



World Journal of Entrepreneurship, Management and Sustainable Development

Development programs, household income and economic vulnerability: A study among low-income households in Peninsular Malaysia

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Article information:

To cite this document:

Abdullah Al Mamun, Mohd Asrul Hery Bin Ibrahim, Rajennd Muniady, Mohammad Bin Ismail, Noorshella Binti Che Nawawi, Noorul Azwin Binti Md Nasir, (2018) "Development programs, household income and economic vulnerability: A study among low-income households in Peninsular Malaysia", World Journal of Entrepreneurship, Management and Sustainable Development, Vol. 14 Issue: 4, pp.353-366, <https://doi.org/10.1108/WJEMSD-01-2018-0008>

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Development programs, household income and economic vulnerability

A study among low-income households in Peninsular Malaysia

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Abstract

Purpose – The purpose of this paper is to improve the socio-economic condition of low-income households in Malaysia, many products and services are available, including access to working capital and enterprise development training programs. This study examined the impact of access to working capital and micro-enterprise development training programs on household income and economic vulnerability among participants of development initiatives in the eKasih (national poverty data bank) in Peninsular Malaysia.

Design/methodology/approach – Adopting a cross-sectional design, the authors collected data randomly from the selected 300 micro-entrepreneurs from the list of development organizations available in the eKasih (national poverty data bank) located in four states of Peninsular Malaysia. Quantitative data were collected through structured interviews with the respondents from October to November 2017.

Findings – Both the length of participation and total amount of economic loan were found to increase the household income. However, there was no positive and significant impact of total number of training hours on household income. Interestingly, length of participation was found to reduce the level of economic vulnerability, except total amount of economic loan, and total number of training hours.

Originality/value – Despite the overwhelming empirical evidence, the findings indicated that the impact of enterprise development training programs was inconclusive. The effect of total amount of loan on economic vulnerability was also inconclusive. Hence, both policy makers and development organizations should understand how their programs benefit the poor households that can be improved through new implementation strategies.

Keywords Microcredit, Economic vulnerability, Household income, Low-income households

Paper type Research paper

Introduction

Poverty, vulnerability, and inequality have been under debate in developing countries. Undoubtedly, developing countries experience high level of material deprivation and large dispersion of individual well-being. Therefore, poverty alleviation and inequalities reduction are at the top of the agenda for developing countries and the Millennium Development Goals (MDGs) of the United Nations. The concept of vulnerability (risk of experiencing poverty in future) has been discussed widely, followed by international

This research was funded by RMIC, Universiti Malaysia Kelantan under the research grant titled Short Term Research Grant (SGJP – MyRA – USM). Research Project title: Increasing Income, Inclusiveness and Sustainability of Bumiputera Entrepreneurship and Bumiputera Commercial and Industrial Community.



economic shock, such as the global economic crisis, which increased poverty among households (Heltberg *et al.*, 2015). In Malaysia, despite the reduced incidence in poverty and hardcore poverty (Al-Mamun and Mazumder, 2015; Ahmed *et al.*, 2016), inequality in income distribution and socio-economic vulnerability to poverty remains a threat among the low-income households in Malaysia, as well as in other developed countries (Nair and Sagarán, 2015).

In Malaysia, poverty refers to those who live below the poverty line income (PLI). The Malaysian government defines poverty as a lack of financial means to acquire basic needs including food and non-food components (Economic Planning Unit, 2002). In 2014, the PLI for households in Peninsular Malaysia, Sabah and Labuan, and Sarawak was RM930, RM1,170, and RM990, respectively (Economic Planning Unit, 2014). Malaysia had a remarkable achievement in its poverty alleviation as households who lived below PLI reduced from 50 percent to less than 1 percent in 2014. The country successfully achieved one of the MDGs in terms of extreme poverty and hunger eradication. However, poverty remains the major concern (Nair, 2010). There are stubborn pockets of poverty, income distribution issues, and new forms of poverty that require immediate attention (Nair and Sagarán, 2015).

