

Article

The Effect of Economic Vulnerability on the Participation in Development Programs and the Socio-Economic Well-Being of Low-Income Households

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Abstract: This study intends to examine the effect of economic vulnerability on participation in development initiatives, household income, micro-enterprise income and net worth of micro-enterprise asset among low-income households in the state of Kelantan, Malaysia. Adopting a cross-sectional design, this study collected data from randomly selected 450 micro-entrepreneurs who were being served by three major development organizations in Kelantan, Malaysia. The findings revealed that the level of economic vulnerability among the respondents had a significantly negative effect on the participation of development initiatives, household income, micro-enterprise income and the net worth of microenterprise asset among the low-income Kelantanese households. This study provided insights for a comprehensive policy formulation for rural development as it identified program participation issues and gaps faced by the targeted cohort, which if effectively addressed can lead to an increase in participation in development programs, together with household and micro-enterprise income and assets, among the low-income economically vulnerable households in Kelantan, Malaysia.

Keywords: micro-credit; training; household income; micro-enterprise asset; economic vulnerability; Malaysia

1. Introduction

The issues of poverty and vulnerability have long dominated policy-making. The extensive literature on development has provided broad and deep discussions on these two persistent areas of concern against the backdrop of sustainable development, of which proposed solutions are abundant. The concept of vulnerability—the risk of experiencing poverty in the future—has recently taken center stage following successive international economic shocks such as the global economic crisis, which had increased the emergence of poverty and hardcore poverty, if not, intensified it [1]. Despite tireless efforts to reduce the incidence of poverty and hardcore poverty [2], the socio-economic vulnerability among the poor in developing countries, not limited to the low-income households in Malaysia [3], remains a threat. According to Zarina and Kamil [4], government policies and economic systems determine the success or failure of the very system that addresses the level of economic vulnerability in the society. Despite the government’s primary concern and priority in the reduction of vulnerability and its corresponding issues on society, poverty and vulnerability persist regardless of the countless efforts of policymakers.

The Malaysian policy development scene continues under the Tenth Malaysia Plan (2011–2015) and the National Transformation Policy (NTP), through the New Economic Model. These policies set

the goal of moving the country towards a high-income economy. This transformation is supported by the Economic Transformation Programs and Government Transformation Programs, both of which focus on eradicating poverty, decreasing the level of economic vulnerability, and improving the living standards of Malaysians. Thus, the government formulated various entrepreneurship development initiatives where the key emphasis is on efforts to enhancing income-earning opportunities to increase the income and reduce the level of economic vulnerability, which when achieved, can lead to an improvement in the standard of living among low-income households [5]. In the formulation of entrepreneurship development initiatives, two primary instruments are used to generate income: micro-credit and enterprise development training programs. To deliver these assistances, the government established the development organizations of Amanah Ikhtiar Malaysia (AIM), the National Entrepreneurs Economic Group Fund (TEKUN), and the Malaysia Fisheries Development Board (LKIM).

During the conception years, AIM, TEKUN, and LKIM only offered micro-credit for the purposes of creating small businesses and engagement in other economic activities, but today the mechanism is dominated by a two-pronged strategy. The first is micro-credit for business working capital and the second is training, specifically for the development of entrepreneurial skills. The three said organizations offer a diverse range of micro-credit to low-income households in the Kelantan state. AIM provides three types of economic loans: a recovery loan, an education loan, and a housing or multipurpose loan. Meanwhile, TEKUN, which is an agency under the Ministry of Entrepreneurial and Cooperative Development, provides four types of economic loans and financing. Lastly, LKIM, an authorized body under the Ministry of Agriculture and Agro-Based Industry, provides several small-scale loans for working capital, ship, and fishing equipment upgrades to low-income households in the fisheries industry.

In terms of entrepreneurial development training programs, AIM provides three major programs to enhance business understanding and skills, as well as to learn how to monitor risk management plans. As for TEKUN, only one training program is provided with the objective to train new borrowers about the basics of marketing and accounting. Meanwhile, LKIM provides four types of micro-enterprise training for fishermen and their households: community development, institutional development, general assistance, and poverty eradication.

These initiatives have been considered as the most important and effective mechanism in boosting household income [6–8], micro-enterprise income [9,10], and micro-enterprise asset net worth [9,11] that leads to the eventual decrease in economic vulnerability [12,13]. To reiterate, the aim of this study is to examine the effect of economic vulnerability on participation in development programs, household income, micro-enterprise income, and assets among the participants of various development initiatives in the state of Kelantan. This study chose Kelantan state as it remains the poorest state in Peninsular Malaysia, achieving only a 0.4% poverty rate in 2017 and the lowest mean monthly household income of RM4214 [14]. In an attempt at determining the effect of economic vulnerability, this study adopted a cross-sectional design and gathered quantitative data from the participants of development organizations operated in Kelantan, Malaysia. The outcomes of this study are deemed to enhance the overall knowledge and the understanding among development policy makers, academicians, development organizations, and low-income vulnerable households in Malaysia, which are expected to devise more inclusive and diversified development policies and programs towards improvising the socio-economic impact of development initiatives in Malaysia.

The structure of this study is as follows. Section one, the introduction, sets the scene discusses the poverty and vulnerability issues and the government's plan and strategies to eradicate the poverty. Section two, the core of the study, lays out our theoretical background and discussed the past studies: it the concept of vulnerability we think is useful to examine important development programs in light of the crisis. In this section, we discussed possible ways of dealing with vulnerability into four variables-participations in development programs, households income, micro-enterprise income and micro-enterprise assets- and linked them to the earlier defined concept of exposure. It is contended

that the economic vulnerability has positive as well as negative effects on these four variables. Section three, the research methodology part, discusses the study design and determines the sample size, the operational definition and the control variable used in this study. Section four is the summary of the findings, followed by a discussion. Section six, which is the last section of this study, is the conclusions, limitations of the study, and the recommendations for future researchers.

