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DOES ENTREPRENEURIAL CAREER CHOICE LESSEN THE GRADUATE UNEMPLOYMENT PROBLEM? THE CASE OF MALAYSIAN GRADUATES

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ABSTRACT

Entrepreneurship has been long regarded as able to lessen the problem of graduate unemployment. This ability of entrepreneurship has been frequently quoted by numerous studies as a motivation of study to engage into the studies of graduate entrepreneurial career choice. Nevertheless, the relationship between the entrepreneurial career choice and graduate unemployment is yet to be explored. This paper aims to estimate the impact of entrepreneurial career choice on the Malaysian graduate unemployment. The targeted population of the present paper was the Universiti Utara Malaysia (UUM) and Universiti Malaysia Kelantan (UMK) graduates. A sample of 1,723 graduates was collected using self-administered questionnaires. The descriptive statistics, cross-tabulation tables and econometrics analysis are employed. Graduate entrepreneurial career choice is found to be unrelated to the chance of being unemployed and unable to reduce the probability of being unemployed among the low employability graduates. Thus, graduate entrepreneurial career choice does not lessen the graduate unemployment problem. However, there is some evidence that entrepreneurial career choice could reduce the unemployment duration and hinder the occurrence of long-term unemployed among the low employability graduates. The Malaysian government policy to combat the graduate unemployment problem could not rely mainly on the entrepreneurial career choice. The graduate entrepreneurial career choice, however, could be relied on reducing the occurrence of long-term unemployment. Future studies are suggested to use the sample of all graduates to validate the findings.

Key Words: Graduate unemployment; labour market outcomes; graduate entrepreneurial career choice.

INTRODUCTION

Since the liberalization of Malaysian higher education sector in the mid-1990s, the number of universities in Malaysia has increased substantially. Before 1990, there were only a total of seven public universities in Malaysia. Currently, Malaysia has 20 public universities, 53 private universities and six foreign university branch campuses. The number of students enrolled in the higher education institutions also increased substantially from 125,213 in 1995 to 1,323,449 in 2019 (Ministry of Higher Education, 2015, 2019). The number of graduates in the labour force increased from around 230,000 in 1982 to 4,420,000 in 2019 (Graduate Statistics, 2019). Thus, the university education sector in Malaysia has transformed from elite to mass-production.

Consequently, the graduate unemployment problem emerges especially among the fresh graduates. Unlike the graduate unemployment problem that experienced during the 1980s which vanished in a few years, the current graduate unemployment problem that started since the 1998 financial crisis has been persistent until today. According to Lim, Judith and Harris (2008), a degree scroll is no longer sufficient to obtain a graduate job in Malaysia. The generic skills are needed as an added advantage to secure a job. Furthermore, the COVID-19 pandemic is further deteriorating the unemployment problem (Menon, 2020; Abd Rahman et al., 2020). Graduates also have been called to be job creators (graduate entrepreneur), instead of job seekers (Ministry of Education, 2015). Encouragement of youth to the entrepreneurship industry is suggested as an important tool to address the youth unemployment problem (Nachiappan et al., 2018).

Entrepreneurship has been regarded as one of the solutions to the graduate unemployment problem and as one of the important elements to spur a country's economic growth, innovation, and development (European Commission, 2002; Mengesha, 2020). Ronstadt (1990) has concluded that a country's competitiveness could be further enhanced by the presence of graduate entrepreneurs. Even as salaried employees, graduates with high entrepreneurial skills are believed to be able to contribute significantly to the organization. For example, entrepreneurial skills enable effective leadership and innovation that will increase the performance of an organization (Zaidatol Akmaliah Lope Pihie et al, 2014). The academicians with entrepreneurial skills are believed to have higher ability to commercialize their academic research findings including the development of technology development and bring benefits to the society (Matthew Witbrodt & Rohimi Shapiee, 2014). Thus, the importance of graduate entrepreneurs is clearly shown.

Recognizing the importance of graduate entrepreneurs, various efforts and resources have been invested by the Malaysian government to cultivate graduate entrepreneurs. Indeed, graduate entrepreneurship is one of the focuses in the agenda of Malaysian government policy. A Critical Agenda Project (CAP) has been established for graduate entrepreneur development that ensures the university students are exposed to entrepreneurial activities (Ministry of Higher Education, 2011). Under this CAP, various entrepreneurship programs, training and workshops are implemented in Malaysian higher education institutes. Moreover, a one-stop centre to empower entrepreneurs was established - the Malaysian Global Innovation and Creativity Centre ("Budget 2014: Entrepreneur", 2013).

Hardy Loh and Noor Faizah (2015) reviewed the entrepreneurship education in Malaysia and commended it for its comprehensiveness. On the other hand, Abdul Rahman et al. (2020) found that the majority of graduates are willing to work on a low-level job, instead of being entrepreneurs or self-employed, i.e., taking up the job opportunities from the worldwide gig platform. They suggest a more hands-on approach on the university curriculum to change the graduates' mindset to be more proactive. It is believed that the entrepreneurship education could lead to an entrepreneurial career choice of graduates and thus, lessen the graduate unemployment problem. The questions that follow are: does the entrepreneurial career choice really lessen the graduate unemployment problem? If yes, why does the graduate unemployment problem persist? Can we rely on the entrepreneurial career choice to reduce the graduate unemployment problem?