Being an intervention measure, microfinance institutions (MFIs) play a crucial role in reducing poverty, inequality, and vulnerability through microcredit and training programs. The main MFIs in Malaysia are Amanah Ikhtiar Malaysia (AIM), National Entrepreneurs Economic Group Fund (TEKUN), Federal Land Consolidation and Rehabilitation Authority, the Department of Orang Asli Development (JAKOA), the Rubber Industry Smallholders Development Authority (RISDA), the Federal Agricultural Marketing Authority (FAMA), the Community Development Department (KEMAS), Malaysia Fisheries Development Board (LKIM), and the Council of Trust for the Bumiputera (MARA). In fact, AIM practices the group-based lending of the Grameen Bank. It loans vary based on different financing schemes ranging between RM2,000 and RM20,000, practicing weekly repayment from 12 to 150 weeks. Being the biggest MFI in Malaysia, AIM has 342,887 clients in 136 branches nationwide, with its current loan worth RM1.99 billion. The total given loan was over RM18 billion in 2017 (AIM, 2017). TEKUN can reach the poor through six different financing schemes and three training programs. The loans worth between RM1,000 and RM100,000 with weekly or monthly repayment from six months up to five years. It also provides four types of training programs: Basic Entrepreneurship Seminar, Advance Entrepreneurship Course, Pre-Participation Seminar, and Public Entrepreneurship Seminar.

Undeniably, microcredit has been a popular area of research for researchers. Despite the positive effect of microcredit is proven, recent studies highlight that the effect of microcredit has been uncertain (Angelucci *et al.*, 2013; Ganle *et al.*, 2015). Armendáriz *et al.* (2005) explained that microcredit differs from one context to another based on financial service providers, enterprise development, population density, group-cohesion, financial literacy, and attitudes to debt. In Malaysia, microcredit is critical to the development of socio-economic among low-income and poor households. Earlier studies focused on economic effect have found that microcredit initiatives improve micro-enterprise performance, increase micro-enterprise income and assets (Al-Mamun *et al.*, 2010; Mahmood and Mohd Rosli, 2013), positively affect borrowers household income, decrease the level of economic vulnerability and reduce poverty rate (Al-Mamun and Mazumder, 2015; Hassan and Ibrahim, 2015; Samer *et al.*, 2015; Al-Shami, Majid, Mohamad, and Rashid, 2017). Earlier studies also revealed the positive effect of microcredit on improving the quality of life of borrowers (Al-Mamun, Adaikalam, Mazumder and Wahab, 2011); increasing employment opportunities at both community and household level (Al-Mamun, Abdul Wahab, and Malarvizhi, 2011); encouraging the development of rural enterprises, skills, confidence, and social standing among rural women (Chan and Abdul Ghani, 2011);

affecting the development of formal bonding social capital (Al Mamun, 2014); and empowering women in household decision making (Al-Shami, Razali, and Rashid, 2017).

However, the above-mentioned success of microcredit in reducing poverty has been argued based on the assessment of PLI in Malaysia. Lazim (2011) measured PLI by using three functions, namely, exponential, trapezoidal, and quadratic sigmoid for 2002 were RM4330.00, RM3220.00, and RM3297.50, respectively, whereas the PLI established by the Malaysian government for the same year was RM529.00. Lazim (2011) noted that the official poverty line was too low, therefore, underestimates the extent of poverty in Malaysia. Furthermore, literature on poverty also pointed out that poverty is often transitory in nature, where the problem involves a large number of economically vulnerable low-income households falling into poverty every year because of natural and other disasters (Baulch and Hoddinott, 2000; Gaiha and Imai, 2004; Ajay and Rana, 2005; Azam and Imai, 2009). Because of the current poverty scenario and the level of economic vulnerability among the low-income households in Malaysia, it is, therefore, crucial to assess the impact of microcredit programs continuously. This study, therefore, aimed to assess the impact of access to working capital and micro-enterprise development training programs on household income and economic vulnerability among participants from various development organizations in Peninsular Malaysia.

Literature review

Theoretical foundation

The modern development theory focuses on the post-war development gap between the industrialized first-world countries and the agriculture-based third-world countries (Martin, 1991). Hence, an intervention is needed to change the wealth distribution (Hoff and Stiglitz, 2001). It is believed access to credit can reduce the inequality in the distribution of income as government initiatives are taken to reach the poor community through microcredit institutions. Many studies have suggested that access to credit can improve the socio-economic well-being (Al-Shami, Majid, Mohamad, and Rashid, 2017; Al-Shami, Razali, and Rashid, 2017; Al-Mamun and Mazumder, 2015). Human capital theory, on the other hand, explains that schooling, training, and acquiring information from others can determine the present or future well-being (Becker, 1962). Therefore, the effect of the products (microcredit) and services (enterprise development training programs) offered by the development organizations can be explained under the premises of modern development theory and human capital theory, respectively.