2. Literature Review

2.1. Theoretical Background

The modern development theory illustrates the evaluation of income inequalities, wherein access to working capital plays very critical roles in socio-economic development. Claessens and Tzioumis [15] asserted that the lack of access to working capital could be a critical instrument that generates persistent poverty traps. Access to working capital improves the ability among low-income households to invest in available income-generating opportunities that may ultimately increase both the incomes and assets of the households and the micro-enterprises. Nevertheless, the impact of micro-credit depends on the capacity of these households in utilizing available resources and opportunities, which are also affected by their economic condition. In measuring the effect of economic vulnerability on participation in micro-credit programs; household income, as well as micro-enterprise income and asset, have been proven to strengthen the underlying assumption pertaining to the role of the prior economic conditions on participation, along with its effect on low-income vulnerable households in Malaysia.

2.2. Economic Vulnerability, and Participation

Economic vulnerability refers to risks of exposures to exogenous events of political, natural and economic nature that can result in income and asset poverty of households. As an extension to the literature, Feeny and McDonald's [13] study found that household vulnerability in the two Melanesian states of Solomon Islands and Vanuatu were revealed to be multidimensional. They employed a cross-sectional method to gather household data using a survey and the exercise proved that multidimensional vulnerability has become widespread. Despite having a strong social support network and leading a semi-subsistence lifestyle, the majority of households in the two countries were experiencing multidimensional poverty. According to development studies, access to working capital and enterprise development training programs were associated with the level of economic vulnerability among low-income Malaysian households [12]. Paired as entrepreneurial development programs, they were found to contribute towards an increase in household income generating activities, assets, and improvement to the overall standard of living [16]. Gurses [17] showed that access to working capital and enterprise development training programs are effective tools that can make a difference in the socio-economic conditions of low-income households. This finding was consistent with previous studies on the effectiveness of development initiatives [18–20]. The study by Kwon and Hetling [21], confirmed the fact that those who live in metro areas with a higher proportion of households receiving the financial assistance tend to experience a lower probability of becoming economic disconnection. However, the impact of development programs depends on a household's abilities to take advantages of income generating opportunities. In self-selected micro-credit programs, the participating household's abilities to take risks (risk associated with borrowing) can influence their depth of participation (i.e. late participation, receiving a relatively smaller loan) in development programs. Thus, this study examined the influences of economic vulnerability on the participation of development programs (including loan received and numbers of enterprise development training programs attended) among the participants of various development programs offered by AIM, TEKUN, and LKIM in Kelantan, Malaysia. Hence, the following hypothesis was developed:

Hypothesis 1. *An economic vulnerability has a negative effect on participation in development programs offered by development organizations in Kelantan, Malaysia.*

2.3. Economic Vulnerability and Household Income

Household income refers to the average monthly household income earned by all household members in the last twelve months, from one or more sources, including wage income, net income from micro-enterprise, livestock and agricultural activities, rental income, investment income, and gifts earned and/or received. To increase household income, development organizations provide access to working capital and enterprise development training programs as part of the comprehensive enhancement of productive, social and human capital, which, when combined, can effectively aid low-income households with more income generating activities. Numerous studies have shown that access to working capital and enterprise development training programs generate a significant impact on household income such that they lead to the eventual decline in economic vulnerability levels [12,13,18–20].

By definition, access to working capital refers to the small amount of loan to be injected into micro-enterprises for the purposes of engaging in income generating activities, which, in turn, is expected to increase household income [6]. Whereas the definition of enterprise development training programs is training courses that empower households' ability to utilize the loans obtained and manage their finances wisely [22]. The recent study by Terano, Mohamed, and Jusri [8] reported that micro-credit programs had contributed to monthly household income, amounting to RM316.40 per month. Specifically, among AIM micro-credit borrowers, a 2015 internal assessment showed that the average monthly household income had doubled, climbing from RM326 to RM932 [23]. Undoubtedly, the two said programs combined can improve low-income households' ability to increase income, net working capital, and fixed assets to attenuate economic vulnerability [7]. However, the impact of development programs depends on a household's abilities to take risk, find income generating opportunities and their abilities to take advantages of income generating opportunities. This study therefore intended to examine the influences of economic vulnerability on household income among the participants of various development initiatives offered by AIM, TEKUN, and LKIM within the state of Kelantan. Hence, the following hypothesis was developed:

Hypothesis 2. *Economic vulnerability has a negative effect on the household income among the participants of development organizations in Kelantan, Malaysia.*

2.4. Economic Vulnerability and Micro-Enterprise Income

In this study, micro-enterprise income refers to the average monthly micro-enterprise income earned from the sales of products and services. The primary instruments in increasing micro-enterprise income are access to working capital and enterprise development training programs. These paired tools play a crucial role in decreasing the level of economic vulnerability. Dunn's [10] study in Bosnia and Herzegovina reported that micro-credit programs had a significant positive impact on business income and investment. This finding is consistent with the study conducted by Panda [24], which revealed that micro-credit participants attained income at 11.41% higher than no-participants. Additionally, in Malaysia, Al-Mamun, Adaikalam, and Mazumder [9] reported that micro-credit programs had enabled micro-entrepreneurs to better manage the existing assets, to take risks, and reduce liabilities. Further, the study conducted by Al-Mamun, Malarvizhi, Hussain, and Tan [25] that examined the effect of AIM micro-credit programs, revealed significant increases in micro-enterprise income during post-participation of both micro-credit and training programs offered. However, the impact of development programs relies on a household's abilities to take risk, and invest the loan and re-invest the profit in their micro-enterprises. This study therefore intended to examine the influences of economic vulnerability on micro-enterprise income among the participants. In support of this objective, the following specific hypothesis was examined:

Hypothesis 3. *Economic Vulnerability has a negative effect on the micro-enterprise income among the participants of development organizations in Kelantan, Malaysia.*