In literature, there are extensive studies in the determinants of graduate entrepreneurial career choice and labour market outcomes. In general, the determinants of entrepreneurial career choice could be classified into three categories. First, the personal characteristics related factors. Graduates who are male, older age, immigrants, minority races, and married with family support are more inclined to be entrepreneurs. Second, the working experiences. Graduates with more working experience are more inclined to be entrepreneurs. Finally, the education and training related factors. Graduates who are exposed to more entrepreneurial education and training are more inclined to be entrepreneurs (Ghazali et al, 1994). These findings are mostly supported by the recent studies including the Malaysian studies (see Katono & Isabalija, 2010; Mengesha, 2020; Ooi & Shuhymee, 2012; Zuhairah Ariff et al, 2014)

On the other hand, the labour market outcome, in a broad perspective, could be defined as the various aspects of the labour market such as transition from education to work, employment status, job characteristics and earnings (CEDEFOP, 2013). In the present paper, based on the data availability, we define the labour market outcome in terms of the current employment status of graduates that consists of unemployed, self-employed, employed in a graduate or non-graduate job, and economically inactive. The determinants of graduate labour market outcomes are identified as socio-demographic variables such as gender, family background, English language proficiency, types of degree, and previous working experiences (Khattab, 2006; Morshidi et al., 2004a; Morshidi et al, 2004b; Lim et al, 2008; Rosna et al., 2015). Specifically, Green and Saridakis (2007) found that in terms of personal characteristics, older age and male graduates are more likely to be self-employed; in addition, the parent of graduates who have entrepreneurial experience is one of the significant determinants. Besides, the knowledge, classroom learning, working experiences, and financial availability are also suggested to be the potential determinants (Hoe & Bhatti, 2003).

Relating to the relationship between entrepreneurship and unemployment, two types of relationship are found in literature. First, the "refugee" effect. This effect suggests a positive impact from unemployment to entrepreneurship because the increase in unemployment will 'push' more people to venture into entrepreneurial activities. Second, the "Schumpeter" or "entrepreneurial" effect which suggests a negative impact from entrepreneurship to unemployment. The increase of entrepreneur activities will create more jobs and thus, reduce unemployment. Some studies found the Schumpeter effect (for example, see Hameed Bokhari, 2013; Ghavidel et al, 2011); some studies found the Refugee effect (for example, see Carree, 2002); and a few studies found both effects (for example, see Thurik et al, and Audrestrch, 2008). Thus, there is mixed evidence on the relationship between entrepreneurship and unemployment.

It is important to note that the relationship is examined using mostly time series data, or some with country-level panel data. Surprisingly, to our knowledge, the individual-level studies on the relationship between entrepreneurship and unemployment are limited. Olanrewaju Makinde (2013) is one of the few cross-sectional studies that investigate the effect of entrepreneurship on unemployment. The unemployment problem is found to be lessened by entrepreneurial development. However, the study of Olanrewaju Makinde (2013) was based on the perception of the respondents, instead of the actual labour market outcomes. The perception of students might not be able to translate into the actual labour market outcomes.

Previous studies on graduate entrepreneurship have claimed the ability of entrepreneurship in reducing the graduate unemployment problem as their motivation of study. However, none of them provide empirical evidence on this claim. Instead, their analysis is focused on the drivers of the graduate entrepreneurship career choice or intention. The impact of graduate entrepreneurship career choice on the graduate unemployment problem is largely ignored in the empirical investigation. For example, one of the motivations of study by Mazdan (2015) is: entrepreneur is a good alternative career option of Malaysian graduates in facing the limited job and high retrenchment rate. However, the study is focusing on the drivers that affect the graduate's involvement in entrepreneurship. Other examples see Hardy Loh and Noor Faizah (2015), and Harcharanjit et al. (2018).

In short, previous studies have clearly pointed out the potential determinants of a graduate's entrepreneurial career choice and labour market outcomes. This provides a guideline on the model specification. The dynamic time series relationship between entrepreneurial and unemployment is also explored. What has not been explored in detail is the extent in which the entrepreneurial career choice could lessen the graduate unemployment problem in Malaysia at individual level. The present paper aims to estimate the impact of entrepreneurial career choice on the graduate's unemployment problem in terms of duration and probability of being unemployed.

DATA AND METHODOLOGY

The targeted population of this paper was Universiti Utara Malaysia (UUM) and Universiti Malaysia Kelantan (UMK) graduates in November 2014. The self-administrated questionnaire was used as the data collection method. The data collection period is 10 and 3 days for UUM and UMK, respectively. Since the career choice and labour market outcomes are not subjective or construct variables, the content validity was not conducted. There is no specified sampling design for the data collection. We planned to get as many graduates as possible. Hence, we approached all the graduates while they were waiting for their graduation robe, at the best efforts of the researchers and their assistants. However, the participation in this survey was voluntary, some graduates refused to participate in the survey. We successfully obtained 1,723 respondents (169 respondents from UMK and the remaining were from UUM).

The information solicited were socio-demographic characteristics, entrepreneurial career choice, academic related information, parental income, unemployment duration and labour market outcomes. Table 1 and 2 present the sample characteristics.

Table 1.

Sample Characteristics I

		Freq.	%
Gender	Male	584	34.49
	Female	1109	65.51
Ethnic groups	Malay	1221	70.91
	Chinese	385	22.36
	Indian	70	4.07
	Others	46	2.67
	Marital status	Married	126
	Not married	1,594	92.51
	Others	3	0.17
Parental income (RM per month)	900 and below	239	17.16
	901-2000	542	38.91
	2001-3000	320	22.97
	3001-4000	153	10.98
	4001-5000	90	6.46
	Above 5000	49	3.52
Age (in years)	Below 24	274	15.94
	25-30	1,413	82.20
	31-40	26	1.51
	More than 40	6	0.35

Table 2.

