

Analysis of Barriers on Student Spin-Offs Intention

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Abstract

Purpose: This paper aims to investigate the effect of perception of barriers on student spin-offs intention and explores the question of whether the effect is varies according to demographic profiles.

Design/methodology/approach: The data were collected using cluster sampling method. An online survey questionnaire was approached to respondents in eleven Malaysian public universities. Of these, 369 completed questionnaires were obtained for further analysis. Data was analysed using IBM Statistical Package for Social Science (SPSS) Statistics for Windows, Version 24.0. Few analyses such as descriptive analysis, reliability test, regression analysis, independent-samples t-test and analysis of variance were executed in this study.

Findings: The results show that perception of barriers is negatively influence student spin-offs intention. With regards to study of difference, only year of study has shown significant different with perception of barriers. Other demographic variables such as gender, age, ethnicity, level of study and type of university unable to report significance difference with perception of barriers.

Research limitations/implications: Future studies should examine a more comprehensive barrier on student spin-offs intention in different setting. In addition, in-depth study of the barriers using qualitative study should also be considered for future studies.

Practical implications: The results of this study have clear implications for universities and policymakers to mitigate the barriers of student spin-offs intention.

Originality/value: The study discusses the barriers of student spin-offs intention in which the issue is relatively new in developing country like Malaysia.

Keywords: Perception of Barriers, Student Spin-Offs Intention, Demographics

Introduction

Student spin-off (SSO) has captured the attention of researchers and policymakers in the last few years due to its vast contributions to self-employment generation, job opportunities, innovation and contribution to local economic growth (Corsi and Prencipe, 2016; Leire et al., 2016;

Manbachi et al., 2018). Bailetti (2011) added the importance of SSOs for several reasons such as: (i) SSOs offer a concrete proof the university is relevant, up-to-date, and competitive; (ii) SSOs substantially contribute to the development of local region where the university is located; (iii) SSOs assist to commercialize undeveloped knowledge within the university; (iv) SSOs facilitate universities accomplish their core missions (research, teaching, and community development); and (v) The return on government investment particularly in university research and development can be increased with the establishment of SSOs. Krisztian (2007) has defined SSO as a company that founded by a student who started the company while still affiliated with the university.

The study of SSO can be easily found in developed countries than developing countries (Hayter et al., 2016). For instance, the development of entrepreneurship in both theory and activity is becoming more important particularly to university students in Malaysia. To support the growth need of spin-offs formation, Malaysian government and universities have facilitated various programs and initiatives for university students to become entrepreneurs. For instance, in April 2015, the Malaysian Ministry of Higher Education (MoHE) launched the Malaysia Education Blueprint 2015-2025 (Higher Education). The Blueprint outlined 10 Shifts that will encourage the continuation of excellence in the higher education system. Shift-1 indicated that Malaysian higher educational institutions (HEIs) should produce holistic, entrepreneurial, and balanced graduates in the future. Despite these, the percentage of graduates becoming entrepreneurs are less than 7 percent in 2016 (Malaysia Ministry of Higher Education, 2017).

Many previous scholars have empirically postulated the drivers and barriers of entrepreneurial intention (e.g. Chuah et al., 2016; Al Mamun et al., 2017). Several past studies (Keat and Ahmad, 2012; Mohamad, 2015; Thavaraj and Varghese, 2015; Chuah et al., 2016; Zahari and Azizan, 2018) claimed that the awareness level pertaining to perception of barriers to become student entrepreneur is still very low. Due to this, this study aimed to examine the effect of perception of barriers on student spin-offs intention. Also, the current paper targets to investigate the differences between perception of barriers and demographic variables. The identification of perception of barriers among founders of SSO can provide adequate understanding about negative determinants of student spin-offs intention and can help universities and policymakers to nurture more SSO establish at Malaysian universities.

