Working for the Government: A Logit Regression Analysis

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***Abstract*:** *In a fast-paced, dynamic and ever-challenging era, when most job seekers looking for a job which could offer them with large salary, advancement opportunities and career fulfilment, the stereotypical view of government jobs deem dull and old fashioned making it more important than ever to understand what attract job seekers to the public service. University and college graduates will be a significant of public service renewal. Using a sample of 519 graduating students from two private higher education institutions in Malaysia, this study investigates factors that affect graduating students in seeking government jobs. Logistic regression is used to analyze the data collected through a cross-sectional survey. Results indicate that the perceived attractiveness of public employment (*Attrctv, *the index of public employment attractiveness), race (*Race*), proficiency in Malay and English languages (*MalayPro *and* EnglishPro*) are statistically significant in affecting the likelihood of Malaysian graduating students in choosing government jobs, ceteris paribus. Based on these findings, several implications are noted to policy makers and public personnel managers so that they have better understanding on factors affecting graduating students in considering sectoral employment and to guide remedial action.*

***Keywords*:** *public employment, civil service, sectoral employment, human resources*

1. Introduction

In a fast-paced, dynamic and ever-challenging era when most job seekers looking for a job which could offer them with large salary, advancement opportunities, career fulfilment, manageable work-life balance, the stereotypical view of government jobs deem dull, drab, conformist, old fashioned which widely associated with red tape, bureaucracy, obstructiveness and dilatoriness [1] [2] [3] [4] making it more important than ever to understand what attract job seekers to the civil service.

University and college graduates will be a significant of public service renewal. In Malaysia, it is widely believed that government jobs attracted job seekers mostly graduated from local public universities. There is little if any data related to government job applicants' (colleges/universities) educational background has been released. The only available data show that in 1995, among the 1,462 applicants for the PTD (*Pegawai Tadbir dan Diplomatik*, Malaysian Administrative and Diplomatic Service), none of them was graduated from local private higher education institution (PHEI) [5]. The ability of the Malaysian public sector to attract talents is a matter of concern. PHEIs graduates are a potential and significant resource for various competencies, skills and talents to be tapped. However, to date, there is little if any systematic study of this important issue. This study is an attempt to fill the gap. The study investigates factors determining the decision of PHEIs graduates to work with the government.

2. Factors Affecting Career Choice

The study proposes and assesses the argument that sectoral employment or the choice of career, the choice of working with the government specifically, is determined by three sets of variables: organizational and job characteristics, personal characteristics, and background and demographic characteristics (hereafter referred as job, personal and background characteristics). This study examines whether and why final-year students choose government or non-government jobs. Its dependent variable is therefore the choice of public or private employment. This choice by job seekers is obviously important to public administration. The selection of factors affects one's career choice is guided by existing and almost entirely western studies. A prominent feature of these studies is that they include partly different variables because of the selection of variables that may be important in the local situation. This study follows suit and selects variables that are regarded as matters of concern in the Malaysian situation.

2.1. Organizational and job characteristics

To attract needed human resources, incentives are important. As early as 1933, Dimock has urged "paying more attention to the human factors, especially to the problem of incentives" in the public sector [6].

Numerous studies have investigated what job seekers report to be looking for in a job. Factors such as pay, benefits, promotion opportunities, career prospects, job security, hours of work, supervision, type of work, meaningfulness of work, challenging/interesting work, working environment, and co-workers are often considered important. These factors are thus key elements of a public agency's competitive position in securing needed manpower [7]. Unfavourable perceptions or low scores on job characteristics are likely to weaken the attractiveness and hence competitiveness of any sector of employment. The job characteristics that would be examined in the study are *pay and financial rewards, promotion prospects, job security, autonomy, interesting and challenging job, job satisfaction, image, stress level of job, representative/multiracial workplace,* and *public service motivation*. These ten job characteristics are well established in the relevant literatures [8] [9] [10] [11] [12] [13] [14] [15]

2.2. Personal characteristics

Theories of career choice identify a wide range of personal characteristics that may influence an individual's choice of career theories. However, the personal characteristics that will be examined in this study are those related to capacity. These are academic performance, and language proficiency (Malay and English).

Academic Performance (CGPA), and *Malay and English Languages Proficiency*. In this study, academic performance refers to how good are the grades received by the graduating students rather than educational level. Among high school juniors and seniors, college seniors and graduate students, academic grades show no negative relationship with the appeal of public employment in the US [3]. The author's literature search did not yield any study on the relationship between language proficiency and career choice in the western context. In the Malaysian context, proficiency in Malay is found to be significant and positively related to the likelihood of choosing public employment; however, proficiency in English was found to be insignificant in affecting the likelihood to pursue careers in the civil service among the Malaysian public universities students [15]. Given the fact that English language is increasingly important in a globalization era, and proficiency of English language is especially worth noting in view of the declining standard of English proficiency among Malaysians and the widely supposed private sector preference and hence competition for employees who are proficient in English [16] [17] [18], it thus included in the study.

2.3. Background and demographic characteristics

Personal and background characteristics are generally held to influence the values and beliefs of a job seeker. It is argued that the choice of a vocation is an expression of vocational interests that flow from one's personality and life history [19]. It also reflects beliefs that generally stem from everyday experience and hence are largely determined by one's socio-cultural factors [20]. The values and beliefs that are shaped by personal and background characteristics may generally predispose a job seeker towards public/private employment.

