub-districts at Pontian Johor. There are 19 villages in sub-district of Ayer Masin and only two

Chinese fishing villages and these two villages (Air Masin Village and Kukup Laut Village) were sampled. Based on the data given by DOF there are 86 registered Chinese local fishermen at Ayer Masin sub-district then was use as population of this study. From  $N=86$ , Krejcie and Morgan (1970) proposed  $n=70$ . The JKKK chairmen (Head of Village) advised equal sample size for both villages ( $n=35$ ) and assisted in identifying the respondents at Air Masin Village and Kukup Laut Village respectively (Table 1).

The second sub-study data was collected among male and female FoBME entrepreneurs at Puncak Alam night market which is a sub-district of Kuala Selangor district which was randomly sampled. The whole population ( $N=92$ ) of FoBME entrepreneurs registered under Kuala Selangor District Council in year 2017 was taken for this sub-study because  $N=92$  is already a small number, and the questionnaire was self-administered, thus rejection to participate among respondents was assumed. Thus  $n=92$  for FoBME (Table 1). Food and beverage enterprises are easy to start, and cooking skill usually is an indigenous knowledge for many people (Zumilah, 2010). Among poor households it is easy for them to venture into this kind of enterprises.

The data of the third sub-study was collected among male MiSmaF. A sub-district of Ringlet was sampled because 40.26 percent ( $N=91$ ) of tomato MiSmaF at Cameron Highland are at Ringlet Village and Bertam Valley Village. According to Krejcie and Morgan (1970) for  $N=91$ , the  $n=73$ . DoA Cameron Highlands had provided 91 MiSmaF name-list in tomato farming at sub-district of Ringlet which are almost equally distributed in these 2-village. Thus, almost equal number of respondents were sampled at Ringlet Village (37 respondents) and Bertam Valley village (36 respondents) (Table 1). From the name-list provided, the odd numbers of farmers were selected as respondents, then 24 of respondents identified during the first round. In total there were 48 of respondents from both villages identified. During the second round, a similar procedure as in the first round was conducted on the remaining name in the list and another 22 respondents identified from the list to become  $n=70$ . Finally, one respondent was randomly picked up from Bertam Valley Village, and two respondents at Ringlet Village from the remaining name-list.

A special questionnaire was developed for these three small researches which consist of the Malaysian Household of Financial Wellbeing Scale - HWB (Jarrah, 2007) and background of respondents. All 3-data of backgrounds and HFW were combined for analyses as according to the objectives. Descriptive statistics and Chi Square were used to present the findings.

## Findings and Discussion

### Backgrounds of respondents

This subtopic discusses findings on RO-1: to profile the backgrounds of agripreneur. There were 213 respondents (99.0% of sampled) responded which consist of 53.5 percent male and 46.5 percent female respondents. The distributions of respondents by AES were almost equal. There were 34.28 percent, 32.86 percent and 32.86 percent of respondents in MiSmaF, MiSF<sub>i</sub> and FoBME AES respectively (Table 2). Since female are poorer than male at rural areas especially in FAC (Hussin *et al.*, 2015; Sultana, 2006) thus MiSF<sub>i</sub> sampled all female respondents. Due to farming are involving masculine activities and dominated by males (Biswas, 2017), this sub study sampled all males.

Only one female farmer participated in this sub-study which is due to her husband had passed away. Nevertheless, micro scale farming activities are usually operated as family farm where husband and wife in a household together operating and managing the farm (Price & Evans, 2005; Gasson, 1992). Whereas for FoBME AES, questionnaires were distributed to all the Puncak Alam Night Market FoBME regardless of the sex of the respondents because the population is night market entrepreneurs registered with Kuala Selangor district office. The findings show 60.0 percent male and 40.0 percent female respondents participated in this 3-sub-study. Table 2 shows the distribution of respondents by AES and sex.