Sample characteristics II

		Freq.	%
Program/degree:	Entrepreneurship	133	7.85
	Professional	228	13.45
	Business and eco	1016	59.94
	ICT related	157	9.26
	Islamic related	61	3.60
	Arts related	49	2.89
	Sciences related	51	3.01
CGPA:	Below 3.00	287	16.66
	3.00 to 3.50	1023	59.37
	3.51 to 3.75	269	15.61
	Above 3.75	144	8.36
English language proficiency (MUET) ¹ :	Band 1	151	8.94
	Band 2	768	45.47
	Band 3	633	37.48
	Band 4	120	7.10
	Band 5	14	0.83
	Band 6	3	0.18

Note:

1. MUET = Malaysia University English Test, Band 1 is the lowest and Band 6 is the highest.

Descriptive statistics and cross-tabulation tables (including chi-square test of independence) are used to evaluate the association between entrepreneurial career choice, employment status and unemployment duration. In addition, two econometrics models are employed. Due to the upper censoring of the unemployed duration (more than 180 days), the Tobit model is used to estimate the influence of entrepreneurial career choice on unemployment duration (days unemployed). Due to the dichotomous nature of labour market outcomes, the Multinomial Logit model is employed to estimate the impact of entrepreneurial career choice on probability of being unemployed.

RESULTS AND ANALYSIS

Descriptive Statistics and Cross-tabulation Analysis

Table 3 presents the entrepreneurial career choice, employment status and unemployment duration of the graduates. It is found that around one third of the graduates choose entrepreneurship as their first-choice career. In terms of employment status, around 45% of the graduates are unemployed and only 1.77% of them are self-employed. Majority of them experience the unemployment duration of below 61 days (68.26%). It is only around seven per cent of them reported unemployment duration of more than 180 days.

Table 3.

Entrepreneurial career choice, employment status and unemployment duration

	Freq	%
<u>Entrepreneurial career choice:</u>		
No	1,159	67.31
Yes	563	32.69
<u>Employment status:</u>		
Unemployed	741	45.29
Economically inactive	107	6.54
Employed with grad jobs	482	29.46
Employed with non-grad jobs	277	16.93
Self-employed	29	1.77
<u>Unemployment duration:</u>		
30 days and below	351	46.43
31 to 60 days	165	21.83
61 to 90 days	74	9.79
91 to 120 days	48	6.35
121 to 150 days	34	4.50
151 to 180 days	27	3.57
More than 180 days	57	7.54

Table 4 presents the cross-tabulation between entrepreneurial career choice and employment status. The percentage of unemployed graduates among those who do not choose and choose entrepreneurship as their first-choice career is almost equal (45.12% and 45.72% respectively). Statistically, the chi-

squared test shows that there is no significant dependency between entrepreneurial career choice and being unemployed or not (p-value of 0.818). Thus, entrepreneurial career choice is not significantly related to the labour market outcome of being unemployed.

Table 4.

Entrepreneurial career choice and employment status (%)

Status of employment (%)	Entrepreneurial career choice?		P-value (χ^2 test)
	No	Yes	
Unemployed	No	54.88	0.818
	Yes	45.12	
Economically inactive	No	92.34	0.009***
	Yes	7.66	
Graduate job	No	70.19	0.622
	Yes	29.81	
Non-graduate job	No	83.23	0.795
	Yes	16.77	
Self-employed	No	99.36	0.000***
	Yes	0.64	

Note: ***, **, and * represent 1%, 5% and 10% levels of significance, respectively.

In terms of unemployment duration, graduates who choose entrepreneurship as their first-choice career are found to be more likely to have unemployment duration of 61-90 days (p-value of 0.067); less likely to have unemployment duration of 151 to 180 days (p-value of 0.034) and more than 180 days (p-value of 0.07).

Table 5.

Entrepreneurial career choice and unemployment duration (%)

Unemployment duration (%)	Entrepreneurial career choice?		P-value (χ^2 test)
	No	Yes	
30 days and below	No	53.89	0.804
	Yes	46.11	
31 to 60 days	No	78.24	0.949
	Yes	21.76	

61 to 90 days	No	90.62	89.41	0.597
	Yes	9.38	10.59	
91 to 120 days	No	94.81	91.37	0.067*
	Yes	5.19	8.63	
121 to 150 days	No	95.81	94.90	0.570
	Yes	4.19	5.10	
151 to 180 days	No	95.41	98.43	0.034**
	Yes	4.59	1.57	
More than 180 days	No	91.22	94.9	0.070*
	Yes	8.78	5.10	

Note: ***, **, and * represent 1%, 5% and 10% levels of significance, respectively.

In short, it is found that in general, entrepreneurial career choice is unable to reduce the chance of being unemployed. Nevertheless, entrepreneurial career choice is able to reduce the occurrence of long-term unemployment duration (five months and above) among the fresh graduates.

Econometrics Analysis: Tobit Model

Table 6 presents the estimated Tobit model for unemployment duration. Entrepreneurial career choice (ECC) is found to have no significant effects on the unemployment duration. The direct and interactive effects (interaction between entrepreneurial career choice and the other variables) of ECC are also found to be insignificant. A restriction test is performed on the joint effects of ECC and its interactive variables. The joint effect of ECC is also found to be insignificant with p-value of 0.7955. Thus, statistically, at mean level, the entrepreneurial career choice is found to have no significant influences on unemployment duration.

Table 6.

