Measuring the Impact of University Presence on Socio Economic Development towards Community Income in Kelantan, Malaysia

Syerina Azlin Md Nasir[1], Wan Fairos Wan Yaacob[2], Nurazleena Ismail[3], Wan Marhaini Wan Omar[4] & Nur Izawaty Mustafa[5]

[1]Universiti Teknologi MARA Cawangan Kelantan, Machang Campus, Bukit Ilmu, 18500 Machang, Kelantan, Malaysia, [2,3,4]Universiti Teknologi MARA Cawangan Kelantan, Kota Bharu Campus, Lembah Sireh, 15050 Kota Bharu, Kelantan, Malaysia, [5]Machang District Council, 18500 Machang, Kelantan, Malaysia
Email: syerina@uitm.edu.my

Abstract

Traditionally, university roles were only focused on three core areas namely teaching, research and service before they were redefined as discovery, learning, and engagement. In Malaysia, the community highly perceives university as a place for pursuing study in various fields. Nowadays, the university does not only produce graduates to fill the demand of the industry but also helps alleviate the social-economic status of the community around the university. However, most of the researchers who deal with the issues of community development, community work and social empowerment rarely analyzed them in relation to the role of universities. Therefore, this study aims to investigate the impact of the university's existence towards the community's socio-economic development. A total of 50 individuals participated in this study who were randomly selected within 5km radius from Universiti Teknologi MARA Cawangan Kelantan, Malaysia. Using the OLS regression model, the impact of university's existence to the community income by looking specifically at socio economic development was identified. The results revealed that the level of agreement on the impact factors in relation to public facility, business development, job opportunity and social issues significantly influenced community income. The findings from this study can be recommended to the local authority as to act in improving public transportation, local development, business opportunity and education which showed no significant impact on the presence of the university as identified from the findings.
Keywords: Socio-economic Development, Community, University Presence, Regression

Introduction

Universities have historically existed as institutions for the creation and dissemination of knowledge. Universities differ between countries and have been transformed through time

in various ways. However, these universities do not only educate the nation but also provide ideas on national development. The impact of university on locals can be observed either in politics, demography, economy, infrastructure, culture, education or social aspects (Kotosz, 2013). While there were many works that have been done on human capital and growth, relatively only little research on the economic impact of universities themselves was found (Valero & Reenen, 2018). Recent studies on this matter have evolved to incorporate the promotion of economic development.

Many prior studies explored how universities gave impact on community income generation and job creation Sen (2011) that distinguished the different ways in which universities potentially lead to economic development (Zong, 2020). In this study, the aim was to investigate the impact of university's presence on socio-economic development particularly towards the community income. Impact on socio-economic can be defined as "the difference between existing economic activity in a region given the presence of the institution and the level that would have been present if the institution did not exist" (Beck et al., 1995, 246). Extensive review of literature was conducted to generate new insights on how the presence of universities contribute to the functioning of communities and surrounding areas. As a result, the review of relevant literature provided and defined several factors such as business development, job opportunity, public facility, social problems occurred and others.

Universities are always viewed as engines of economic growth and development. Traditionally, the core activities of universities have been recognized as teaching and conducting basic research. However, universities have now undergone major transformations where engaging and adapting to community and surrounding areas have become important elements in the universities' key performance. Universities are considered as the key access agent in knowledge transfer, innovation ecosystems (Guerrero et al., 2016) and facilitate entrepreneurial activity which serve as the driving force to economic growth (Audretsch, 2014). Furthermore, gaining knowledge can influence the productivity of private enterprises and other innovative capacities which lead to a consistent social development and economic growth.

A number of studies have found that universities increase the local economy and businesses in which they are located (Valero & Van Reenen, 2019). According to Isenberg (2010), the existence of universities in the community area can increase entrepreneurial activities and assist in the development of businesses. In fact, the development of university has sometimes been described as an evolution of business development or entrepreneurial paradigm (Guerrero et al., 2016). Some studies agreed that universities may assist local business with severe resource constraints and unpredictable conditions on how to adapt with challenges and survival through innovation and venturing activities. This statement is supported by Kotosz (2013) who stated that the presence of institutions can increase the volume of the business which leads toward generation of business or companies created by university students and employees, with or without employment knowledge and technology. Furthermore, the role of the university is to explore the way to interact with other stakeholders in the surrounding areas and create eloquent interactions so that socio-economic well-being can be sustained.