**Table 2: Respondent Distribution by Sex and Agriculture Economic Sector (AES) (n=213)**

AES Respondents	MiSF <sub>i</sub>		MiSmaF		FoBME		Total	
	n	%	n	%	n	%	n	%
Male			72	98.63	42	60	114	53,5
Female	70	100	1	1.37	28	40	99	46.5
Total n (%)	70	32.86	73	34.28	70	32.86	213	100

**Note:** AES: Agriculture Economic Sector  
FoBME: Food and Beverage Micro Enterprises

Table 3 shows the distributions of respondents by four demographic variables namely ethnic, academic background, marital status and age. There are majority (66.20%) Chinese then followed by Malay (32.86%) and only 0.94 percent Indian ethnic participated in these three sub studies (Table 3). Almost all Chinese ethnic are representing MiSF<sub>i</sub> and MiSmaF AES in this study. Moreover, most of tomato farmers at Cameron Highlands are Chinese (Barrow, Chan & Tarmiji, 2009; Islam, Arshad, Radam & Alias, 2012). This is because the farms were passed on by their forefathers (Radam *et al.*, 2015). For Puncak Alam FoBME Night Market all the respondents are

Muslim Malays (32.86%). In general, two third Chinese, one third Malay and only small number of Indian respondents participated in these three sub-studies.

The academic background of the respondents shows more than half of them (56.81%) had secondary level of education; quite high percentage with primary school or no schooling academic background (34.27%); and only 8.92 percent had tertiary level of education (Table 3). Hamizah *et al.* (2017) reported a high majority of farmers completed secondary schools which may be due to Malaysia 11-year compulsory schooling policy to all children from age seven to 17 years old. Education in regards of formal education, public awareness and training or capacity building play important role to increase the ability of farmers to successfully respond to the challenges in farming activities (Hartl, 2009 & Braun *et al.*, 2006). Also, small business outcomes are positively associated with the education level of the business owner (Robb & Fairlie, 2009; Robb, 2008; Headd, 2003).

**Table 3: Respondents Distribution by Sex and Agriculture Economic Sector (AES) (n=213)**

AES	Fisheries 100% females		Tomato Farming 98.63% males		FoBME Mix male and female		Total	
	<i>n</i>	%	<i>N</i>	%	<i>Male n (%)</i>	<i>Female n (%)</i>	<i>n</i>	%
<b>Respondents' Background</b>								
<b>Ethnic: -</b>								
Malay	-	-	-	-	42(60)	28(40)	70	32.86
Chinese	70	100	71	97	-	-	141	66.20
India	-	-	2	3	-	-	2	0.94
<b>Academic: -</b>								
No schooling / primary level	42	60	21	29	8(11)	2(3)	73	34.27
Secondary level	28	40	47	64	27(39)	19(27)	121	56.81
Tertiary and above	-	-	5	7	7(10)	7(10)	19	8.92
<b>Marital Status: -</b>								
Single	4	5.7	20	27	3(4)	3(4)	29	13.62
Married	56	80.0	51	70	39(56)	24(34)	170	79.81
Divorce/DoS	10	14.3	2	3	1(1)	1(1)	14	6.57
<b>Age Mean (SD) Years Old</b>	52.5 (15.73)	43.3 (12.12)	43.79 (10.11)		38.68 (9.57)	Male 43.32 (11.31)	Female 48.67 (15.49)	
<b>Total n (%)</b>	70	100	73	100	42(60)	28(40)	213	100

**Note:** AES: Agriculture Economic Sector  
 FoBME: Food and Beverage Micro Enterprise  
 MiSmaF: Micro and Small Fishing  
 DoS: Death of Spouse  
 One Chinese female tomato farmer age 60 years old

The AES has economic potential of AES besides enhancing national food security and economic development, but AES still cannot attract fresh university graduates to venture into it. Due to high number of unemployed fresh undergraduates in Malaysia, they should look up to the potential of AES in creating jobs. From another point of view this sector can be used by low academic background individual to enhance their financial wellbeing and to eradicate poverty because individual with low academic background will be accepted in less or low salary occupation; thus he/she should venture into AES as a business. At least those with no entrepreneurial skill, poor background of education, or physical disabilities may able to get job and earn income. For instance, as cleaners, general workers, dish washers and etc. along the FoSVaC

Rural parents usually response unequally for study opportunities between son and daughter because the sons have to earn income for the family while daughters especially in Chinese custom are a burden for a family because she will finally get married and be a member of other family. Therefore, the sons get better study opportunity than the daughters (Sultana, 2006). The FAC in India mostly have poor education background due to poor education infrastructures and bad education planning scheme by the government which influence FAC members not to go to school (Shah *et al.*, 2010). As conclusion, women in FAC are always associated with low academic background and poor (Sultana, 2006; Hussin *et al.*, 2015).