The estimated tobit model of unemployment duration

Unemployment duration	Model 1		Model 2	
	Coeff	P-value	Coeff	P-value
EnterpreneurCC (ECC)	-15.705	0.117	145.048	0.598
age	-	-	9.135	0.077*
DMalay	-	-	25.695	0.041**
DMarried	-	-	68.595	0.021**
Dmale	-	-	13.392	0.259
cgpa	-	-	33.564	0.114
MUET	-	-	-8.100	0.298

Parental income	-	-	0.524	0.925
degreeEntrepreneur	-	-	4.601	0.877
degreeBusEco	-	-	13.300	0.381
degreeICT	-	-	-5.145	0.839
degreeIslamic	-	-	31.173	0.285
degreeArts	-	-	-51.767	0.297
degreeSciences	-	-	14.031	0.736
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ECC_age	-	-	-1.725	0.863
ECC_DMalay	-	-	-33.945	0.128
ECC_DMarrried	-	-	-26.858	0.549
ECC_Dmale	-	-	0.140	0.994
ECC_cgpa	-	-	-42.858	0.262
ECC_MUET	-	-	13.197	0.315
ECC_parental income	-	-	-4.912	0.612
ECC_degreeEntrepreneur	-	-	22.241	0.590
ECC_degreeBusEco	-	-	32.761	0.240
ECC_degreeICT	-	-	29.792	0.484
ECC_degreeIslamic	-	-	4.730	0.935
ECC_degreeArts	-	-	101.824	0.269
ECC_degreeSciences	-	-	81.125	0.176
Constant	63.461	0.000	-282.053	0.048

Note: ***, **, and * represent 1%, 5% and 10% levels of significance, respectively.

Econometrics Analysis: Multinomial Logit Model

The estimated multinomial logit models (“unemployed” as a comparison group) are as presented in Appendix 1. The objective of study is to estimate the impact of entrepreneur career choice on graduate unemployment. Thus, we focus on the probability of unemployment and probability of self-employment. To ease the interpretation, we estimate the two probabilities by the entrepreneurial career choice (yes or no) and variables who found to be significant at least at 10% level (direct or indirect effects), i.e., age, ethnicity, marital status, gender, CGPA, MUET and types of degree (see Appendix 1). The estimated probabilities are estimated holding the other variables at their mean values respectively.

Age

Figure 1 presents the estimated probability of unemployed and self-employed among the graduates who choose entrepreneurial as their career choice (ECC) and graduates who do not choose (NonECC) across the various values of age. Overall, as the age increases, the probability of unemployed reduces at a decreasing rate. For example, the probability reduces from around 60% (at 21 years old) to around 10% (at 45 years old). Thus, ECC graduates are found to have higher probability of being unemployed and the differences increase as the age increases. On the other hand, ECC graduates have substantially higher chances of being self-employed than others, until the age of 35 years. Thus, entrepreneurial career choice is not reducing the chance of being unemployed at various levels of age, *ceteris paribus*.

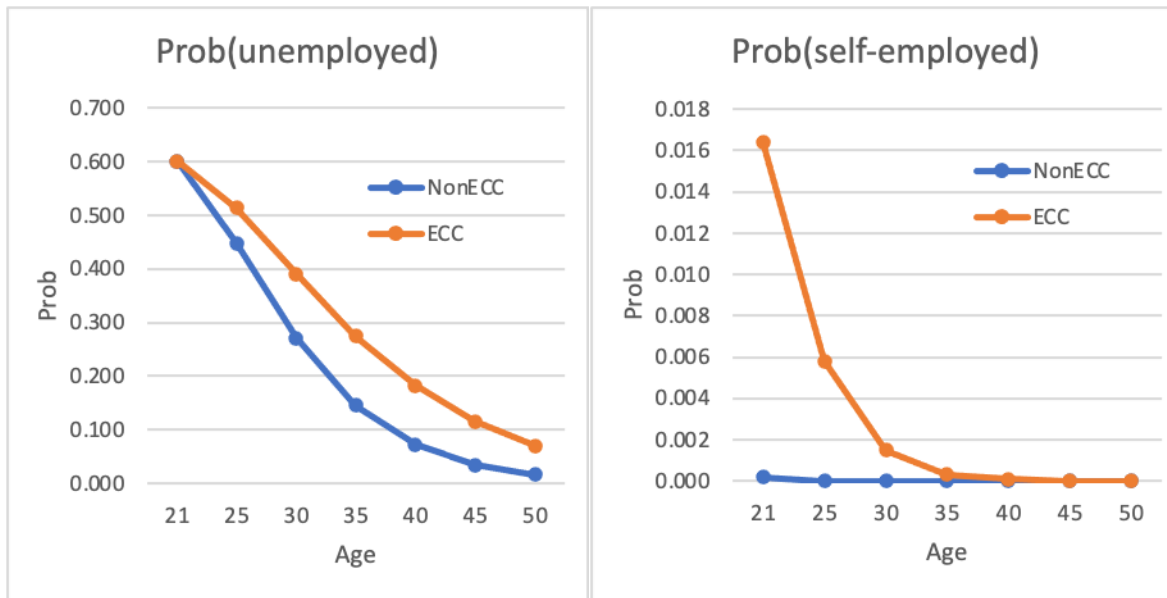


Figure 1. Probability of unemployed and self-employed (age)

Ethnicity

In terms of ethnic groups, from Figure 2, it is found that entrepreneurial career choice is also unable to reduce the chance of being unemployed either for Malay or non-Malay graduates. The probability of unemployment for nonECC Malay and ECC Malay graduates is 0.588 and 0.548 respectively. Thus, the difference is merely 0.04 (4%). For non-Malay graduates, this difference is higher, by 0.079 (7.9%). ECC is not helping either for Malay or non-Malay graduates. On the other hand, ECC is able to increase the chance of being self-employed substantially, especially for Malay graduates.