Literature Review

To study the effects of perception of barriers on student-spin-offs intention, the current paper refers to the Theory of Planned Behavior (TPB) which was developed by Ajzen (1988). Even though the various models are used to explain entrepreneurship intention, the TPB is considered one of the best primary theory-driven models for describing entrepreneurial intention (Ajzen, 1991). This theory has widely adopted among entrepreneurship scholars like Karimi et al., (2015), Ali, Ajmal and Iqbal (2016), Al Mamun et al., (2017) and Arranz, Arroyabe and Fdez. de Arroyabe, (2018) to determine the effects of barriers on entrepreneurial intention. It is very important to examine the barriers that negatively influence student-spin-offs intention because universities and policymakers can implement the right strategies to mitigate these. Hence, the percentage of graduates becoming entrepreneurs can be increased in the future.

Moy et al., (2001) advocated such barriers like high labour costs, high interest rates, strict government regulations, lack of managerial experience, lack of technical knowledge and excessive risk are faced by university students when starting and sustaining new ventures. Apart from that, Pruett et al., (2009) and Giacomini et al., (2011) grouped the perceptions of barriers in the forms of lack of support structures, knowledge, operating risks, start-up risks and lack of social support are well associated with student entrepreneurs. Moreover, previous scholars (Iakovleva et al. 2014; Mohamad 2015; Ali et al., 2016) classified the barriers under three headings: (i) student attributes (e.g. fear of failure, lack of skills and lack of self-efficacy); (ii) university policies and services (e.g. lack of capital ‘seed capital’, lack of support, and lack of entrepreneurship education) and (iii) environmental factors (e.g. economic, political climate, tax law, and regional barriers or scale of competition). More importantly previous works of (Che Ku Yusof et al., 2014; Karimi et al., 2015; Ali et al., 2016; Chuah et al., 2016; Pruett and Sesen, 2017; Arranz et al., 2018) have found perception of barriers has a negative influence on student spin-offs intention. These considerations led to the following hypothesis:

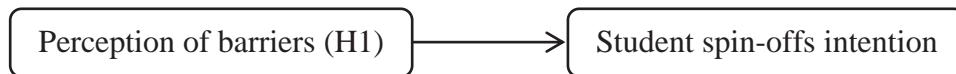


Figure 1: Relationship between Perception of Barriers and Student Spin-Offs Intention

H1: There will be a significant negative relationship between perception of barriers and student spin-offs intention.

The study of perception of barriers is not only limited to examine the negative relationship with student spin-offs intention but also has extended to measure the different between perception of barriers and demographics. Several past studies have measured the differences between construct and individual item of perception of barriers with demographic characteristics such gender (e.g. Pruett et al., 2009; Roudaki, 2010; Giacomini et al., 2011; Shinar, Giacomini and Janssen, 2012; Keat and Ahmad, 2012; Amentie and Negash, 2014; Pruett and Sesen, 2017), age (e.g. Pruett et al., 2009; Giacomini et al., 2011; Samuel, Ernest and Awuah, 2013; Pruett and Sesen, 2017), ethnicity (e.g. Pruett et al., 2009; Giacomini et al., 2011; Shinar et al., 2012; Pruett and Sesen, 2017), level of study (e.g. Pruett et al., 2009; Giacomini et al., 2011; Pruett and Sesen, 2017), year of study (e.g. Saleh, 2014) and type of university (e.g. Saleh, 2014). Of these, the majority of above studies have found significant difference between groups of gender, age, ethnicity, level of study, year of study and type of university with perception of barriers. Therefore, the following hypotheses are proposed:

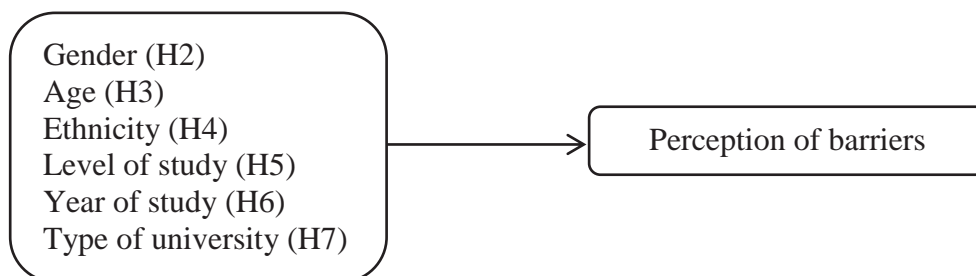


Figure 2: Conceptual Framework

- H2: There is a significant different between perception of barriers in gender of SSO founders.
- H3: There is a significant different between perception of barriers in age of SSO founders.
- H4: There is a significant different between perception of barriers in ethnicity of SSO founders.
- H5: There is a significant different between perception of barriers in level of study of SSO founders.
- H6: There is a significant different between perception of barriers in year of study of SSO founders.
- H7: There is a significant different between perception of barriers in types of university of SSO founders.