Impact of development initiatives

A total of 836 million people are still living in extreme poverty in the world (UNDP, 2017) where one in every five people live on less than US\$1.25 per day in developing countries. Although the number of people living in extreme poverty reduced to 1.9 billion in 1990, it was still shocking as the economic growth was noticeable. Literature highlights that employment is crucial for poverty alleviation (Bikbaeva and Gaibnazarova, 2009) through increase in self-employment, productivity, real wage, labor productivity, wage employment, and exchange of the outputs. To achieve productive employment, microcredit influences macroeconomics positively because it activates people's potential and encourages them to run their own business (Bikbaeva and Gaibnazarova, 2009). To enable the poor to earn, microcredit approach provides financial resources to the poor households. After the introduction of MFIs and the Grameen Bank model, MFIs have actually grown manifold. From 2002 to 2011, the number of active borrowers in developing countries increased by 400 percent while the gross loan portfolio increased by over 1,700 percent (Donou-Adonsou and Sylwester, 2016).

In Malaysia, MFIs have an essential role to play in poverty alleviation as well. Their programs have been proven to improve rural enterprise and social standing among rural women (Chan and Abdul Ghani, 2011). Besides individual improvement, MFIs are found to increase entrepreneurs' income and fulfill their basic needs (Hassan and Ibrahim, 2015). In terms of the quality of life between MFI old and new participants, old participants live in bigger houses. They use permanent housing materials and environmentally safe cooking fuel. They also enjoy healthy toilet facilities, and own refrigerators, washing machines, and televisions. Thus, the mean for quality of life between old and new respondents differs significantly (Al-Mamun *et al.*, 2010).

Impact on household income

Household income refers to "the average monthly income acquired by all members of the household from all possible sources in the last 12 months." Since participants from different development organizations with different household income requirements were taken into consideration, this study examined the impact of participation in development programs on the changes in household income (before and after participation). Hence, household income was used as a measure because such traditional income-based approach focused on the average monthly household income as a proxy of human welfare (Al-Mamun and Mazumder, 2015). Also, household income is the main entry requirement for joining MFI programs. It is known that microcredit commonly invested in income-generating activities such as micro-enterprise, farming, and small-scale production, which lead to an increase in household income among the participating households.

The influence of AIM's microcredit on household income has been well documented. For instance, Al-Shami, Majid, Mohamad, and Rashid (2017) investigated the impact of AIM's productive loan on women household welfare and empowerment. Their study surveyed 495 old and new borrowers, and the result showed that microcredit positively affected borrowers' household income and personal assets acquisition. However, the respondents were those from urban areas instead of both urban and rural areas. Similarly, Al-Shami, Razali, and Rashid (2017) examined the effect of AIM on women empowerment in urban Malaysia. The result revealed that microcredit positively influenced monthly income, thus the household income. In Samer *et al.*'s (2015) study, data were collected from 780 old and new AIM clients from both rural and urban borrowers in Selangor and Melaka. The finding ascertained that microcredit had a positive impact on household income. Furthermore, Al-Mamun and Mazumder (2015) collected data from eight randomly selected AIM's urban branches and seven randomly selected AIM's rural branches. The finding revealed that AIM's microcredit programs increased household income and reduced both poverty rate and level of economic vulnerability. Based on the above discussion, the following hypothesis was developed:

- H1. Access to working capital and enterprise development training programs increased the household income among participants of development organizations in Malaysia.

Impact on economic vulnerability

Poverty and socio-economic vulnerability are challenging aspects in developing economies. Governments in transition economic constantly identify the vulnerable to poverty and design safety nets programs to protect low-income and poor households. Moreover, the Malaysia's New Economic Model targeted the bottom 40 percent income category as they are considered economically vulnerable (Economic Planning Unit, 2015). In addition, the Malaysia Economic Monitor identified 15 percent of the Malaysian population were vulnerable to poverty (World Bank, 2014). In Vietnam, those non-poor households who were vulnerable to poverty in 2002, a large number of them subsequently became poor in 2004 (Imai *et al.*, 2011). Presumably,

microcredit loans are invested in income-generating activities such as micro-enterprise, farming, and small-scale production. When these activities are facilitated by enterprise development training, it may lead to a decrease in the level of economic vulnerability among the poor and low-income households. Economic vulnerability refers to the risk of exposure to potentially harmful events. Studies conceptualize vulnerability as vulnerability to income poverty, asset poverty or a more dynamic concept reflecting the risk of exposure to political turmoil, economic instability, and natural disasters.