2.5. Economic Vulnerability and Micro-Enterprise Asset Net Worth

The micro-enterprise assets refer to the sum of all assets used in the enterprise including vehicles, machinery, raw materials, and finished goods. Studies have also shown the positive impacts of micro-credit and enterprise development training programs in the net worth of micro-enterprise assets [9,11,24,26–29]. Assets are considered better socioeconomic indicators as they are the long-term result of income flows. When the participants utilize micro-credit to accumulate assets, the micro-enterprise asset base expands directly [9]. Islam's [11] study revealed that receiving working capital increases enterprise and household income and assets. This finding is consistent with Panda's [24] study which reported that increases in 9.75% in participants' assets were higher than non-participants. Meanwhile, the study conducted by Hossain [26] reported that participants who held a three-year program membership saw an increase in fixed assets of about 2.5 times higher compared to new entrants. This finding is consistent with the study conducted by Al-Mamun, Adaikalam, and Mazumder [9], which reported a higher market value of micro-enterprises assets among the existing participants and this indicated the positive effect of the micro-credit program on micro-enterprise assets. Furthermore, the study by Sutoro [27] reported increment in various assets, including 26% in the ownership of productive machinery; 16% in the ownership of the business vehicle; 93% in business income; and 76% of household income. As asserted by Barnes [28], additional assets boost income and not only enable micro-entrepreneurs to better manage existing assets but to take calculated risks as a strategy to decrease economic vulnerability levels. The study by Wang et al. [30], showed that financial assets have the potential to not only impacts economic stability for individuals and households, but also to yield important developmental, psychological and social benefits. Hence, the impact of development programs relies on a household's abilities to take risk, and invest the loan and re-invest the profit in their micro-enterprises. This study therefore intended to examine the influences of economic vulnerability on the net worth of micro-enterprise asset among the participants. In support of this objective, the following specific hypothesis was examined:

Hypothesis 4. *Economic vulnerability has a negative effect on micro-enterprise asset net worth among the participants of development organizations in Kelantan, Malaysia.*

3. Research Methodology

This study employed the cross-sectional design and collected quantitative data through structured interviews. The population of this study refers to a total of 88,435 low-income households identified as participants of development programs initiated by AIM, TEKUN, and LKIM in Kelantan, Malaysia. The research team approached the said development organizations for a list of at least 150 participants, each with their name, address, and contact details. AIM, TEKUN, and LKIM provided lists of 500, 350, and 156 randomly selected existing participants of their programs. The listed participants (1006 participants) derived from seven districts, included Tumpat, Bachok, Pasir Puteh, Pasir Mas, Tanah Merah, Gua Musang, and Jeli. Next, the research team communicated with listed participants to explain the purpose of the survey and to arrange for an appointment with them. Then, the research team visited the respondents place between 8 November 2017 and 31 December 2017 and of the 1006 listed participants; this study secured the participation of 450 respondents (AIM-150, TEKUN-150, LKIM-150). Data were collected from the respondents via structured face-to-face interviews conducted at their preferred location.

3.1. Sample Size

This study employed Krejcie and Morgan's [29] guidelines formula to determine the sample size as follows:

$$s = \frac{X^2NP(1-P)}{d^2(N-1) + X^2P(1-P)} \quad (1)$$

where,

s = the required sample size;

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841);

N = the population size (88,435);

P = the population proportion (assumed to be 0.50); and

d = the degree of accuracy expressed as a proportion (0.05).

As per Krejcie and Morgan [29], a sample size of 383 was required for a population of 88,435. To address the possible complications with regards to the small sample size, this study ensured the collection of data from 450 respondents.

3.2. Operational Definitions

The length of participation is defined as the duration spent by the respondents participating in the programs under the AIM, TEKUN, and LKIM development initiatives. The total amount of economic loan received refers to the amount of credit that respondents had obtained from AIM, TEKUN, and LKIM. The hours of enterprise development training refers to the total number of enterprise development training programs attended, the total number of program training hours attended, and the total number of weekly meeting and/or discussions attended in the last 12 months.

Household income refers to the average monthly income obtained from all sources by all household members in the last twelve months. Micro-enterprise income refers to ‘the changes in the average monthly income’ and the net worth of microenterprise assets refers to ‘the sum of the approximate market value of all assets used in the enterprise including vehicles, machinery, raw materials and finished goods’.

The definition of economic vulnerability is the exposure of microenterprises to potentially harmful external economic events. Other studies had conceptualized economic vulnerability as vulnerability to income and asset poverty resultant from exposures to topological, natural and economic disasters. In this study, economic vulnerability is measured by using the index, adopted from Al-Mamun, Mazumder, and Malarvizhi [12].

$$EV = CV_i AST_A DIV_{si} POV_i \frac{1}{DIV_i} DEP_h \quad (2)$$

where,

EV = the vulnerability index that measures the level of economic vulnerability among the participating households;

CV_i = the coefficient variation for the average monthly income earned (last twelve months) among the three groups of households based on their business period;

$$AST_A = \sqrt{\frac{\dots}{A/A_i}} \quad (3)$$

where, \dots represents the average microenterprise asset net worth within the same group of respondents, while A_i reflects the net-worth of the enterprise assets;

DIV_{si} = the proportion of the total income from the micro-enterprise income (business owned and managed by the respondent);

$$POV_i = \sqrt{PLI_{PH}/I_{HH}} \quad (4)$$

where, POV_i is the effect of the poverty level upon economic vulnerability measured, while I_{HH} refers to the average monthly income for households. Whereas PLI_{PH} denotes the income of the bottom 40% of the population in Malaysia, amounting to RM2848 per household per month (RM: Ringgit Malaysia) (DOSM, 2017);

$$DIV_{si} = \sqrt{SOI} \quad (5)$$

measures the effect of diversion in income sources due to an economic vulnerability where SOI is the total number of income sources (full-time); and DEP_h = the households with the proportion of dependent members per gainfully employed member.

3.3. Control Variables

Several variables such as age, gender [22–28,31], marital status [32] and education [31] are discovered to impact household income, micro-enterprise income, micro-enterprise asset net worth, and economic vulnerability. To elaborate, in terms of age, older participants are more skilled and experienced, hence, able to secure higher income and assets compared to younger participants. In terms of gender, women's participation in income generating activities is less common in developing countries attenuated by social and religious norms and practices. Correspondingly, male household members are expected to secure higher income and experience less economic vulnerability than their female counterpart. Then, in terms of marital status, married participants are able to secure more income and assets compared to divorced and separated participants. Additionally, participants with a high level of education earn more and experience less economic vulnerability than those without.