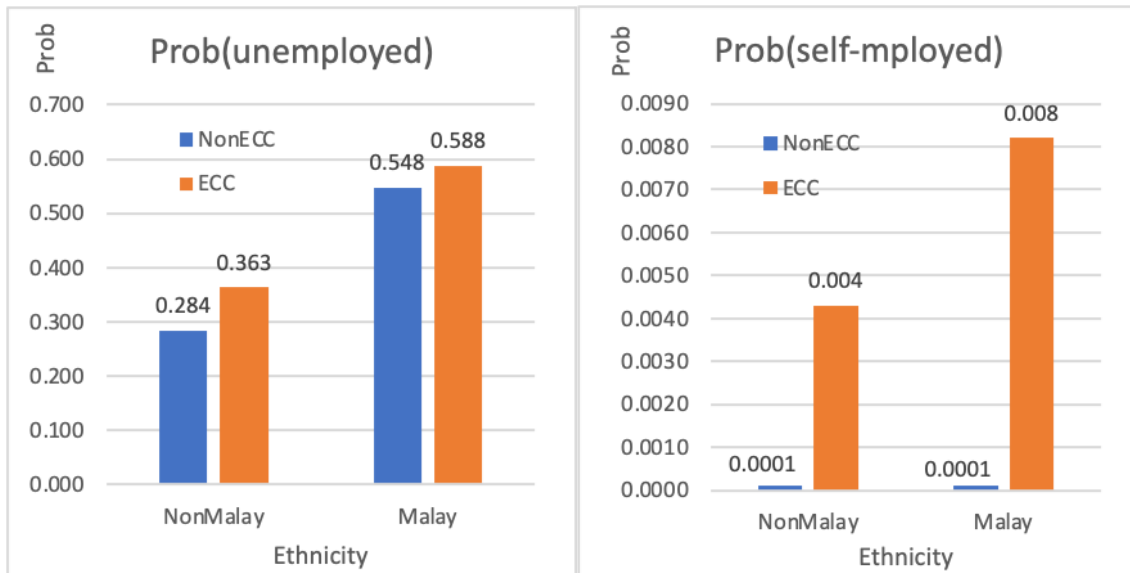


Figure 2. Probability of unemployed and self-employed (ethnicity)

Marital Status

Relating to marital status, ECC is not reducing the chance of being unemployed as well (Figure 3). ECC graduates who are not married have a higher probability of being unemployed than nonECC graduates who are not married, by a number of 0.057 (5.7%). Similarly, for married graduates, the chance of being unemployed of ECC graduates is higher than nonECC graduates; however, the difference is small (0.002 or 0.2%). On the other hand, entrepreneurial career choice is found to be able to increase the chance of being self-employed among the graduates regardless of their marital status.

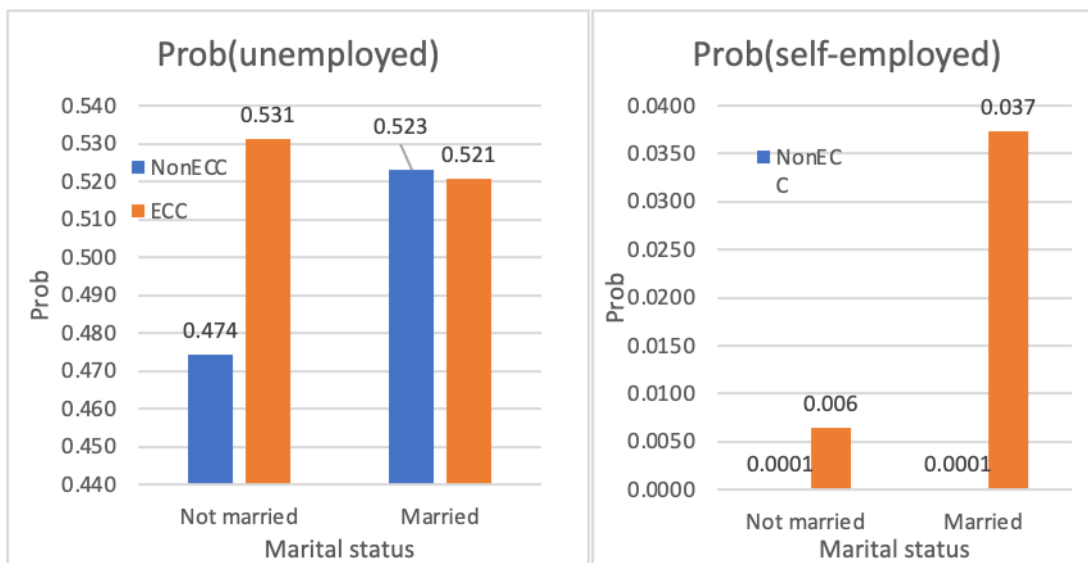


Figure 3. Probability of unemployed and self-employed (marital status)

Gender

By gender, among the females, there are no substantial differences found in the probability of being unemployed between graduates with and without entrepreneurial career choice (see Figure 4). However, among the male graduates, the probability of being unemployed for graduates with entrepreneurial career choice (0.01%) is substantially lower than the graduates without entrepreneurial career choice (52.1%). The reason for the low probability of unemployment among the male graduates with entrepreneurial career choice is their high probability of self-employment. Thus, the entrepreneurial career choice reduces the probability of being unemployed through the increase of probability of self employment for male graduates.