Method

The respondents in this current study are the founders of SSO from Malaysian public HEIs. Due to personal data protection policy, only founders of SSO from eleven Malaysian public HEIs were involved in this study. The online survey questions were emailed to 750 founders of SSO and the study was able to collect 369 completed questionnaires. The cluster sampling approach was used to capture the respondents. The questionnaire used in this study was consisted of two sections. Section one is related to factors that influence student spin-offs intention and nine questions were used in Section two to explain the characteristic of respondents. Table 2 shows the detail items used in this study. In brief, eight items for perception of barriers were adapted from Pruett et al., (2009) and six items for student spin-offs intention were from Linan and Chen (2009). In addition, the first section of the questionnaire applied a 5-point Likert scale, which ranging from 1 (strongly disagree) to 5 (strongly agree). To increase the face validity of the questionnaires, the current study has complied with several procedures namely experts' opinion session, pre-tested approaches and pilot study. The feedback received from these procedures was used to refine the questionnaire. With the majority of respondents are non-English native speakers, the questionnaire was translated into local language. The data was analysed using IBM Statistical Package for Social Science (SPSS) Statistics for Windows, Version 24.0. Descriptive analysis, reliability test, regression analysis, independent-samples t-test and analysis of variance (ANOVA) are among the analyses used for this study.

Findings

Descriptive Analysis

Table 1 summarizes the profile of respondents. There are nine characteristics of respondents as shown in Table 1.

Table 1: Profile of Respondents

Measure	Item	Frequency (N=369)	Percent
Gender	Male	151	40.9
	Female	218	59.1
Age	20 years old and below	24	6.5
	21 to 25 years old	320	86.7
	26 to 30 years old	21	5.7

	31 years old and above	4	1.1
Ethnicity	Malay	316	85.6
	Indian	18	4.9
	Chinese	24	6.5
	Others	11	3.0
Religion	Islam	327	88.6
	Buddhism	19	5.1
	Christianity	10	2.7
	Hinduism	13	3.6
Place of origin	Rural area	174	47.2
	Urban area	195	52.8
Level of study	Postgraduate	51	13.8
	Undergraduate	315	85.4
	Others (Diploma)	3	.8
Year of study	Year 1	27	7.3
	Year 2	117	31.7
	Year 3	116	31.4
	Year 4	109	29.6
Type of public university	Research universities	99	26.8
	Focus universities	234	63.4
	Comprehensive universities	36	9.8
Nature of business	Product oriented	169	45.8
	Service oriented	200	54.2

Table 2 posits the mean values score for perception of barriers and student spin-offs intention according to factor and individual items. Results for mean value scores for student spin-offs intention construct and individual items are greater than both perception of barriers and its individual items. Based on the mean value scores, lack of initial capital is claimed as a major barrier to establish SSO. The findings are in line with past works of Staniewski and Awruk (2015), Ali et al., (2016), Enniful, Boakye-Amponsah and Nduro (2016) and Arranz et al., (2018) who identified lack of capital as the main hurdle for entrepreneurial intentions. Then it was followed by ‘having to work too many hours’ and ‘lack of knowledge of the business world and market’ respectively. Furthermore, the results of Cronbach’s Alpha are reported at .840 (perception of barriers) and .948 (student spin-offs intention) indicates a very good internal consistency (Pavot et al., 1991).