Among the selected variables, this study assessed the effect of gender by assigning the value '1' for male and '0' for female, with the assumption that the borrowers' gender has an effect on participation, household income, micro-enterprise income, and micro-enterprise asset net worth. As for marital status, this study assigned the value '1' for married respondents and '0' for single, widowed and divorced respondents, with the assumption that marital status has an effect on participation, household income, micro-enterprise income and net worth of the micro-enterprise asset.

3.4. Data Analysis

After data collection, the data were summarized and analyzed in an easy-to-understand form for interpretation and tabulation. The analysis was carried out by using the Statistical Package for Social sciences (SPSS). Multiple regression analysis was performed to establish the relationship between economic vulnerabilities with participation in development programs and the socio-economic well-being of the low-income households in Kelantan, Malaysia. Pearson correlation analysis was conducted to determine the relationships linked to controlling the effects of the selected antecedents. Typically, the presence of outliers ought to be high in such a study's genre due to the relatively higher variation in the distribution. Hence, the model was tested for multivariate normality to discard outliers. After that, the model was re-tested to verify that the original findings and significances were not much affected by the absence of multivariate normality.

4. Summary of Findings

4.1. Demographic Characteristics

Of the data provided, 450 respondents (49.8%) were males while the remaining were females (see Table 1). Most of the respondents (44.4%) were aged between 41 and 50 years old, 27.8% were aged between 51 and 60 years old, while 14.2% were aged between 31 and 40 years old, and 8.9% were aged 61 years old and above. The remaining age cohort was below 30 years old. As for marital status, 94% of respondents were married, 4.9% were single, 0.9% were widowed and only one (0.2%) was separated from his/her partner. Additionally, 42.7% of respondents ran their enterprise for 6 to 10 years, while 32.0% ran their enterprise for 11 to 15 years, 13.3% of them ran their enterprise for 16 to 20 years, and 11.6% of them ran their enterprise for 1 to 5 years. However, only 0.4% of the respondents have been operating their enterprise for more than 21 years. Industry-wise, the majority of the respondents (59.1%) were service providers, 17.8% were involved in retail, 11.5% were involved in manufacturing, and 7.3% were in fisheries. The remaining 3.8% and 0.4% were involved in livestock and wholesaling business respectively.

Table 1. The profile of the respondents.

	n	%		n	%
<i>Gender</i>			<i>Firm Established</i>		
Male	224	49.8	1 to 5 Years	52	11.6
Female	226	50.2	6 to 10 Years	192	42.7
Total	450	100.0	11 to 15 Years	144	32.0
<i>Age</i>			16 to 20 Years	60	13.3
Up to 30 Years Old	21	4.7	21 Years and Above	2	0.4
31 Years Old–40 Years Old	64	14.2	Total	450	100.0
41 Years Old–50 Years Old	200	44.4	<i>Types of Firm</i>		
51 Years Old–60 Years Old	125	27.8	Manufacturing	52	11.6
61 Years Old and Above	40	8.9	Retailing	80	17.8
Total	450	100.0	Service	266	59.1
<i>Marital Status</i>			Livestock	17	3.8
Married	423	94.0	Wholesaling	2	0.4
Single	22	4.9	Fishing	33	7.3
Divorced	1	0.2	Total	450	100.0
Widowed	4	0.9			
Total	450	100.0			

Source: Author(s) own compilation.

4.2. Descriptive Analysis

In Table 2, the mean value for the economic vulnerability was 0.67% with a standard deviation of 0.58%. Participation duration in years in development initiatives was 10.87 years with a standard deviation of 4.43 years. Next, the mean value for the total number of training programs attended was 5.5 times with a standard deviation of 2.77 times. The total number of program training hours obtained had a mean value of 40.47 h with a standard deviation of 22.87 h. The mean value for the total amount of economic loan received was RM21,454.44 with a standard deviation of RM11,167.23. In addition, the mean value for the average monthly household income was RM1834.75 with a standard deviation of RM865.74. This was followed by the mean value for the average monthly micro-enterprise income as RM1604.31 with a standard deviation of RM812.37. Thus, the mean value for the micro-enterprise asset net worth was RM29,295.63 with a standard deviation of RM12,282.23. Further, the mean value for age was 48.31 years old with a standard deviation of 9.612 years old.

Table 2. The respondents and participation details.

	Minimum	Maximum	Mean	Std. Dev.
Economic Vulnerability	0.14	3.75	0.6743	0.586
Number of Years (Years)	1	22	10.87	4.433
Total Amount of Economic Loan Received (RM)	0	16	5.50	2.774
Total Number of Training Hours (Hours)	0	180	40.47	22.877
Total Amount of Economic Loan Received (RM)	1000	95,000	21,454.44	11,167.23
Average Monthly Household Income (RM)	100	3583	1834.75	865.742
Average Monthly Micro-Enterprise Income (RM)	66.67	3333.33	1604.31	812.377
Net Worth of Micro-Enterprise Assets (RM)	2000	50,000	29,295.63	12,282.23
Respondents Age (Years)	19	77	48.31	9.619
Education (Number of Years in School) (Years)	0	15	5.82	3.560

Note. RM = Ringgit Malaysia; Source: Author(s) own compilation.

Table 3 presents the mean difference of a number of participation years, number of training programs attended, number of program training hours, the total amount of economic loan received, average monthly household income, average monthly micro-enterprise income, and micro-enterprise asset net worth among various groups according to the level of economic vulnerability of the respondents. The findings revealed that the mean number of participation years scored the highest among respondents with the highest level of economic vulnerability. As for the number of training programs attended, the findings revealed that participants who received a significant training

experience were relatively less vulnerable to economic shocks than that of others. Similarly, the higher the number of program training hours attended saw respondents experiencing lower levels of economic vulnerability than that of others. Another finding showed that the cohort with lower levels of economic vulnerability received higher amounts of an economic loan from development organizations. Moreover, respondents with relatively higher levels of economic vulnerability attained relatively lower average monthly household income, average monthly micro-enterprise income, and micro-enterprise asset net worth, than that of others.

Table 3. The economic vulnerability and key determinants.