The socio-economic impact of universities goes further than technology transfer and knowledge creation. Human capital, universities and growth are said to have a significant relationship. Pastor, Pérez and De Guevara (2013) stated that universities use economic, financial and labour resources of the area in which they are located. Improvements of the population's human capital lead to improvements in labour, which in turn foster greater job

creations and lower unemployment rates in the surrounding area. In addition, the presence of universities also supports entrepreneurial activities and builds linkages among entrepreneurs, business incubators and others (Mason & Brown, 2014). Many cases such as the Swedish case provided an explanation on how local growth is related to human capital where it may have a positive impact on average income growth by increasing human capital (Lundberg, 2017). Thus, the existence of universities has shown strong contributions in proving talent human capital and creating more job opportunities.

A significant point was raised by Pastor et al (2013) who stated that universities generate economic impacts and contribute towards facilities development such as constructing and maintaining buildings, laboratories, research parks, and additional types of facilities along with associated transportation and other infrastructure. Apart from public facilities development, the presence of universities influences the local area by generating improvements in social and cultural activities. For that reason, the quality of life among the people in the surrounding areas has improved and the social issues can be consistently minimized.

This article presents the results of a study on a university which addresses the impact of their activities on the surrounding community and contributions towards its socioeconomic development. For the past 20 years since UiTM was declared as university, there were a lot of significant changes that happened not only to the university itself but also to the community surrounding the campus. This study further investigates the impact factors that influence the community income by looking specifically at socioeconomic development. The findings will further confirm that university presence is, in fact, improving the neighbourhood. efficiency.

UiTM Cawangan Kelantan as a Case Study
University can be an important player in the local development by interacting with the government as well as with private companies as key members of the economic growth and development of a specific territory. In particular, Universiti Teknologi MARA (UiTM) Cawangan Kelantan, Machang Campus was formerly known as MARA Institute of Technology and it is the 9th branch campus established as the result of close cooperation between UiTM and the Federal Government. With the support of the Federal Government, UiTM Kelantan Branch was transferred from 12 acres of land at Kijang Camp located about 8 kilometres from the town of Kota Bharu to 200.32 hectares of land at Bukit Ilmu (formerly known as Bukit Anjing), Machang, Kelantan. The official transfer to the Machang Campus began on January 01, 1996. UiTM Kelantan Branch, formerly known as ITM, was upgraded to Universiti Teknologi MARA or simply UiTM on August 26, 1999. Since then, the university has served the community as a learning institution that provides learning opportunities in various disciplines for Bumiputera which has expanded rapidly to meet the requirements of becoming the top university in Kelantan in particular. Its population of nearly 8000 people means the university has a large impact on socio-economic development of the local community.

This study investigates the potential impact factors that influence the community income by looking specifically at socio-economic development. By examining the locations within 5 kilometres radius from the university, this study strives to improve the understanding of how university could give impact on the local community income by looking specifically on socio-economic development. Furthermore, it uses data from the community as the means for analysis. Specifically, the study seeks to answer the following research question:

RQ1. What are the potential factors that impact the local community income by looking at socio-economic development?

Methods

This study observed the impact of socio-economic status on the local community with the presence of UiTM in Machang, Kelantan. The study area covered the location involving seven mukim within 5 kilometres radius of UiTM Machang campus namely Banggol Kuin, Belukar, Bukit Sawa, Bukit Tok Petani, Desa Harapan A, Kampung Ulu Sat and Lepan Setar (Figure 1). The population is about 1013 people who live within 5 kilometres radius of UiTM as provided by Penggawa Ulu Sat. The district Machang was selected as the study area of interest as it is one of the rural areas in Kelantan. According to Household Income and Expenditure Survey (HIES) (2014), 94% of the population in those areas is categorized under B40 which has an average monthly income of below RM3,860.00. The employment categories are self-employed (40%), private sector (12%), government sector (6%) and not working (42%). On the other hand, the B40 household group also includes poor households with monthly income of less than the poverty line (PGK) income as national PGK value which is RM950.00 per month (Department of Statistic Malaysia, 2014). From seven mukim, 60% had income less than the poverty line where 36% of them are not working and 24% are working (self-employed and private sector). This justified the selection of the study area to measure the impact of community income with socio-economic development.