The marital status shows a high majority (79.81%) of respondents are married (Table 3). This finding may reflect that micro scale AES activities are actually family-based income generating activities. An entrepreneurial family tend to save more money because entrepreneurship activities are risky in nature due to income uncertainty and risk of loss. Family members often take an altruistic approach to minimize the business risk through their own income contributions (Houshmand, 2015). Altruism is "a unique role in family firms that is not generally found in other type of enterprises" (Dyer, 2003 as cited in Houshmand (2015)).

Family businesses are economic assets for the family therefore female family members are willing to work in family business for free (Ram & Holiday, 1993). Husband and wife as well as their children are working together in generating income for their households (Zumilah, 2010) through AES activities because a high majority of farmers are married (Hamizah, Khairuddin, & Bahaman, 2017) and farmers' wives enjoy and love farm life with their family because the rural environment is good and fresh (Moore, 2011). Women often married earlier in Malaysia and always depend upon their husband while widows always depend on their children (Sultana, 2006). The majority of women married in FAC plays main role to ensure family food security, generating income and strengthening their power within family members (Cliffec & Akinrotimi, 2015). Widows always have poorer financial wellbeing than married or single women (Chikezie & Sabri, 2017). Women in FAC are majority not employed and only do household chores and assist husband (Duflo, Empowerment, &

Development, 2012; Tietze, Groenewold, & Marcoux, 2000). Rural housewives have freedom to make decisions on small family matters such as buying household goods and taking care of children (Sultana, 2006).

Male respondents mean age=43.32 years old (SD=11.31 years old) is lower than female respondents mean age =48.67 years old (SD=15.49 years old) (Table 3). On average, female respondents in these three sub studies are on average five years older than male respondents. In Nigeria, women aged 50 years old and below are active in fishing activities, however they know the fact that fishery activity are masculine, thus they should be physically strong to complete the task (Cliffe & Akinrotimi, 2015) or find alternative economic activities along the value chain of MiSFi AES.

### **Household financial wellbeing of respondents by agriculture economic sector**

This subtopic discusses RO-2: to identify the level of HFW of agripreneur in different AES. Twelve statements of HWB scale which was developed by Jariah (2007) and suitable to Malaysian context was used in these three sub-studies in order to measure HFW. The score=1 is very unsatisfied/negative feeling/low score and the score=10 is very satisfied/ positive feeling/high score. All scores arranged in such a way that low score for low HFW and high score for high HFB.

Three pilot studies conducted with 30 respondents on 14<sup>th</sup> to 31<sup>st</sup> January 2018 in each sub-study respectively. The Cronbach's alpha= 0.863 (MiSFi AES) 0.926 (FoBME AES), and 0.884 (MiSmaF AES) were obtained above 0.7 and are accentual according to George and Mallery (2003). The sum score of HFW then used for further analyses. Table 4 shows all respondents had overall score of HFW at mean= 55.75 (SD=7.117), the highest score=78 and the lowest score=38 (Table 4). The total highest possible score=120. The mean score is less than 50.0 percent of total maximum possible score (mean=46.46). These reflect a low level of HFW in general among all the respondents regardless the AES. The One-way ANOVA test of HFW among 3-AES obtained significant ( $p<0.05$ ) different of mean scores. The highest mean score=58.91 (SD=6.6) was among respondents in MiSFi AES, then followed by respondents in FoBME AES with mean score=54.56 (SD=6.58) and the lowest score was among respondents in MiSmaF AES with mean score=53.85 (SD=7.15).