	Eco. Vulnerability	N	Mean	Std. Dev.	Sig.
Number of Years of Participation	EV up to 0.30	86	9.20	3.217	0.000
	EV between 0.31 to 0.60	221	10.04	4.319	
	EV between 0.61 to 0.90	43	12.09	5.028	
	EV more than 0.90	100	13.63	3.972	
	Total	450	10.87	4.433	
Number of Training Programs Attended	EV up to 0.30	86	5.90	2.000	0.000
	EV between 0.31 to 0.60	221	6.03	2.646	
	EV between 0.61 to 0.90	43	4.65	2.759	
	EV more than 0.90	100	4.38	3.215	
	Total	450	5.50	2.774	
Number of Hours of Training Programs	EV up to 0.30	86	43.24	18.978	0.005
	EV between 0.31 to 0.60	221	42.24	20.683	
	EV between 0.61 to 0.90	43	42.37	25.630	
	EV more than 0.90	100	33.33	27.717	
	Total	450	40.47	22.877	
Total amount of Economic Loan	EV up to 0.30	86	25,482.56	10,056.443	0.000
	EV between 0.31 to 0.60	221	23,770.14	11,405.769	
	EV between 0.61 to 0.90	43	16,465.12	7578.600	
	EV more than 0.90	100	15,018.00	9304.700	
	Total	450	21,454.44	11,167.236	
Average Monthly Household Income	EV up to 0.30	86	2360.85	603.224	0.000
	EV between 0.31 to 0.60	221	1850.27	649.558	
	EV between 0.61 to 0.90	43	2360.52	1046.771	
	EV more than 0.90	100	1121.92	900.050	
	Total	450	1834.75	865.742	
Average Monthly Micro-Enterprise Income	EV up to 0.30	86	2078.4884	600.565	0.000
	EV between 0.31 to 0.60	221	1619.7210	611.188	
	EV between 0.61 to 0.90	43	2074.6124	1030.838	
	EV more than 0.90	100	960.2500	831.631	
	Total	450	1604.3148	812.377	
Net Worth of Micro-Enterprise Assets	EV up to 0.30	86	4,3046.51	5587.606	0.000
	EV between 0.31 to 0.60	221	31,453.77	9662.879	
	EV between 0.61 to 0.90	43	21,383.58	10,183.051	
	EV more than 0.90	100	16,102.54	5312.533	
	Total	450	29,295.63	12,282.232	

Source: Author(s) own compilation.

4.3. Partial Correlation

A partial correlation was performed to determine the relationship between economic vulnerability, the participation indicators, average monthly household income, average monthly micro-enterprise income, and the micro-enterprise asset net worth. Table 4 reported that economic vulnerability had a positive correlation with the number of participation years (p -value = 0.003), number of training programs attended (p -value = 0.025), number of program training hours (p -value = 0.000), the total amount of economic loan (p -value = 0.000), the average monthly household income (p -value = 0.000), the average monthly micro-enterprise income (p -value = 0.000), and micro-enterprise asset net worth (p -value = 0.000) after controlling the effect of age, gender, marital status, and education.

Table 4. The partial correlation.

Variables		EV	Years	Training	Hours	Loan	HHI	MEI	MEA
EV	Correlation	1.000							
	Sig. (1-tailed)								
Year	Correlation	0.132	1.000						
	Sig. (1-tailed)	0.003							
Training	Correlation	−0.093	0.157	1.000					
	Sig. (1-tailed)	0.025	0.000						
Hours	Correlation	−0.169	0.178	0.783	1.000				
	Sig. (1-tailed)	0.000	0.000	0.000					
Loan	Correlation	−0.200	−0.059	0.300	0.267	1.000			
	Sig. (1-tailed)	0.000	0.108	0.000	0.000				
HHI	Correlation	−0.618	0.030	0.033	0.138	0.203	1.000		
	Sig. (1-tailed)	0.000	0.264	0.245	0.002	0.000			
MEI	Correlation	−0.595	0.029	0.019	0.113	0.191	0.983	1.000	
	Sig. (1-tailed)	0.000	0.269	0.343	0.009	0.000	0.000		
MEA	Correlation	−0.604	−0.102	0.067	0.081	0.199	0.333	0.334	1.000
	Sig. (1-tailed)	0.000	0.016	0.079	0.043	0.000	0.000	0.000	

Note. (a) EV: Economic vulnerability; Years: Number of years; Training: Number of Training Programs Attended, Hours: Number of Hours of Training Programs, Loan: Total amount of Economic Loan Received; HHI: Average Monthly Household Income; MEI: Average Monthly Micro-Enterprise Income; MEA: Net Worth of Micro-Enterprise Assets. (b) Control variables: Respondent's Age; Gender; Marital Status, and Education; Source: Author(s) own compilation.

4.4. Economic Vulnerability and Participation in Development Programs

The effect of economic vulnerability on participation in development programs was measured by adopting a multiple regression analysis, which examined the effect of economic vulnerability on the number of years; number of training programs attended, number of hours of training programs, and total amount of economic loan received; controlling the effect of respondent's age; gender; marital status, and education.

As presented in Table 5, the VIF values of below 5 indicated a non-issue of multicollinearity. The p -value for the ANOVA F test was 0.000, which denoted that at least one variable can be used to model the number of participation years. However, the p -value of the Kolmogorov–Smirnov test of normality of the residuals using the initial sample ($N = 450$) was 0.000, which was less than 0.05, thus, failing to meet the assumption of normality. The unstandardized residual stem-and-leaf plot presented the outliers based on the unstandardized residual values. This study removed the outliers and proceeded to re-analyze the model using 295 samples. Accordingly, the Kolmogorov–Smirnov test of normality ($N = 295$) yielded a p -value of 0.20, which was higher than 0.05, therefore, it had satisfied the assumption of normality. Table 5 presents the standardized beta and p -value from the findings using the 295 sample. The r^2 value was 0.654, which indicated that 65.4% of the variation in a number of participation years could be explained by the level of economic vulnerability, age, gender, marital status, and education. The findings presented in Table 5 showed that the number of participation years had a significant (p -value less than 0.05) positive effect ($N = 450$ and $N = 295$) on the level of economic vulnerability among low-income households in Kelantan. This study concluded that economically vulnerable households had begun participating in the programs of various development initiatives long before the non-vulnerable households.