Data Acquisition

The data used in this study were collected randomly among the community people using face-to-face interviews. Questionnaires were distributed to the selected respondents as to investigate the impact of university's existence in relation to socio-economic factors of community income. Face-to-face interviews can allow the interviewer to explain each of the questions' elements as to avoid misinterpretation of the questions by the community. This method is suitable because it can be used to express a wide variety of questions such as issues and problems in various perspectives especially describing attitudes, views, beliefs, feelings and behaviours (Piaw, 2014). A sample of 50 respondents from a total population of 1013 people staying within 5 kilometres radius from UiTM Machang campus was selected using systematic sampling. Seven mukim were identified as potential samples which included Banggol Kuin, Belukar, Bukit Sawa, Bukit Tok Petani, Desa Harapan A, Kampung Ulu Sat and Lepan Setar. Data cleaning was done to remove those who had already died and no longer stayed in the identified areas. The architecture layers used in IoT applications vary. The four-layer architecture of IoT is frequently used in conjunction with recommended security mechanisms:
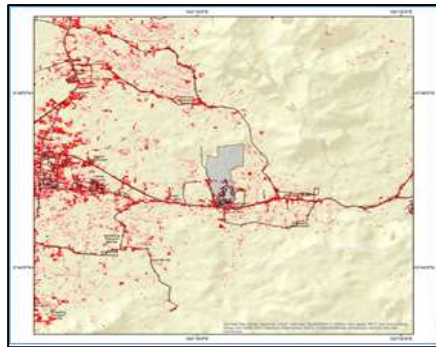
Figure 1: Spatial Map of Development Area in Machang (5km radius)

Data Analysis

Location, density and spatial distribution were used to produce spatial maps using ArcGIS software. This analysis is important in order to get the details of the urbanization development at the identified location. To examine the profile of the respondents, the data were analysed using frequency distribution. Then, descriptive analysis was used to analyse the data that were gathered from questionnaires distributed to the respondents. Mean values were calculated to examine the average level of agreement on the impact of university's presence to local community income based on socio-economic development factors. Finally, to investigate the relationship of university presence on socio-economic development towards community income, the Ordinary Least Square method of Regression was employed. The estimated OLS Regression model used in this study is as follows:

$$\hat{Y_i} = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8$$

where $\hat{Y_i}$ = Community Income (RM)

X_1 = Agreement on the impact of university presence on public transport services

X_2 = Agreement on the impact of university presence on local development

X_3 = Agreement on the impact of university presence on business and services opportunity

X_4 = Agreement on the impact of university presence on of public facility

X_5 = Agreement on the impact of university presence on business development

X_6 = Agreement on the impact of university presence on tendency to upgrade education among young population

X_7 = Agreement on the impact of university presence in increase job opportunity in surrounding area

X_8 = Agreement on the impact of university presence on the social problem Caused by UiTM students.

β_o = intercept

β_i i for i=1 to 8 = coefficient estimates

Model assumption and accuracy checking were done by plotting the residual plot and collinearity diagnostic to check on the regression assumption. The data were analysed using SPSS 26.0.

Results

Frequency distribution was employed to describe the profile of respondents. With regard to community gender (Figure 2), the result showed that the female community (52%) was almost proportionate with male community (48%). Referring to Figure 3, the majority of the community members were married (60%), followed by single status (24%) and widowed status (16%). Describing the level of respondent's education (Figure 4), most of the respondents had secondary educational level with the highest percentage of 44% followed by primary education level (20%), while no education and tertiary education level had the lowest percentage of 18%.
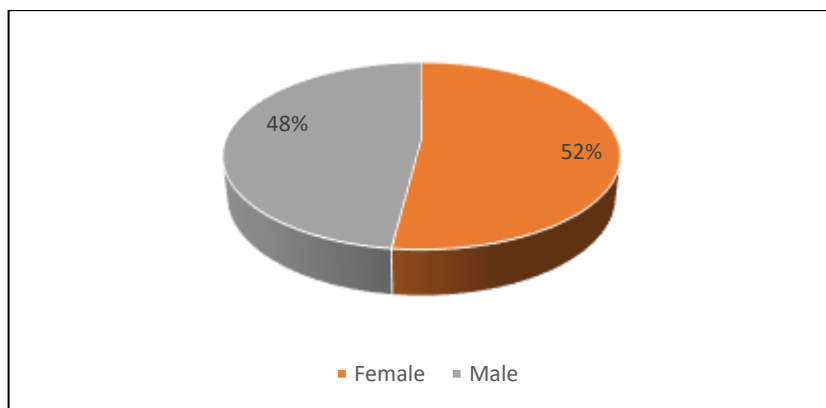