Table 2: Descriptive Analysis and Reliability Test

Factors/Individual Items	MV	SD	CA
Perception of barriers (PB) [I was worried/afraid of....]	3.65	.706	.840
PB1 About entrepreneurial competence.	3.52	.939	
PB2 Lack of knowledge of the business world and market.	3.69	.961	
PB3 Strong competition.	3.49	1.113	
PB4 Lack of initial capital.	3.93	1.029	
PB5 Irregular income.	3.51	1.096	
PB6 Business failure.	3.46	1.151	

PB7 High operating expenses.	3.67	1.012	
PB8 Having to work too many hours.	3.92	.894	
SSO intention (SI)	4.18	.801	.948
SI1 I am ready to do anything to be an entrepreneur.	4.02	.885	
SI2 My professional goal is to become an entrepreneur.	4.04	.984	
SI3 I will make every effort to start and run my own business.	4.18	.853	
SI4 I am determined to create a business in the future.	4.29	.863	
SI5 I have seriously thought about starting a business.	4.24	.900	
SI6 I have a firm intention to start a business some day.	4.29	.905	

Note: MV = Mean value; SD = Standard deviation; CA = Cronbach's Alpha

Table 3 summarizes the result of regression analysis of perception of barriers on student spin-offs intention. As shown in Table 3, the variance inflation factors (VIF) for the independent variable was highly satisfactory at 1.000. Findings show that the adjusted R² was at -.001 percent indicates a negative role of perception of barriers as a predictor for student spin-offs intention. Subsequently, there is a negative relationship between perception of barriers with F (1, 367) = .544, p > .05 on student spin-offs intention. Thus, Hypothesis 1 is supported.

Table 3: The Relationship of Perception of Barriers on SI

Variables	Beta	Sig.	Tolerance	VIF	Adjusted R ²	F Statistics
(constant)		.000				
Perception of barriers	-.038		1.000	1.000	-.001	.544

In order to determine whether significant differences existed between the mean scores assigned to the items by male and female respondents, this current study has conducted an independent-samples t-test on the mean scores of perception of barriers (individual and factor item). Findings shown in Table 4 stated that there were no significant differences in scores for both factor and individual items of perception of barriers. For example, there was no significant different in scores for perception of barriers construct in males (M = 3.65, SD = .696) and females (M = 3.65, SD = .715); t (367) = .036, p = .971 (two-tailed).

Table 4: Mean Differences between Perception of Barriers in Gender

Factor/ Individual Items	Male	Female	t-value	2-tail sig
Perception of barriers (PB)	3.65	3.65	.036	.971
PB1 About entrepreneurial competence.	3.50	3.53	-.243	.808
PB2 Lack of knowledge of the business world and market.	3.67	3.70	-.279	.781
PB3 Strong competition.	3.50	3.49	.089	.930
PB4 Lack of initial capital.	4.01	3.88	1.157	.248
PB5 Irregular income.	3.47	3.54	-.612	.541
PB6 Business failure.	3.42	3.50	-.641	.522
PB7 High operating expenses.	3.71	3.65	.534	.594
PB8 Having to work too many hours.	3.93	3.90	.318	.751

Note: (N) Male = 151; (N) Female = 218; * The negative *t*-values mean that female has higher mean scores than male for perception of barriers construct and individual items. The criteria were based on a 5-point scale, ranging from 1= *strongly disagree* to 5 = *strongly agree*.

Table 5 displayed the mean differences between perception of barriers in age, ethnicity, level of study, year of study and types of university. To measure the mean differences of those characteristics, series of one-way between-groups analysis of variance (ANOVA) were conducted. The results indicate that there are no significant difference between perception of barriers (factor and individual item) with groups of age and level of study. With regards to four groups of ethnicity (Malay, Chinese, Indian and others), only PB1 (about entrepreneurial competence) has shown a significant different. However, the effect size is considered small because the eta squared was recorded at .031 (Cohen, 1988). Moreover, only PB3 (strong competition) and PB8 (having to work too many hours) postulated significant difference with the three types of public university in Malaysia. Despite reaching statistical significance, the actual differences in mean scores between the groups were small, where the eta squared were at .031 and .038 respectively. Finally, groups of year of study have shown significance differences with perception of barriers construct and four individual items namely PB1, PB4, PB6 and PB7. However, the effect sizes are considered small because the eta squared was recorded at .038, .025, .032, .050 and .041 respectively (Cohen, 1988). In brief, there is a significant different between construct of perception of barriers with year of study, thus Hypothesis 6 is supported. In contrast, Hypotheses H2, H3, H4, H5 and H7 are not supported because the findings unable to record any significance difference between gender, age, ethnicity, level of study and type of university with perception of barriers.