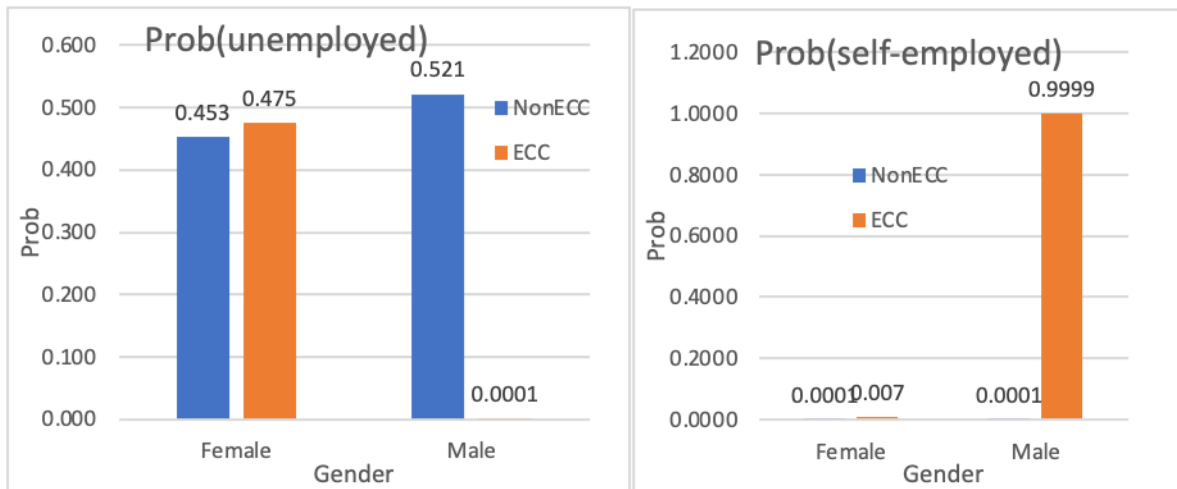


Figure 4. *Probability of unemployed and self-employed (gender)*

CGPA

The graduates with entrepreneurial career choice have higher probability of being unemployed as compared to graduates who do not have the career choice; however, the probability turns lower for CGPA above 3.5 (see Figure 5). Thus, the entrepreneurial career choice matters for graduates with high academic achievement. On the other hand, the entrepreneurial career choice increases the probability of self-employment, however, the gaps are reduced as the CGPA increases.

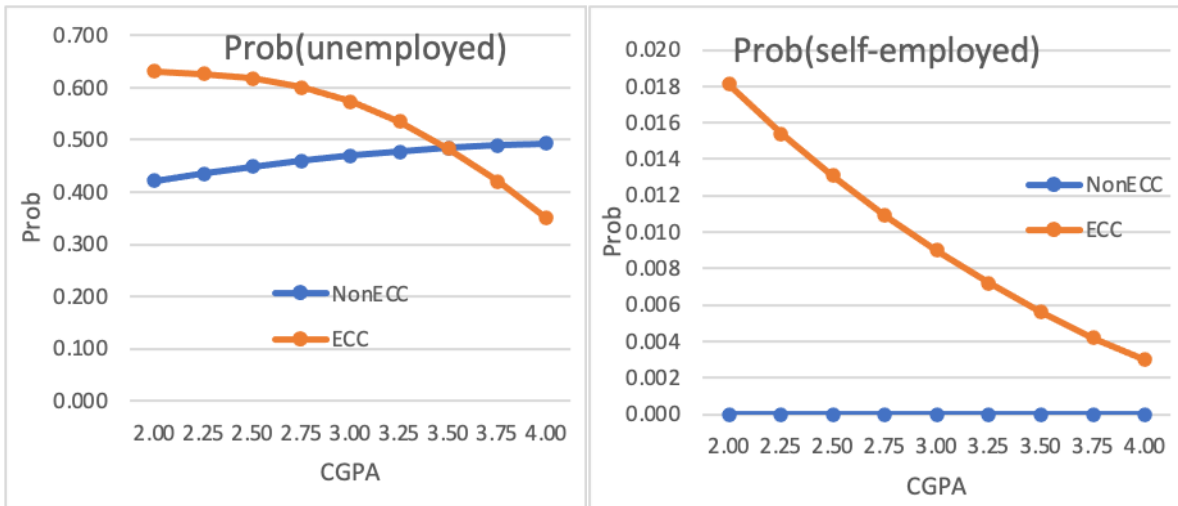


Figure 5. Probability of unemployed and self-employed (CGPA)

MUET

Figure 4 depicts the probability of unemployed and self-employed across the six bands of MUET (Malaysian University English Language Test). The high MUET bands represent the high proficiency in English. It is found that graduates with high MUET bands have lower chance of being unemployed and the entrepreneurial career choice is unable to reduce the chances of being unemployed, except at the high band level of 5 and 6. At these high bands of MUET, the ECC graduates have a lower chance of being unemployed than the nonECC graduates, ceteris paribus. On the other hand, the chance of being self-employed of ECC graduates is higher than nonECC graduates and the differences increase at an increasing rate as the MUET score increases.