**Table 4: Distribution of Respondents’ Household Financial Wellbeing Mean Score**

AES	Mean	SD
MiSFi	58.91	6.6
FoBME	54.56	6.58
MiSmaF	53.85	7.15

**Note:** i) One-Way ANOVA ( $p < 0.05$ )  
 ii) Highest Score 78  
 iv) Lower Score 38  
 v) AES: Agriculture Economic Sector  
 vi) FoBME: Food and Beverage Micro Enterprise  
 vii) MiSmaF: Micro and Small Fishing

Directly this result (Table 4) may be due to respondents in MiSFi AES have the oldest mean age among all respondents in these three sub-studies. The age may cause them to score the highest mean of HFW. Women around age of 55 years old (matured women) and older in FAC believed fishing as the main income sources, activities or occupation for their family members (Tietze, Groenewold, & Marcoux, 2000). Old respondents may have wider experience and more successful in generating income than young respondents, thus they are more successful economically than young respondents. Mostly, old women were still involved in the processing of dried fish in India (Shah *et al.*, 2010). Indirectly, MiSFi AES may have more potential of secondary economic activities for the households than other AES in these three sub-studies. Homestay, recreational fishing, restaurant, and hand crafting are examples of sub-industry by itself and these are potential secondary economic sector in MiSFi AES which are suitable for women and vulnerable groups.

Respondents in Tomato MiSmaF AES scored lowest HFW (Table 4). In year 2015, farming activities were the second largest land used which were about 10.54% of Cameron Highlands areas. Almost half of the vegetables from Cameron Highlands are for Malaysian local consumption (Barrow, Chan, & Masron, 2008). Cameron Highlands was a highland with temperate climate in providing good environment and best climate for vegetable cultivation but in the last decade there were unsustainable farming activities caused by the temperature of Cameron Highland rising between 0.5 – 1.5 °C (Barrow *et al.*, 2008) which gave negative impact to vegetable especially tomato farming. 65 percent of farmers are operating MiSmaF on 1-2 hectares of land (DoA Cameron Highlands, 2017). In addition to climate change there are a lot of challenges and difficulties face by MiSmaF tomato farmers. According to Yun, Sivanandam, Rahim and Tan (2016) the farmers suffered of high production cost due to almost 90 per cent of the production materials were imported such as pesticide, fertilizer and seedlings. Besides the fact that Malaysia Ringgit is currently weak, Goods and Services Tax (GST) are also additional factors that increase the production cost and at the same time, the vegetable prices in the market was low and uncertain (Looi, 2016).

The respondents' HFW scores then had been divided into two categories of low and high HFW category of respondents with mean=55.75 as cut of point. Below cut of point is low and cut of point higher is high HFW. Table 5 shows almost equal distributions of respondents in these two categories which is 49.3 percent in low HFW and 50.7 percent in high HFW category. Also, almost equal distributions of respondent by AES.

**Table 5: Distribution of Respondents by Agriculture Economic Sector (AES) and Level of Household Financial Wellbeing (n=213)**

HFW	High		Low		Total by AES	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>AES</b>						
<b>MiSmaF</b>	30	28.6	43	39.8	73	34.28
<b>MiSFi</b>	51	<b>48.6</b>	19	17.6	70	32.86
<b>FoBME</b>	24	22.9	46	<b>42.6</b>	70	32.86
<b>Total by HFW</b>	105	49.30	108	50.70	213	100

**Note:** Mean = 55.75 as cut of point  
 AES: Agriculture Economic Sector  
 FoBME: Food and Beverage Micro Enterprise  
 MiSmaF: Micro and Small Fishing

Results in Table 5 shows a high percentage of respondent in MiSFi AES (48.6%) in high HFW category; and a high percentage of respondents in FoBME AES (42.6%) in low level HFW category. The respondents in Tomato MiSmaF AES scored the lowest mean HFW scores among 3-AES, and respondents in FoBME scored the highest percentage in low category of HFW. These may be due to two reasons. First respondents in FoBME are the youngest among 3-AES; so, they are still struggling to increase the HFW. Second, Tomato MiSmaF AES at Cameron Highlands are family farms with years of experience but farming cost increase year by year besides tomato price fluctuation may cause them in low category of HFW.

**Household financial wellbeing by sex disaggregated**

This subtopic discusses findings on RO-3: to identify the relationship between HFW, AES and sex of agripreneur. Hypothesis testing on Ho: There was no relationship between HFW, AES and sex of agripreneurs. Through Chi square test, the result obtained showed significant ( $p < 0.05$ ) relationship between HFW, AES and sex of agripreneurs. Thus, Ho was rejected. This paper concluded that there is a relationship between HFW, AES and sex of entrepreneurs. Table 6 shows the majority of respondents (56.2%) in high FWB category are women and the majority (63%) of respondents in low HFW category are men.