Table 5: Mean Differences between Perception of Barriers in Age, Ethnicity, Level of Study, Year of Study and Types of University

Factor/ Individual Items	Age		Ethnicity		Level of study		Year of study		Types of university	
	Sig.	ES	Sig.	ES	Sig.	ES	Sig.	ES	Sig.	ES
PB	.501	-	.705	-	.622	-	.003	.038*	.360	-
PB1	.468	-	.009	.031*	.121	-	.026	.025*	.099	-
PB2	.799	-	.313	-	.678	-	.189	-	.699	-
PB3	.323	-	.215	-	.884	-	.135	-	.003	.031*
PB4	.799	-	.235	-	.119	-	.008	.032*	.997	-
PB5	.683	-	.292	-	.717	-	.432	-	.792	-
PB6	.724	-	.362	-	.957	-	.000	.050*	.233	-
PB7	.801	-	.541	-	.472	-	.002	.041*	.689	-
PB8	.225	-	.926	-	.795	-	.560	-	.001	.038*

Note: PB = Perception of barriers; ES = Eta squared; * = Small effect size

Discussion and Conclusion

Findings illustrated in Table 3 indicate a negative relationship between perception of barriers and student spin-offs intention. Hence, Hypothesis 1 is supported. The results are consistent with past studies of Pruett et al., (2009), Giacomini et al., (2011), Che Ku Yusof et al., (2014), Yusoff,

Zainol and Ibrahim (2015), Pruett and Sesen (2017) and Arranz et al., (2018). For example, Pruett et al., (2009) revealed that perception of barriers negatively influenced entrepreneurial intentions. They surveyed 1058 students from three universities in the US, China and Spain. Similarly, Che Ku Yusof et al., (2014) identified four key barriers to entrepreneurial intentions among 294 business students in a public university in Malaysia. Among the barriers were: (1) capital and culture; (2) skills and education; (3) inclination factors such as fear of failure and operating risks and (4) networking. Moreover, Yusoff et al., (2015) have added eight barriers that demotivated entrepreneurship activities in Malaysian public HEIs such as students' soft skills, financing, commitment, coordination among support agencies, bureaucracy, manager support, staff and student mentality and pedagogy.

Furthermore, the findings displayed in Table 4 show that there is no significant different between groups of gender (male and female SSO founders) with perception of barriers, therefore, Hypothesis 2 is not supported. The results are in line with past works of Olofunso (2010) and Staniewski and Awruk (2015). Staniewski and Awruk (2015) explained no significant different between groups of gender among 255 students at one university in Poland with perception of barriers. Tests of ANOVA as depicted in Table 5 posit that there are no significant difference between age, ethnicity, level of study and type of university with perception of barriers. Thus, Hypotheses 3, 4, 5 and 7 were not supported. The results are similar to past studies of Olofunso (2010) and Staniewski and Awruk (2015). For instance, a study by Olufunso (2010) recorded that those demographic profiles unable to have significant difference in relation to the perception of barriers among 701 students at one university in South Africa. In addition, a group of year of study is able to show a significant different with perception of barriers (see Table 5), therefore Hypothesis 6 is supported. The results are consistent with past study of Saleh (2014) who conducted a study among university students in Iran.

To conclude, the findings revealed a negative relationship between perception of barriers on student spin-offs intention. In addition, the current study unable to record significance difference between characteristics of demographic except for year of study with perception of barriers. It is critical to examine the barriers that negatively influence student-spin-offs intention because universities and policymakers can establish the appropriate strategies to soften the stated barriers. With this, the percentage of graduates becoming entrepreneurs can be increased in the future and may lead to generate self-employment society among university students in Malaysian public higher educational institutions. The current study is conducted with few limitations. Firstly, the scope of study is focused in Malaysian public higher educational institutions; therefore replication of a similar study can be extended to Malaysian private HEIs. Secondly, the current study only concentrated with items of perception of barriers, future studies can introduce more items to perception of barriers. Finally, the future studies should engage with qualitative approach to in depth study the perception of barriers.

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