The below 5 VIF values indicated the non-issues of multicollinearity. Meanwhile, the p -value of the ANOVA F test was 0.000, thus indicating that at least one variable can be used to model the number of training programs attended. However, the Kolmogorov–Smirnov test of normality of the residuals using the initial sample ($N = 450$) yielded a p -value of 0.000, which was less than 0.05, thus, failing to meet the assumption of normality. The unstandardized residual stem-and-leaf plot presented the outliers based on the unstandardized residual values. The removal of the outliers and re-analysis of the model using 142 samples was conducted. Hence, the p -value of the Kolmogorov–Smirnov test of normality ($N = 142$) yielded 0.057, which was higher than 0.05, therefore, satisfying the assumption of

normality. Table 5 presents the standardized beta and p -values from the findings using the 142 sample. The findings show a significant negative effect ($N = 450$ and $N = 142$) on economic vulnerability levels on the 'number of training programs' attended by respondents in Kelantan. This study concluded that economically vulnerable households attended a smaller number of micro-enterprise development training programs offered by the development organizations in Kelantan.

Table 5. The regression coefficients.

	Unst. Beta	Std. Error	Stan. Beta	Sig.	VIF	Stan. Beta	Sig.
DV: Number of Years (Participation) ($N = 450$) ($r^2 = 0.232$; F test p -value = 0.000; KS p -value = 0.000)						N = 295 ($r^2 = 0.654$; F test p -value = 0.000, KS p -value = 0.200)	
(Constant)	1.895	1.305		0.147			0.001
EV	1.078	0.383	0.143	0.005	1.486	0.214	0.000
Age	0.158	0.024	0.342	0.000	1.542	0.627	0.000
Gender	0.864	0.431	0.098	0.045	1.366	0.040	0.321
Marital Status	0.514	0.877	0.027	0.558	1.234	0.136	0.002
Education	-0.047	0.058	-0.038	0.413	1.252	0.135	0.001
DV: Number of Training Programs Attended ($N = 450$) ($r^2 = 0.117$; F test p -value = 0.000; KS p -value = 0.000)						N = 142 ($r^2 = 0.898$; F test p -value = 0.000, KS p -value = 0.057)	
(Constant)	8.646	0.875		0.000			0.000
EV	-0.505	0.257	-0.107	0.050	1.486	-0.724	0.000
Age	-0.042	0.016	-0.146	0.009	1.542	-0.347	0.000
Gender	-1.075	0.289	-0.194	0.000	1.366	0.001	0.981
Marital Status	-0.095	0.588	-0.008	0.871	1.234	0.003	0.927
Education	-0.024	0.039	-0.030	0.545	1.252	-0.236	0.000
DV: Number of Hours of Training Programs ($N = 450$) ($r^2 = 0.079$; F test p -value = 0.000, KS p -value = 0.000)						N = 86 ($r^2 = 0.940$; F test p -value = 0.000, KS p -value = 0.200)	
(Constant)	51.394	7.371		0.000			0.000
EV	-7.822	2.164	-0.201	0.000	1.486	-0.481	0.000
Age	-0.113	0.135	-0.047	0.403	1.542	-0.048	0.214
Gender	-0.421	2.433	-0.009	0.863	1.366	0.305	0.000
Marital Status	-5.425	4.955	-0.055	0.274	1.234	-0.378	0.000
Education	0.878	0.327	0.137	0.008	1.252	0.654	0.000
DV: Total amount of Economic Loan Received ($N = 450$) ($r^2 = 0.160$; F test p -value = 0.000, KS p -value = 0.000)						N = 283 ($r^2 = 0.461$; F test p -value = 0.000, KS p -value = 0.095)	
(Constant)	33,170.925	3435.506		0.000			0.000
EV	-4328.579	1008.550	-0.228	0.000	1.486	-0.515	0.000
Age	-72.102	62.703	-0.062	0.251	1.542	-0.268	0.000
Gender	-2895.877	1133.825	-0.130	0.011	1.366	0.001	0.987
Marital Status	-5896.889	2309.164	-0.123	0.011	1.234	-0.132	0.006
Education	289.243	152.611	0.092	0.059	1.252	-0.108	0.030

Note. (Independent Variable) EV: Economic vulnerability. (Dependent Variables) Number of Years; Number of Training Programs Attended, Number of Hours of Training Programs, Total amount of Economic Loan Received. (Control variables) Respondent's Age; Gender; Marital Status, and Education. Source: Author(s) own compilation.

As for the VIF values below 5, they indicated non-issues of multicollinearity. The p -value from the ANOVA F test was 0.000, which indicated that at least one variable can be used to the model number of program training hours. However, the Kolmogorov–Smirnov test of normality of the residuals using the initial sample ($N = 450$) yielded the p -value of 0.000, which at less than 0.05, denoting a failure in meeting the assumption of normality. The unstandardized residual stem-and-leaf plot presented the outliers based on the unstandardized residual values. This study removed the outliers and proceeded to re-analyze the model using the 86 sample. Following this, the p -value for the Kolmogorov–Smirnov test normality ($N = 86$) yielded 0.20, which was higher than 0.05, therefore, satisfying the assumption of normality. Table 5 presents the standardized beta and p -value from the findings using the 86 sample. As for the number of program training hours, the findings showed a significant (p -value less than 0.05) negative effect ($N = 450$ and $N = 86$) on the economic vulnerability levels among the low-income Kelantanese households. Therefore, this study concluded that the economically vulnerable households attended a smaller number of training hours on programs offered by the development organizations in Kelantan.

Finally, the VIF values below 5 indicate the absence of multicollinearity issues. The p -value from the ANOVA F test was 0.000 which indicated that at least one variable can be used to model the total amount of economic loan received. However, the p -value of the Kolmogorov–Smirnov test of normality of the residuals using the initial sample ($N = 450$) yielded a p -value of 0.000, which was less than 0.05, thus, failing to meet the assumption of normality. The unstandardized residual stem-and-leaf plot presented the outliers based on the unstandardized residual values. Following this, the study removed the outliers and re-analyzed the model using the 283 sample. Therefore, the p -value for the Kolmogorov–Smirnov test normality ($N = 283$) yielded 0.095, which was higher than 0.05, therefore, satisfying the assumption of normality. Table 5 presents the standardized beta and p -value from the findings using the sample consisting of 283 respondents. The findings show a significant (p -value less than 0.05) negative effect ($N = 450$ and $N = 283$) of economic vulnerability on the total amount of economic loan received by the low-income Kelantanese households. This study concluded that households' level of economic vulnerability may prevent participants from further credit uptake.