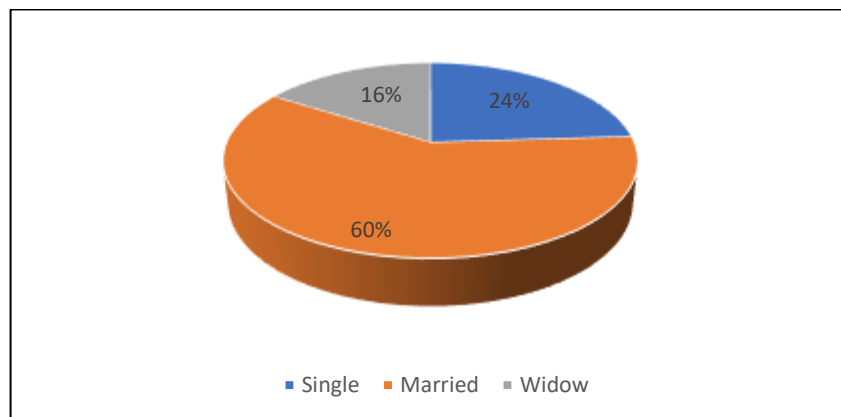Figure 2: Frequency Analysis for Gender of Community

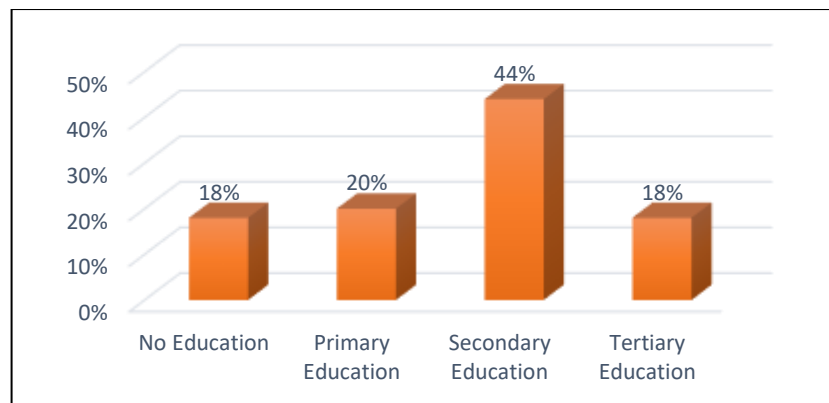Figure 3: Frequency Analysis for Marital Status of Community

Figure 4: Frequency Analysis for Education Level of Community

Table 1 describes the mean score of the respondent's agreement for the impact of university existence on socio-economic factors towards community income from a scale of 1 (Strongly disagree) to 5 (Strongly agree). The average monthly community income in Machang was about RM1,253.20 while the minimum and maximum values of community income were RM0 and RM7,000.00 respectively. Overall, the mean scores of all socio-economic factors were above 4.00. The eighth item which was "the existence of UiTM creates job opportunity among the local community" (M = 4.38, S.D = 0.60238) showed the highest score with the minimum and maximum values of 2 and 5 respectively on the respondents agreement. This is followed by the second highest mean score which was the third item on "the existence of UiTM influences the local development in surroundings area" (M = 4.32, S.D = 0.47121). The lowest score was the sixth item on "the existence of UiTM had increased business development" (M = 4.12, S.D = 0.68928) with minimum and maximum values of agreement among the respondents of 2 and 5 respectively.

Table 1
Prominent Authors with Highest Total Link Strength

Items	Mean	Standard Deviation	Minimum	Maximum
Community Income	1253.20	1377.53912	0.00	7000.00
Public Transport	4.2200	0.54548	2.00	5.00
Local Development	4.3200	0.47121	4.00	5.00
Business Opportunity	4.2600	0.44309	4.00	5.00
Public Facilities	4.1600	0.50950	2.00	5.00
Business Development	4.1200	0.68928	2.00	5.00
Education	4.3000	0.54398	3.00	5.00
Job Opportunity	4.3800	0.60238	2.00	5.00
Social Problem	4.2400	0.93808	2.00	5.00