Although the effect of microcredit on economic vulnerability is significant, previous studies that look into this area has been limited. Imai *et al.* (2011) employed the Vietnam Household Living Standards Survey data on an *ex ante* measure of vulnerability. Their finding indicated that educational background and inaccessibility to infrastructure were the key reasons for both poverty and economic vulnerability. Study on microcredit and economic vulnerability by Zaman (1999) argued that microcredit helps in mitigating a number of contributing factors that cause vulnerability. In Malaysia, Al-Mamun *et al.* (2014) examined the impact of AIM's microcredit program on the level of economic vulnerability among 333 hardcore poor households in Peninsular Malaysia. The result showed that participation in AIM programs decreased the level of economic vulnerability. Next, Al-Mamun and Mazumder (2015) collected data from eight randomly selected AIM's urban branches and seven randomly selected AIM's rural branches. The result demonstrated that AIM's microcredit programs reduced the level of economic vulnerability. Based on the above discussion, the following hypothesis was developed:

- H2. Access to working capital and enterprise development training programs decreased economic vulnerability among participants of development organizations in Malaysia.

Research methodology

This study adopted a cross-sectional design using quantitative data through structured interview to examine the effect of access to working capital and micro-enterprise development training programs on household income and economic vulnerability among participants from various development organizations in Peninsular Malaysia. The respondents were participants who were interested in socio-economic development of low-income and poor households through provision of working capital and enterprise development training programs. All information about the development organizations and participants were available in the eKasih National Poverty Data Bank. The list of low-income and poor households was obtained from the eKasih Data Bank. As a result, it provided a list of 400 randomly selected low-income and poor household from Kelantan, Terengganu, Kedah, and Perlis. Before the data collection began, a team of researchers contacted the selected households to explain the purpose of giving out the survey, thus interview appointments were made. The entire data collection took two months from October until November 2017. Ultimately, a total of 300 respondents allowed our team to visit their residents and interview them.

Sample size

The sample size was calculated using G-Power version 3.1. Based on the power of 0.95 (should be more than 0.80 in social and behavioral science research) with an effect size of 0.15, this study needed a sample size of 138 to test the model with five predictors. To avoid any possible limitations arising from a small sample size, a total of 300 low-income and poor households were collected from those who live in Kelantan, Terengganu, Kedah, and Perlis.

Operational definitions

Household income refers to "the average monthly income acquired by all members of the household from all possible resources in the last 12 months." As participants from different

development organizations with different household income requirements were included, this study looked into the effect of development programs participation on the changes in household income (current household income – household income before the participation).

Economic vulnerability refers to the risk of exposure to potentially harmful events. Vulnerability is conceptualized as vulnerability to income poverty, asset poverty or a more dynamic concept that reflects the risk of exposure to political turmoil, economic instability, and natural disaster. It is measured by using the index below:

$$EV = CV_i AST_A DIV_{si} POV_i \frac{1}{DIV_i} DEP_h$$

EV denotes the vulnerability index that measures the level of economic vulnerability. *CV_i* denotes the coefficient of variation of the average monthly household income (last 12 months) among the three groups of households according to the length of participation (e.g. 1-5 years, 6-10 years, and 11 years and above). $AST_A = \sqrt{\bar{A}/A_i}$, where \bar{A} represents the average net worth of enterprise assets among the same group of clients, while A_i represents net worth of enterprise assets (SQRT(38,723.33/HouseBusiness10)). In addition, *DIV_{si}* measures the proportion of total income from enterprise income (owned and manage by the participants). The effect of poverty on economic vulnerability is measured as $POV_i = \sqrt{(PLI_{PH}/I_{HH})}$, where I_{HH} indicates the average monthly household income, PLI_{PH} indicates the income of bottom 40 percent of the population in Malaysia, which is RM2,000 per household per month. The effect of diversification in the source of income on economic vulnerability is measured as $DIV_i = \sqrt{SOI}$, where *SOI* represents the total number of sources of income (full time). Households with higher proportion of dependent members per gainfully employed member ratio are expected to be more vulnerable (*DEP_h*).