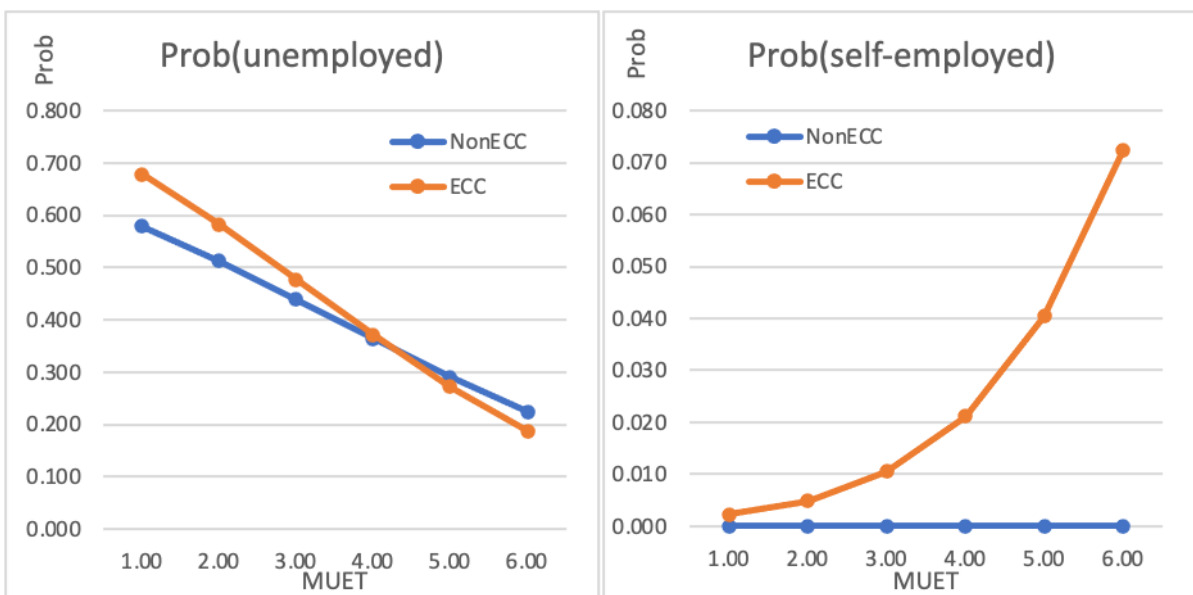
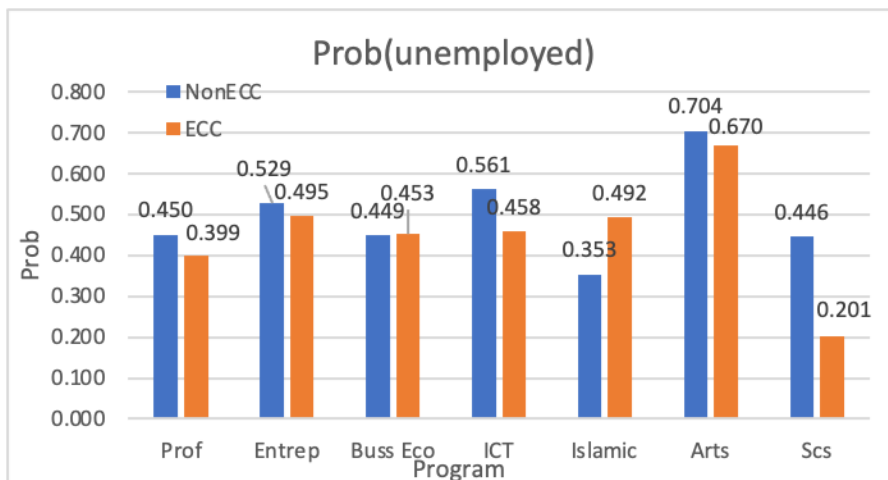


Figure 6. Probability of unemployed and self-employed (MUET)

Types of Degree

In terms of types of degree (or program), entrepreneurial career choice is found to be able to reduce the chance of being unemployed for graduates with sciences, arts, ICT, entrepreneurial, and professional related degrees (see Figure5). ECC graduates have a lower probability of being unemployed than nonECC graduates. The sciences related degrees ECC graduates are found to have substantially lower levels of probability of unemployment (0.245 or 24.5% lower) than nonECC graduates. However, entrepreneurial career choice is unable to reduce the probability of being unemployed for graduates of Islamic related degrees. The probability of unemployment of Islamic related degree ECC graduates is higher than the nonECC graduates. Thus, the effect of entrepreneurial career choice is differential across the Islamic and non-Islamic related degrees. In terms of the chance of being self-employed, entrepreneurial career choice is found to have a favourable effect. The ECC graduates have a higher chance of being self-employed than nonECC graduates especially for sciences and ICT related degrees. The ECC graduates of sciences and ICT related degrees have substantially higher probability of being self-employed than nonECC graduates of similar degrees, 14.3% and 9.6% for sciences and ICT related degrees respectively.



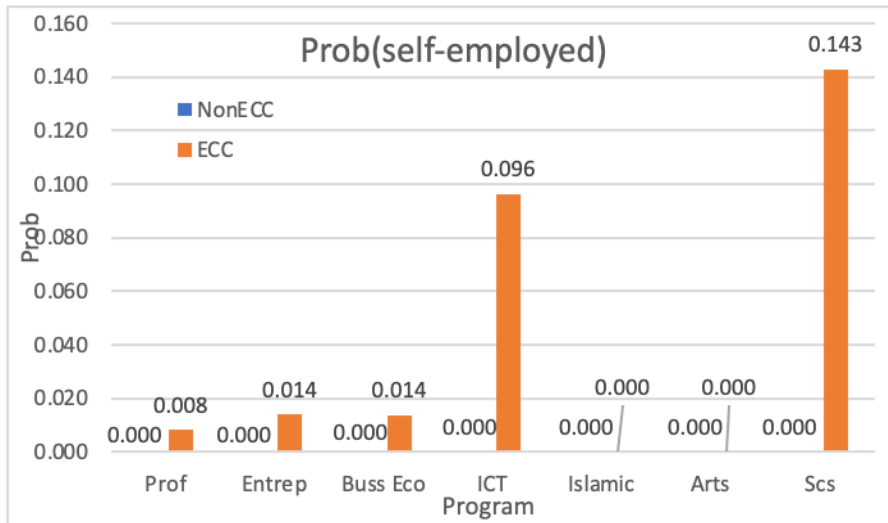


Figure 7. Probability of unemployed and self-employed (program)