In order to assess the nature and strength of relationships between the variables, a scatter plot matrix was plotted to observe the bivariate relationship between variables before running the regression analysis. Figure 5 shows a moderate positive relationship where the data show an increasing pattern as it moves from left to right. This means that if community income increases, it tends to increase public facilities, business development and job

opportunity. However, a negative relationship between community income and social problem occurs in the scatter plot matrix as it shows a decreasing pattern. It means that if the community income increases, the social problem tends to decrease.
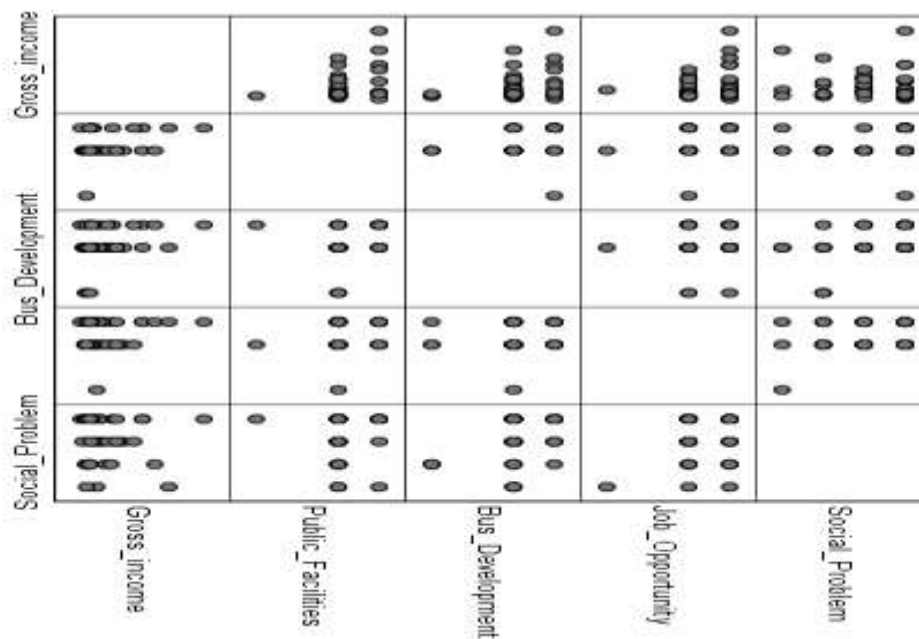

Figure 5: Scatter Plot Matrix

Further analysis was conducted to investigate the cause and effect of the relationship. The results from regression analysis estimated indicate a significant model with p-value of 0.17. The model assumption checking on constant variance of residual displayed no obvious pattern of residual plot. The normal probability plot of residual did not deviate from normally assumption. Based on Table 2, the coefficient result for full model show that the impact of university presence on public facilities, business development, job opportunity and social problem was significant towards community income. Those variables were found to have a high impact on community income with the existence of UiTM in Machang, Kelantan. After obtaining the reduce model, the final results based on standardized coefficients show that one standard deviation increases in the agreement on the impact of university presence on public facilities would yield 0.277 standard deviation increases in the predicted community income. Meanwhile, for business development and job opportunity, one standard deviation increase in the agreement on the impact of university presence on business development and job opportunity would yield 0.377 and 0.276 standard deviation increases in the predicted community income respectively. For the impact of social problem, one standard deviation increases in the agreement on the impact of university presence on social problem would yield 0.348 standard deviation decreases in the predicted community income. Those variables had a high impact on community income with the existence of UiTM in Machang, Kelantan. The other variables such as public transport, local development, business opportunity and education were not significant towards the community income with the existence of UiTM in Machang, Kelantan.

Table 2
Estimated Regression Model for Impact study

Items	Full Model				Reduced Model			
	Unstandardized Coefficients Beta	Standardized Coefficients Beta	t-value	P-value (α)	Unstandardized Coefficients Beta	Standardized Coefficients Beta	t-value	P-value (α)
Constant	-4601.797		-1.957	.057			-2.904	.006
Public Transport	-197.362	-.078	-.535	.596				
Local Development	-489.072	-.167	-.927	.359				
Business Opportunity	101.669	.033	.205	.838				
Public Facilities	1005.891	.372	2.446	.019		.277	2.201	.033
Business Development	735.414	.368	2.660	.011		.377	2.816	.007
Education	6.149	.002	.016	.987				
Job Opportunity	697.055	.305	2.141	.038		.276	2.169	.035
Social Problems	-454.342	-.309	-2.116	.040		-.348	-2.569	.014