Control variables

Other variables such as gender, marital status, age, education (Islam *et al.*, 2016), gainfully employed members (Al-Mamun and Mazumder, 2015), and sources of income (Al-Mamun and Mazumder, 2015; Al-Mamun *et al.*, 2014) were found to affect household income and economic vulnerability. For instance, male-headed households earned more and were less vulnerable to poverty as compared to female-headed households. Besides, married households faced more challenges than divorced, widowed and separated household in achieving certain economic levels. In terms of age, older households should be financially better off and less vulnerable to poverty. Similar to education variable, households with strong educational background were less vulnerable to poverty. In particular, gainfully employed households with multiple sources of income were expected to increase their household income and reduce economic vulnerability.

In respect of gender, male and female were coded as “1” and “0”, respectively; gender was expected to have an effect on household income and economic vulnerability. As for marital status, married was coded as “1” while single, separated, divorced, and widowed were coded as “0”. In a nutshell, married households were expected to have a better chance of gaining household income and reducing economic vulnerability than others.

Summary of findings

Demographic characteristics

Data were collected from 300 low-income households in Kelantan, Terengganu, Kedah, and Perlis, Malaysia. The majority of the respondents (53.7 percent) were males. A total of 111 (37 percent) of the respondents were in the age range of 31-40 years old, followed by 85 (28.3 percent) of them were in the age range of 41-50 years old and 66 (22 percent) who were in the age range of 51-60 years old. However, only 10 (3.3 percent) of the respondents were in the

age range of 20-30 years old. In terms of marital status, 243 (81.0 percent) of the respondents were married. The remaining respondents were widowed (7 percent) and separated from their partners (1.3 percent). In respect of educational background, most of the respondents (31.7 percent) received primary school education and 81 (27 percent) of them completed their secondary school education. Surprisingly, 2 (0.7 percent) of them received their master's degree. The rest (17 percent) never attended school. In addition, 200 (66.7 percent) households had two gainfully employed members. A total of 69 (23 percent) had one employed member, but only one (0.3 percent) household had four gainfully employed members. The remaining 30 (10 percent) had three employed members. Last but not least, the majority of the respondents (72 percent) relied on one source of household income. Then, a total of 76 (25.3 percent) households relied on two sources of income, and the remaining eight households (2.7 percent) relied on three sources of income (Table I).

Participation in developing programs

As presented in Table II, the mean value for the number of years in development programs was 9.3 years with the standard deviation of 3.62 years. The mean value for the total amount of economic loan received was RM41,503.67 with the standard deviation of RM26,709.88, while the mean for the total number of training programs attended was 6.41 times with the

	<i>n</i>	<i>%</i>		<i>n</i>	<i>%</i>
<i>Gender</i>			<i>Education</i>		
Male	161	53.7	Never attended school	51	17.0
Female	139	46.3	Primary school	95	31.7
Total	300	100.0	Secondary school	81	27.0
			STPM/Diploma	43	14.3
<i>Age</i>			Undergraduate	28	9.3
20-30 years old	10	3.3	Masters degree	2	0.7
31-40 years old	111	37.0	Total	300	100.0
41-50 years old	85	28.3			
51-60 years old	66	22.0	<i>Number of gainfully employed members</i>		
61 years old and above	28	9.3	One	69	23.0
Total	300	100.0	Two	200	66.7
			Three	30	10.0
<i>Marital Status</i>			Four	1	0.3
Married	243	81.0	Total	300	100.0
Single	16	5.3			
Separated	4	1.3	<i>Number of sources of income</i>		
Divorced	16	5.3	One	216	72.0
Widowed	21	7.0	Two	76	25.3
Total	300	100.0	Three	8	2.7
			Total	300	100.0

Source: Author(s) own compilation

Table I.
Profile of the respondent

	Minimum	Maximum	Mean	SD
Number of years	2.00	16.00	9.3000	3.62221
Total amount of economic loan received	6,000	130,000	41,503.67	26,709.88
Total number of training programs attended	0	20	6.41	4.073
Total number of training hours	1	130	40.48	26.759

Source: Author(s) own compilation

Table II.
Participation details

standard deviation of 4.07 times. The mean value for the total number of training hours was 40.48 hours with the standard deviation of 26.76 hours.

As shown in Table III, the total amount of economic loan received was the highest for those who participated in the development programs for over 11 years ago. The mean value for this aspect was RM41,503.67 with the standard deviation value of RM26,709.82. The significant difference across the groups indicates that older participants received a significantly higher amount of loan than that of new participants.