4.5. Economic Vulnerability and Household Income

As for the average monthly household income, the r^2 value was 0.413, which means that 41.3% of the variation in the average monthly household income can be explained by the levels of economic vulnerability, age, gender, marital status, and education. The VIF values were below 5, thus indicating the absence of multicollinearity issues. The p -value from the ANOVA F test was 0.000, which indicated that at least one variable can be used to model the average monthly household income. However, the Kolmogorov–Smirnov test of normality of the residuals using the initial sample ($N = 450$) yielded a p -value of 0.000, which was less than 0.05, thus, failing to meet the assumption of normality. The unstandardized residual stem-and-leaf plot presented the outliers based on the unstandardized residual values. Therefore, this study removed the outliers and re-analyzed the model using the 308 sample. The p -value for the Kolmogorov–Smirnov test normality ($N = 308$) was 0.20, which was higher than 0.05, therefore, satisfying the assumption of normality. Table 6 presents the standardized beta and p -value from the findings using the sample containing 308 respondents.

Table 6. The regression coefficients.

	Unst. Beta	Std. Error	Stan. Beta	Sig.	VIF	Stan. Beta	Sig.
<i>DV: Average Monthly Household Income (N = 450)</i> ($r^2 = 0.413$; F test p -value = 0.000, KS p -value = 0.000)						$N = 308$ ($r^2 = 0.413$; F test p -value = 0.000, KS p -value = 0.000)	
(Constant)	1428.335	222.775		0.000			0.000
EV	-1084.042	65.399	-0.735	0.000	1.486	-0.986	0.000
Age	11.923	4.066	0.132	0.004	1.542	0.102	0.005
Gender	596.085	73.523	0.345	0.000	1.366	0.262	0.000
Marital Status	-182.432	149.737	-0.049	0.224	1.234	-0.077	0.017
Education	75.038	9.896	0.309	0.000	1.252	0.295	0.000
<i>DV: Average Monthly Micro-Enterprise Income (N = 450)</i> ($r^2 = 0.413$; F test p -value = 0.000, KS p -value = 0.000)						$N = 300$ ($r^2 = 0.413$; F test p -value = 0.000, KS p -value = 0.000)	
(Constant)	1185.389	214.747		0.000			0.000
EV	-984.132	63.042	-0.711	0.000	1.486	-1.015	0.000
Age	12.473	3.919	0.148	0.002	1.542	0.137	0.000
Gender	536.410	70.873	0.331	0.000	1.366	0.288	0.000
Marital Status	-189.560	144.341	-0.055	0.190	1.234	-0.037	0.272
Education	67.299	9.539	0.295	0.000	1.252	0.303	0.000
<i>DV: Net Worth of Micro-Enterprise Assets (N = 450)</i> ($r^2 = 0.413$; F test p -value = 0.000, SW p -value = 0.000)						$N = 65$ ($r^2 = 0.997$; F test p -value = 0.000, SW p -value = 0.254)	
(Constant)	35,300.278	3066.753		0.000			0.000
EV	-14,363.793	900.297	-0.686	0.000	1.486	-1.086	0.000
Age	11.730	55.973	0.009	0.834	1.542	-0.011	0.287
Gender	2688.260	1012.125	0.110	0.008	1.366	0.182	0.000
Marital Status	4386.011	2061.309	0.083	0.034	1.234	0.071	0.000
Education	-405.173	136.230	-0.117	0.003	1.252	-0.033	0.000

Note. (Independent Variable) EV: Economic vulnerability. (Dependent Variables) Average Monthly Household Income; Average Monthly Micro-Enterprise Income; Net Worth of Micro-Enterprise Assets. (Control variables) Respondent's Age; Gender; Marital Status, and Education. Source: Author(s) own compilation.

From the 308 samples, the r^2 value was 0.757, which means that a 75.7% variation in the 'average monthly household income' can be explained by the levels of economic vulnerability, age, gender, marital status, and education. The VIF values for all variables are below 5, hence, denoting that there were no problems of multicollinearity. Subsequently, the p -value from the ANOVA F test was 0.000, which means that at least one variable can be used to model the 'average monthly household income' among the Kelantanese participants. As for the average monthly household income, the findings of the said both models ($N = 450$ and $N = 308$) received a negative effect on the respondents' economic vulnerability level. Therefore, the findings of this study confirmed the negative effect of economic vulnerability on low-income Kelantanese households' income. As for the effect of the control variables, the findings revealed that respondent age, gender, and education had a positive and statistically significant effect on the average monthly household income among the said Kelantanese participants.

4.6. Economic Vulnerability and Micro-Enterprise Income

The r^2 value of the average monthly micro-enterprise income was 0.380, which means that 38% of the variation in average monthly micro-enterprise income can be explained by the levels of economic vulnerability, age, gender, marital status, and education. The VIF values were below 5, thus indicating the non-existence of multicollinearity issues. Additionally, the p -value from the ANOVA F test was 0.000, which means that at least one variable can be used to model the average monthly micro-enterprise income. However, the Kolmogorov–Smirnov test of normality of the residuals using the initial sample ($N = 450$) produced a p -value of 0.000, which was less than 0.05, and accordingly failed to meet the assumption of normality. The unstandardized residual stem-and-leaf plot presented the outliers based on the unstandardized residual values. Subsequently, this study removed the outliers and re-analyzed the model using the 300 sample. The Kolmogorov–Smirnov test of normality ($N = 300$) produced a p -value of 0.20, which was higher than 0.05, therefore, satisfying the assumption of normality. Table 6 presents the standardized beta and p -value from the findings using the sample containing 300 respondents.