Discussion

This study proves that some socio-economic factors appear to give some impacts on local community income with the nearby existence of UiTM Cawangan Kelantan. In summary, the effects of the university presence on community income work occurred via few socio-economic factors namely public facilities, business development, job opportunity and social problems. These results are significant to be highlighted as they show the importance of the presence of university in the local community which can possibly contribute towards increasing the level of community income. In fact, it is evident that the presence of UiTM Cawangan Kelantan is the primary cause for business development in the surrounding area including in the town of Machang. This is supported by Valero and Van Reenen (2019) who stated that the existence of universities can increase the local economy and businesses in which they are located. In this case, business development has shown significant growth since many fast food restaurants, supermarkets, minimarkets, petrol stations, food stalls, restaurants, laundry shops, internet cafes, budget hotels and homestays were opened by the local people. Interestingly, public facilities and job opportunities also proved to have positive impacts from the presence of UiTM Cawangan Kelantan. Public facilities provided by the government to its citizens are important to fulfill the basic human needs such as health, education, safety, recreation and worship facilities. Public facilities in the town of Machang and nearby areas are significantly growing since the establishment of UiTM Cawangan Kelantan. There are a number of government agencies, post offices, schools, police stations, mosques, farmers' market, night markets, banks, buses and taxis that have been developed either by the federal government or state government. The establishment of these facilities is in line with the literature provided by Pastor, Pérez and De Guevara (2013) who stated that the presence of universities generated economic impacts and contributed towards facilities development in order to improve the quality of life among the community. In addition, job opportunity or job creation is also affected by the existence of the university in the nearby area. The increasing number of job opportunities more or less has improved the standards of living and opened up avenues to new and better kinds of work in the particular area. In this study, it was found that many job opportunities were created due to the establishment of

UiTM Cawangan Kelantan such as cleaning services, construction works, car rental service and rental houses to the students, along with food delivery services, transport service and small businesses in the campus. Apart from that, social problems were found to be significant with inverse relationships. It seems that the existence of the university and the improved quality of life among the community have helped to lessen the number of social problems in the community.

On the other hand, this study has shown that the local community income is not merely driven by public transport, business opportunity, local development and education. Majority of the local community people in Machang specifically and in Kelantan generally are using their own transportation to move from place to place. The public transport in Kelantan, in this case, bus service is monopolized by only one company and this has indirectly influenced the level of service to the community. As reported by Napiah (2011), factors such as service coverage area, service frequency, hours of service, service reliability are the main contributors that lead to the usage of bus service in Kelantan. The insignificant finding obtained from this study that relates to public transport in Kelantan is in accordance with the study done by (Napiah, 2011). The average service hours provided by the public bus in Kelantan ranges between 10-14 hours and it is categorized as group C, D, E which is far behind from the satisfied service available of 19-24 hours. Thus, the study indicated that the majority of the passengers were moderately dissatisfied with the public bus service. According to Bernama (2019), the Kelantan state government has attempted to attract investments from private sectors and foreign investors by introducing several incentives. However, for the last 20 years after the establishment of UiTM Cawangan Kelantan, it can be seen that there were no large investors or new industry that appeared in the town of Machang. Hence, it is in agreement with the findings of this study particularly on the lack of business opportunity. Kelantan has been under opposition party for more than 30 years, and this is one of the factors that contribute to slow local development since limited funds were received from the federal government. Furthermore, the average income based on the surveys conducted on 50 respondents of this study was RM1253.20 per month. This is below the national mean poverty line income for households in Malaysia in 2019 which was RM2,208 per month. The finding further confirmed that local people in Machang fall under absolute poverty. According to DOSM (2019), the absolute poverty in Kelantan was 12.4% which ranked as the second highest state in Malaysia after Sabah. Therefore, the situation implicitly described the slow pace of local development regardless of the presence of university in the surrounding area. Lastly, the impact of education was found to be insignificant due to the fact that the entry requirements to the university are solely based on applicant's qualifications. Thus, the presence of university does not appear to be related to youth's education level which impacts on community income.

Conclusion

This study has succeeded in revealing the socio-economic development driving forces that significantly impact the local community income surrounding UiTM Cawangan Kelantan, Machang, Malaysia within 5km radius namely public facilities, business development, job opportunity and minimizing social problems. Kelantan is known as one of the poor states in Malaysia and a study by Siwar et al (2016) stated that the greatest portion of the poor households was centred in the district of Machang. Ultimately, the majority of the factors which included public transport, business opportunity, local development and education were found to be insignificant due to the absolute poverty status of Kelantan. However, the local district still need to concentrate in improvising the infrastructure and development of

facilities to increase business growth in the area which indirectly will help to increase the income of the community. Therefore, the future direction of the study will be focused on the insignificant factors derived from the study which require further investigation in assisting the local town planning management. This is to ensure proper coordination among the regulatory agencies of the government that are responsible for the physical planning development plan is carried out effectively in Machang, Kelantan.

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