As for the total number of enterprise development training hours, those who participated in the programs between six to ten years ago received the highest number of hours of training. The mean value for this aspect was 40.48 hours with the standard deviation of 26.76 hours. Besides, the mean value for pre-participation household income was RM692.12 with the standard deviation value of RM247.684. The significant difference in pre-participation household income across the groups indicates that new participants pre-participation household income significantly higher than that of old participants. The mean for the “average monthly household income” among participants for the last 12-month was RM4,144.00 with the standard deviation of RM1,550.250. The mean value of changes in household income for participants was RM3,451.88 with the standard deviation of RM1576. The change in household

	<i>n</i>	Mean	SD	Sig.
<i>Total amount of economic loan received</i>				
1-5 years	57	36,175.44	17,097.277	0.000
6-10 years	124	32,807.26	23,244.897	
More than 11 years	119	53,117.65	29,606.723	
Total	300	41,503.67	26,709.818	
<i>Total number of training hours</i>				
1-5 years	57	33.23	21.105	0.040
6-10 years	124	44.06	30.254	
More than 11 years	119	40.23	24.698	
Total	300	40.48	26.759	
<i>Pre-participation household income</i>				
1-5 years	57	799.47	321.483	0.000
6-10 years	124	716.09	240.356	
More than 11 years	119	615.71	184.724	
Total	300	692.12	247.684	
<i>Average monthly household income (last twelve months)</i>				
1-5 years	57	3171.93	1,246.245	0.000
6-10 Years	124	4064.52	1,398.094	
More than 11 years	119	4,692.44	1,596.456	
Total	300	4,144.00	1,550.250	
<i>Changes in household income after participation</i>				
1-5 years	57	2,372.46	1,129.131	0.000
6-10 years	124	3,348.43	1,393.910	
More than 11 years	119	4,076.72	1,642.263	
Total	300	3,451.88	1,576.197	
<i>Economic vulnerability</i>				
1-5 years	57	0.7068	0.62476	0.000
6-10 years	124	0.3127	0.25241	
More than 11 years	119	0.1865	0.15267	
Total	300	0.3375	0.37925	

Table III.
Length of participation and key determinants

Source: Author(s) own compilation

income is higher among the old participants than that of new participants. For economic vulnerability, the mean value for this aspect was 0.344 with the standard deviation of 0.38. Those who joined development programs for over 11 years ago had lower level of economic vulnerability as compared to those who joined for over 1 to 5 years ago with the mean value of 0.19 and 0.71, respectively.

Partial correlations

A partial correlation was performed to determine the relationship between changes in household income after participation, economic vulnerability, number of years, total amount of economic loan received, and total number of training hours after controlling the effect of gender, marital status, age, education, gainfully employed members, and sources of income (see Table IV). Findings revealed a significant positive correlation between number of years of participation and changes in household income among the participants. Findings also reported a negative association between number of years of participation and level of economic vulnerability among the participants. Furthermore, there is also a significant positive correlation between total amount of loan received and changes in household income among the participants. Findings also reported a negative association between total amount of loan received and level of economic vulnerability among the participants. Finally, there is also a positive correlation between total amount of training hours and changes in household income among the participants; and a negative association between total amount of training hours and level of economic vulnerability. The associations, however, are not statistically significant (at 5 percent level of significance).

Impact on household income

The r^2 value was 0.367, which indicated that 36.7 percent of the variation in “changes in household income after the program participation” was explained by years of participation, total amount of economic loan received, total number of training hours, gender, marital status, age, education, number of gainfully employed members per households, and sources of income per households. Besides, the Durbin-Watson statistic of 1.920 was below 2, it indicated the absence of autocorrelation. When the VIF values were below 5, there was no multicollinearity issue detected. Since the p -value from the ANOVA analysis was less than 0.001, it meant that at least one variable was used to model “changes in household income after the program participation.”

Given that the Shapiro-Wilk test of normality of the residuals gained 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 showed the outliers based on the unstandardized residual values.