From the same sample of 300, the r^2 value was 0.744, which means that 74.4% of the variation in the 'average monthly micro-enterprise income' can be explained by the levels of economic vulnerability, age, gender, marital status, and education. Meanwhile, the VIF values for all variables were below 5, indicating that there were no multicollinearity issues. Subsequently, the p -value for the ANOVA F test was 0.000, which means that at least one variable can be used to model the 'average monthly micro-enterprise income' among the Kelantanese participants. Finally, the regression coefficients and p -values in said both models ($N = 450$ and $N = 300$) confirmed that economic vulnerability had a negative and statistically significant effect on the average monthly micro-enterprise income among the low-income Kelantanese households. As for the effect of the control variables, the findings revealed that respondent age, gender, and education have a positive and statistically significant effect on the respondents' average monthly micro-enterprise income.

4.7. Economic Vulnerability and Micro-Enterprise Assets

In examining the effect of economic vulnerability on micro-enterprise asset net worth, the VIF values were below 5 indicating that there were no multicollinearity issues. Subsequently, the p -value for the ANOVA F test was 0.000, which means that at least one variable can be used to model the 'micro-enterprise asset net worth'. However, the Shapiro–Wilk test of normality of the residuals using the initial sample ($N = 450$) produced a p -value of 0.000, which at less than 0.05, signaling a failure in meeting the assumption of normality. The unstandardized residual stem-and-leaf plot presented the outliers based on the unstandardized residual values. Consequently, this study removed the outliers and re-analyzed the model using sample containing 65 respondents. Thus, the p -value for the Shapiro–Wilk test of normality ($N = 65$) yielded 0.254, which was higher than 0.05, therefore, satisfying the assumption of normality. Table 6 presents the standardized beta and p -value from the findings using the said sample.

From the same sample of 65 respondents, the r^2 value was 0.997, which means that 74.4% of the variation in 'micro-enterprise asset net worth' can be explained by the levels of economic vulnerability, age, gender, marital status, and education. Meanwhile, the VIF values for all variables were below 5, thus, indicating the non-existence of multicollinearity issues. Subsequently, the p -value from the ANOVA F test produced 0.000, which means that at least one variable can be used to model the 'micro-enterprise asset net worth' among the Kelantanese participants. Finally, the regression coefficients and p -values in the said both models ($N = 450$ and $N = 65$) confirmed that the economic vulnerability had a negative and statistically significant effect on micro-enterprise asset net worth among the low-income Kelantanese households. As for the effect of control variables, the findings revealed that the respondent gender and education had positive and statistically significant effects on the respondents' average monthly micro-enterprise income.

5. Discussion

Programs for development initiatives can be translated as an important tool in strengthening the income within the study area. The study found that the provision of micro-credit and enterprise development training programs positively affected household income, micro-enterprise income, and micro-enterprise assets, thus decreasing economic vulnerability. The outcomes revealed that the economically vulnerable households had begun participating in the programs of various development initiatives long before the non-vulnerable households. This study assumed the vulnerable households joined the development initiatives later because of the joint liability in group-based programs where vulnerable households were commonly excluded by the group members as they have little or no loan history, a lack of general understanding about the loans and the type of loans that would be most useful, a lack of knowledge about how to correct their credit report or improve their income and a general perception that the loan is inaccessible to them. Nevertheless, this study discovered that economically vulnerable households attended fewer micro-enterprise development training programs and put in a fewer number of training hours for the programs. The findings portrayed a negative effect of economic vulnerability on the income of low-income Kelantanese households. This study, therefore, recommends the development organizations to provide a flexible low-interest loan and insurance against shocks related to natural disasters and conflicts. As for the impact of control variables, the outcomes revealed that several socio-demographic profiles of the respondents, such as age, gender, and education, displayed a positive and statistically significant effect on the average monthly income for households and micro-enterprises among the Kelantanese participants. Apart from that, the study outputs confirmed that the economic vulnerability had a negative and statistically significant impact upon the average monthly micro-enterprise income and the micro-enterprise asset net worth among the low-income Kelantanese households. Development organizations in Malaysia should also, therefore, focus on providing entrepreneurial competencies by building training programs to boost the entrepreneurial capacities among the vulnerable low-income households. More outputs regarding the effect of control variables revealed that gender and education had positive and statistically significant impacts on the average monthly micro-enterprise income amongst the respondents. This notion appears consistent with prior studies that highlights that development initiatives can increase financial management skills that are likely to improve household income, micro-enterprise income, and micro-enterprise asset net-worth while reducing the level of economic vulnerability [8,12]. Past studies found that the household average monthly income increased by almost double during the post-borrowing of microcredit [21,22]. Based on previous investigations, respondents who received training were likely to attain higher income in comparison to those who did not acquire essential entrepreneurial skills. Evidently, micro-entrepreneurs lacking in business skills and the know-how in managing new-income earning activities gained low profitability from the microcredit invested into the businesses [21].

6. Conclusions

Based on the objectives of the entrepreneurship development initiatives, this study concludes that the participants' level of economic vulnerability can influence participation intensity, frequency and commitment (length of participation, the total amount of loan received, and training programs attended), including participants' household and micro-enterprise income and assets. The findings were consistent with previous studies that investigated entrepreneurship development initiatives [6–8,12,13,16,19,20]. Findings of this study also confirm that the combination of a one-size-fits-all program with inflexible financial assistance that lack considerations in the consequences of economic vulnerabilities on participation and well-being performance indications, could only derail efforts towards achieving the overall development goals. Therefore, any attempts to develop and implement an initiative to improve the socio-economic conditions of Malaysia's low-income households can only be successful if the government and development organizations offer a more diversified portfolio of products and services to ensure a comprehensive strategy to address different levels of household vulnerability. The limitation of this study refers to self-report issues. This is because the self-report questionnaire relied heavily on the honesty of the respondents. Even if the respondents tried being honest, they may lack the introspective ability to provide accurate responses to the equations and perhaps have a varied understanding or interpretation of the questions that may have led to misleading answers. Therefore, future researchers are called to explore the effects of micro-credit and enterprise development training upon micro- and small-enterprise sustainability and growth. Future researchers are also called to investigate additional determinants, such as loan characteristics, savings, deposit, payment services, money transfer and remittance, insurance services that may influence micro- and small-enterprise income and assets, hence decreasing economic vulnerability. Additionally, the same study may be conducted on the participants by comparing their socio-economic conditions before and after joining the programs using a longitudinal design.

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