Another point of view is that women in this study are financially vulnerable at the beginning of their life because most of them are housewives, low academic background, married and at rural areas. With these backgrounds they worked hard to achieve financial wellbeing for themselves as well as for their families. They are working in informal AES, assisting husband or in secondary economic sector and feminine way for financial security. As a result, female respondents in these three sub-studies proved their success that they have higher mean score of FWB than men. Besides women are assumed as economically vulnerable (Sabin et al., 2009; Gokhale, 2008) in any economic sectors, moreover in masculine AES, but this study proved another way round that women have higher wellbeing than men at matured age.

**Table 6: Distribution of Respondents by Levels of Household Financial Wellbeing, AES and Sex of Agrepreneurs (n=213) (p<0.05)**

HFW	High				Low			
	Male		Female		Male		Female	
Sex	n	%	n	%	n	%	n	%
MiSMaF	29	96.7	1	3.3	43	100.0	0	0.0
MiSFi	0	0.0	51	100.0	0	0.0	19	100
FoBME	17	70.8	7	29.2	25	54.3	21	45.7

**Note:** Mean=55.75 as cut of point  
 HFW: Household Financial Wellbeing  
 MiSMaF = Micro and Small Farmer  
 MiSFi = Micro and Small Fishermen  
 FoBME = Food and Beverage Micro Enterprises

In literatures, family-based activities may cause female respondents to report higher financial wellbeing if the husband contributes greater percentage of household income than her (Spence, 2017). According to Cunningham (2008) Male Breadwinner Model suggests individual in the household will have high satisfaction and financial wellbeing if males earn major income for the household and female handles the majority of household chores. Chinese female respondents in Fisheries AES sub-study in this paper who reported the highest mean score of HFW may have responsible husbands who provide significant amount of income for the households.

### Conclusion and Recommendations

There are three conclusions in this paper. First, women at matured age (55 years old) may have high FWB than young men in AES. Besides matured age, women in this paper may also have matured and responsible husband women with responsible husband may have high FWB. Second, age of agripreneur shows linear relationship with FHW. Thus, age of agripreneur may be a significant factor in predicting their HFW. Third conclusion is, sex of agripreneur is significant in the relationship between

AES and HFW. This study may conclude that HFW is gender sensitive. Thus, any policy and program among agripreneur must take into accounts of the sex indicator.

This paper lists six recommendations according to AES as follows:

- i) MiSFi
  - a. For women in FAC, fish-based food enterprises and homestay industry are suitable for them to earn income in FAC. These activities are less masculine. However, a system should be developed by government in order to assist women in FAC. For instance, through Civil Society Organisation (CSO) such as Rural Women Cooperative. Any effort by the Malaysian government to empower women socially and economically in any economic sector may contribute in SDG-1, SDG-2, SDG-5 and SDG-10.
  - b. Recreational fishing and restaurant operators are suitable for vulnerable men in FAC because this is a less masculine and low risk of economic activities. The FAES environments anywhere in this world are beautiful. This natural asset can be used to promote eco-tourism. At the same time recreational fishing is a very popular hobby for many people especially among men. It is good to conduct recreational fishing and restaurant as family enterprises because women also will be able to contribute.
- ii) FoBME
  - a. Men and women micro entrepreneurs need capacity building program to enhance their skill especially in household financial management beside the entrepreneurial skill. Men and their wives have to be together attending the capacity programs.
  - b. Men and women micro entrepreneurs need capital assistance financial and non-financial capital. Focus has to be given to women because of their HFW is still low.
- iii) MiSmaF
  - a. The farmers need assistance to face the operational challenges such as climate changes, fluctuation of tomato price and high operational cost. Tomato farmers must work in team such as cooperative in order to face the challenges in tomato farming together
  - b. Tomato farmers must also have additional economic activities to add value to the tomato products such as tomato local sauces and tomato puree.

A serious effort to assist agripreneur in various AES is important because they will assist in securing national food security (SDG-2), poverty alleviation (SDG-1) and promote HFW of rural poor folks. In general, several future studies in the future should focus to various AES in Malaysia.

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