Variables		Income	EV	Year	Loan	Training
Changes in household income after participation	Correlation	1.000				
	Sig. (1-tailed)	–				
Economic vulnerability	Correlation	–0.425	1.000			
	Sig. (1-tailed)	0.000	–			
Number of years	Correlation	0.344	–0.356	1.000		
	Sig. (1-tailed)	0.000	0.000	–		
Total amount of economic loan received	Correlation	0.314	–0.112	0.318	1.000	
	Sig. (1-tailed)	0.000	0.027	0.000	–	
Total number of training hours	Correlation	0.088	–0.048	0.073	0.145	1.000
	Sig. (1-tailed)	0.066	0.208	0.107	0.007	–

Notes: Income, changes in household income after participation; EV, economic vulnerability; Years, number of years; Loan, total amount of economic loan received; Training, total number of training hours. Control variables – gender, marital status, age, education, gainfully employed members and sources of income

Source: Author(s) own compilation

Table IV.
Partial correlation

After removing the outliers and reanalyzing the data of the remaining 241 respondents, the standardized β and p -values are presented in Table V.

The findings revealed that years of participation had a positive effect on changes in household income after the development programs participation ($n = 300$ and $n = 241$). In other words, the length of participation increased the household income. For the total amount of economic loan, there was a positive effect on changes of household income. Being said that, total amount of economic loan received by the respondents were expected to have increased household income. However, the total number of training hours had a positive and insignificant effect on the changes in household income. Certainly, it was an unexpected negative effect of training on the changes in household income. Therefore, it was concluded that the participation in micro-enterprise development training programs did not necessarily have substantial effect on household income. As for the effect of control variables, findings revealed a positive effect of gender, marital status, age, education, number of gainfully employed members per households, and sources of income per households on the changes of household income.

Impact on economic vulnerability

For economic vulnerability, the r^2 value was 0.246, which indicated that 24.6 percent of the variation in “economic vulnerability” was explained by years of participation, total amount of economic loan received, total number of training hours, gender, marital status, age, and level of education. Given that the Durbin-Watson statistic of 2.013 was below 2, it indicated the absence of autocorrelation. When the VIF values for all variables were below 5, there was no multicollinearity issue detected. Since the p -value from the ANOVA analysis was less than 0.001, it implied that at least one variable was used to model “economic vulnerability” among the participants of the development programs.

As the Shapiro-Wilk test of normality of the residuals gained 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 showed the outliers based on the unstandardized residual values. After removing the outliers and reanalyzing the data of 202 respondents, the standardized β and p -values are presented in Table VI.

The findings revealed that years of participation had a negative effect on economic vulnerability among the low-income households in Peninsular Malaysia ($n = 300$ and $n = 202$). Therefore, the length of participation was found to decrease economic vulnerability. For the

	Unst. β	$n = 300$ SE	Stan. β	Sig.	VIF	$n = 241$ Stan. β	Sig.
(Constant)	-1,571.723	511.879		0.002			
Years	111.277	23.219	0.256	0.000	1.304	0.369	0.000
Loan	0.012	0.003	0.211	0.000	1.344	0.121	0.000
Training	1.891	2.811	0.032	0.502	1.043	-0.098	0.016
Gender	437.107	175.377	0.139	0.013	1.415	0.232	0.021
Marital status	389.770	224.887	0.097	0.084	1.440	0.131	0.000
Age	394.808	79.605	0.263	0.000	1.285	0.458	0.012
Education	302.328	68.550	0.234	0.000	1.286	0.319	0.000
GEM	88.921	164.674	0.032	0.590	1.646	0.094	0.000
Sources of income	227.426	178.524	0.075	0.204	1.568	0.101	0.100

Notes: (Dependent variable) Income, changes in household income after participation. (Independent variables) Years, number of years; Loan, total amount of economic loan received; Training, total number of training hours. (Control variables) Gender; Marital status; Age; Education, highest level of education; GEM, gainfully employed members and sources of income
Source: Author(s) own compilation

Table V.
Regression
coefficients -
Household Income

Table VI.
Regression coefficients - Economic Vulnerability

	<i>N</i> = 300				VIF	<i>n</i> = 202	
	Unst. β	SE	Stan. β	Sig.		Stan. β	Sig.
(Constant)	1.139	0.119		0.000			0.000
Years	-0.041	0.006	-0.394	0.000	1.192	-0.407	0.000
Loan	1.042E-006	0.000	0.073	0.196	1.241	-0.041	0.505
Training	-8.700E-005	0.001	-0.006	0.906	1.035	0.166	0.002
Gender	0.051	0.045	0.067	0.257	1.332	0.054	0.402
Marital status	-0.056	0.057	-0.058	0.323	1.350	-0.463	0.000
Age	-0.065	0.021	-0.179	0.002	1.269	-0.163	0.008
Education	-0.067	0.018	-0.217	0.000	1.277	-0.170	0.008