Note: Prof = professional related degree; Entrep = entrepreneurial related degree; Buss Eco = business and economics related degree; ICT = information, communication and technology related degree; Islamic = Islamic related degree; Arts = arts related degree; Scs = Sciences related degree.

5. CONCLUSION AND DISCUSSIONS

One of the main objectives of the Malaysian government's efforts to promote graduate entrepreneurial career choice is to lessen the graduate unemployment problem that has persisted since the financial crisis of 1998. Previous studies on Malaysian graduate entrepreneurial career choice also consistently point out "reducing graduate unemployment problem" is their motivation or significance of study. However, the relationship between graduate entrepreneurial career and graduate unemployment is yet to be explored in Malaysia. This paper attempts to fill the gap and aims to estimate the impact of entrepreneurial career choice on the Malaysian graduate unemployment duration and chance of being unemployed. Results of descriptive statistics show that entrepreneurial career choice is not significantly related to the chance of being unemployed. However, the entrepreneurial career choice appears to hinder the occurrence of long-term unemployment among the fresh graduates.

Results of econometrics analysis reveal that on average, entrepreneurial career choice has no significant influences on the unemployment duration. Similarly, entrepreneurial career choice is found to be unable to reduce the chance of being unemployed except for graduates with high academic achievement, high English proficiency and degree of sciences/ICT related (high employability graduates). For the low employability graduates (graduates who are young, Malay, not married, low proficiency in English language and with low marketability degree), the entrepreneurship career choice is unable to reduce their chance of being unemployed. Thus, in the context of fresh graduates in Malaysia, the entrepreneurial career choice could not lessen the graduate unemployment problem as what we are wishing for, no matter how successful we are in promoting the entrepreneurial career choice. The favourable effects of entrepreneurial career choice do not occur among the low employability graduates, instead, it occurs among the high employability graduates.

These findings imply that the use of entrepreneurship career choice as a strategy to manage the graduate unemployment problem in Malaysia has limited effects. Entrepreneurial career choice is not helping the low employability graduates in reducing their probability of being unemployed. However, the entrepreneurial career choice could reduce the unemployment duration and increase the probability of being self-employed. In this context, the entrepreneurial career choice could hinder the occurrence of long-term unemployment among the low employability graduates. Therefore, the Malaysian government policies to promote entrepreneurship in lessening the graduate unemployment problem is not supported fully by the present study. The Malaysian government could not rely mainly on the entrepreneurial career choice to lessen its graduate unemployment problem. It is important to note that the findings of the present paper are based on the sample of fresh graduates. The favourable effect of entrepreneurship career choice could be differential between fresh graduates and graduates (who have been graduated and in the labour market for years). Future studies are suggested to explore this contention using samples of all graduates.

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APPENDIX A

The estimated multinomial logit model for employment status

Comparison: unemployed	Eco inactive	Graduate job	Non-graduate job	Self-employed
	Coeff.	Coeff.	Coeff.	Coeff.
EntrepreneurCC (ECC)	4.830	-4.149	-1.710	-34.822*
age	0.175	0.158**	0.140	-1.944**

DMalay	-0.846***	-1.644***	-0.014	13.285***
DMarried	0.320	-0.239	-0.474	-12.927***
Dmale	-0.182	-0.132	-0.596**	0.038
cgpa	0.427	-0.034	-0.537	-2.466**
MUET	0.483***	0.363***	0.071	1.052*
Parental income	-0.117	-0.115	-0.024	-0.744
degreeEntrepreneur	-0.347	-0.566	0.224	-13.202***
degreeBusEco	0.721	-0.308	0.382	0.232
degreeICT	0.949*	-1.029***	-0.186	-14.003***
degreeIslamic	1.114	0.257	0.457	-13.099***
degreeArts	-0.173	-1.670***	-0.420	-13.766***
degreeSciences	-0.006	0.111	-0.366	-13.393***
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ECC_age	-0.287	-0.064	-0.024	1.723**
ECC_DMalay	-0.286	0.105	-0.141	-13.131***
ECC_DMarried	0.796	0.431	0.022	14.712***
ECC_Dmale	0.426	0.034	0.265	1.441
ECC_cgpa	-0.188	1.722***	0.439	1.863
ECC_MUET	0.357	0.052	0.313	-0.096
ECC_parental income	0.358	0.056	0.086	0.795
ECC_degreeEntrepreneur	1.318	-0.146	-0.137	13.512***
ECC_degreeBusEco	-0.086	-0.231	-0.015	0.152
ECC_degreeICT	0.442	-0.166	0.627	16.322***
ECC_degreeIslamic	-14.814***	-1.063	0.082	-1.562
ECC_degreeArts	-13.323***	-14.006***	0.899	-0.782
ECC_degreeSciences	2.996	-0.191	1.941*	16.933***

Constant	-8.224**	-3.278	-2.834	35.031**
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Note: ***, **, and * represent 1%, 5% and 10% levels of significance, respectively.