Notes: (Dependent variable) EV, economic vulnerability. (Independent variables) Years, number of years; Loan, total amount of economic loan received; Training, total number of training hours. (Control Variables) Gender; Marital status; Age; Education, highest level of education

Source: Author(s) own compilation

total amount of economic loan, the finding was not straightforward. In the first model ($n = 300$), it had a positive effect on economic vulnerability. This demonstrated that respondents who borrowed more loans were highly vulnerable to poverty. After removing the outliers and distribution became normal, the second model ($n = 202$) showed that the total amount of loan received had a negative effect on economic vulnerability. This indicated respondents who borrowed more loan were less vulnerable to poverty. Since both coefficients were not statistically significant (p -value more than 0.05), there was no sufficient evidence to conclude that total amount of loan received reduced economic vulnerability.

For the number of hours participants spent on enterprise development training, the first model showed that training had a negative effect on economic vulnerability, whereas the second model showed otherwise. As both coefficients were not statistically significant (p -value more than 0.05), there was no sufficient evidence to conclude that number of hours participants spent on enterprise development training reduced economic vulnerability. After including control variables, only marital status, age, and education had a negative effect on economic vulnerability. In actual fact, both age and education had a negative effect on economic vulnerability (p -value less than 0.05).

Discussions and conclusion

The purpose of this study was to examine the impact of access to working capital (length of participation and total amount of economic loan received) and micro-enterprise development training programs (total number of training hours) on household income and economic vulnerability among participants of various development organizations in Peninsular Malaysia. Using a regression model with 300 samples, the result showed that microcredit programs, length of participation, and total amount of economic loan increased the household income. However, total number of training hours did not necessarily have a substantial effect on household income. For control variables, the finding revealed that gender, marital status, age, education, number of gainfully employed members, and sources of income had a positive effect on the changes of household income after the households participated in the development programs. Likewise, length of program participation had a negative relationship with economic vulnerability. When the members were committed to a development program, they were less prone to economic shocks. Conversely, there was no adequate evidence to justify that the both loan and training reduced economic vulnerability. For control variables, the finding revealed that marital status, age, and education had a negative effect on economic vulnerability. The above findings were consistent with the effect of microcredit especially in the context of Malaysia. The modern development theory illustrated the role of access to working capital and

its effect on economic deployment (Martin, 1991). In response to this, findings of this study provide empirical evidence on the positive effect of access to working capital on household income among the low-income participants in Peninsular Malaysia. Moreover, human capital theory explains that training and development activities are likely to affect the present and/or future well-being (Becker, 1962). Unexpectedly, this argument was not supported by the current study because this study did not find any evidence to conclude that training programs offered by developing organizations have any effect on household income and economic vulnerability.

As for the practical implication, outcomes from this study displayed that development initiatives do play a significant role in increasing household income and in reducing economic vulnerability. Both appear to be imperative in eradicating poverty and inequality, which is a major objective of the New Economic Policy toward Malaysian Vision 2020, as well as part of the 11th Malaysia Plan, especially to increase the population of the middle class society from 40 to 45 percent by year 2020. Toward achieving those aims, government agencies and development initiatives may consider incorporating more households from the bottom 40 percent of the Malaysian population into effective development programs organized by various agencies. It is essential to retain those households in their programs long enough, accompanied with tailored economic loans, so as to experience the positive effects of participation upon household income growth. As length of participation seems to minimize economic vulnerability amongst the participants, retaining more of these bottom forty households in development programs is significant, especially to keep them out of poverty. At present, agencies have been aiming to offer economic loans and training programs, thus indicating that when both these aids are not required anymore; they may not actively participate in the agency programs. This could reduce, cease, or even reverse the positive effects; nullifying the initial idea conceived by these development agencies. Therefore, the related agencies should look beyond the aspects of loan and training aids, and begin to function as a social platform so as to ensure continuous participation even after the need for finance and training is absent. Apart from the mentioned implications, training programs provided by development organizations have failed to produce the intended results. To that, development organizations should discern the reasons on why the training programs have failed in influencing household income and economic vulnerability. On top of that, the present scenario is far from that associated with specific development organizations in Malaysia. Thus, future research should investigate individual organizations in terms of their credit facilities and training programs so as to facilitate the positive effect of their activities upon increasing income and reducing economic vulnerability.

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