Race, Gender, Civil Servant Parent, Family Income. Various studies have shown the importance of race in influencing career choice and development. An obvious reason for the relevance of race in Malaysia is that job seekers are likely to be discouraged from seeking government jobs when there is widespread perception that their racial group suffers from discrimination in recruitment and career advancement [15]. Studies also show that public employment is more attractive to women than men. Studies frequently demonstrate that parents are still among the most important influences on students' educational and vocational decisions, and family socioeconomic status is also widely seen as an important influence and a useful predictor of individual career choice [3] [4] [21] [22]

3. Methodology

3.1. Population, sample and response rate

Two private higher education institutions (PHEIs) in the northern region of Peninsular Malaysia are involved in the study. One of the PHEIs offers courses mainly related to medical and sciences, while the other offers mainly commerce related courses. A cross-sectional survey is conducted to obtain the appropriate data. Data for the study was collected from July 2015 to January 2016 by administering a questionnaire.

The study investigates the attractiveness of government jobs under the category of Management and Professional Group (which requires a degree qualification) to potential graduate job seekers, hence the respondents of the study are confined to final year students who were doing their degree courses in the two selected PHEIs. The population size of the two selected PHEIs was 7123. The study consists of 519 respondents. The sample size of 519 makes for a confidence interval of 4.14 and a confidence level of 95% [23]. Student populations in the two PHEIs consist of 2.3% Malays, 76.2% Chinese, 20.9% Indians and 0.6% Others. The racial composition of the sample closely approximates that of the population where it consists of 2.5% Malays, 72.8% Chinese, 24.1% Indians and 0.6% Others. Genderwise, the population and the sample consist of 41.6% male and 58.4% female, and 34.3% male and 65.7% female separately.

A total number of 630 questionnaires have been distributed and 572 of them have been collected. The overall response rate for the study is 90.8%. With a response rate of more than 90%, generalization could be confidently made from the results obtained to the population from which the sample was drawn.

3.2. Data Analysis

As explained earlier, job characteristics have important influence on one's career choice. A total of ten important job characteristics are identified. Respondents were asked to rate the importance of each job characteristic as well and its attractiveness in the public sector on a Likert scale ranging from 1 to 5. However, whenever a job seeker evaluates the attractiveness of a job, he/she rarely looks at a single job characteristic alone. The evaluation of the attractiveness of a job is more likely to be based on all job characteristics. For the above reasons, an index of public employment attractiveness (*Attrctv*) is constructed from the weighted ratings of attractiveness for all the ten job characteristics. Each job characteristic is rated from 1 to 5 in terms of both importance and attractiveness. Multiplying the two ratings would provide the weighted rating of attractiveness. The weighted ratings of attractiveness of the ten job characteristics are then summed up to create the index of *Attrctv*, ranging from 10 (1 x 10) to 250 (25 x 10).

The logistic regression model is used to assess the factors that influence the dichotomous career choice of public or non-public employment. The chi-square statistic is used to test the significance of the model. In general, the dichotomous-choice logistic regression model can be written as follows:

$$Log [P / (1 - P)] = \beta_0 + \beta_1 X_1 + \ldots + \beta_n X_n + \varepsilon$$

where   P = the probability of choosing public employment; X = explanatory variable hypothesized to influence P; β = coefficient for explanatory variable; and, ε = stochastic disturbance term. Table 1 shows Variable, Description (of each variable) and expected sign of coefficient for the explanatory variables.

All the independent variables are dichotomous (and dummy coded) except for academic performance (*CGPA*). The majority group of all independent variables takes a value of 0 and is used as the base for comparison with other groups except for the variables of the index of public employment attractiveness (*Attrctv*), Malay and English languages proficiency (*MalayPro* and *EngPro*). For convenient interpretation, the majority group for the variables of *Attrctv, MalayPro* and *EngPro* take a value of 1 (instead of 0).

For job characteristics, the index *Attrctv* is used. The index is dichotomized at its midpoint of 130. Indices of 131 to 250 take a value of 1 (High Attractiveness) while indices of 10 to 130 take a value of 0 (Low Attractiveness). Logically, job seekers who view public employment as High in attractiveness are more likely to choose government jobs. Thus the relationship between public employment and *Attrctv* is expected to be positive.

TABLE I: Description of Explanatory Variables in the Statistical Model

Variable	Description	Exp. Sign
Attrctv	1 if indices fall above 130 to 250 (High Attractive); 0 if indices fall from 10 to 130 (Low Attractive)	+
CGPA	Cumulative Grade Point Average of respondent	n/a
MalayPro	1 if respondent obtained grades A+, A or A- in SPM examination;* 0 if did not	+
EngPro	1 if respondent obtained grades A+, A or A- in SPM examination;* 0 if did not	-
Race	0 if respondent is Chinese; 1 if not	+
Gender	0 if respondent is female; 0 if male	-
CSparnt	0 if respondent does not have civil-servant parent; 1 if has	+
Income	0 if respondent's family monthly income is at RM 5,000 and below; 1 if above RM 5,000	-

*SPM examination is a national examination taken by all fifth-year secondary school students in Malaysia

The personal characteristics included as independent variables in the model are academic performance (*CGPA*), proficiency in Malay Language (*MalayPro*) and proficiency in English Language (*EngPro*). The data on respondents' *CGPA* is in continuous numbers (ranging from 1.00 to 4.00). Previous literature indicates that academic performance shows no clear relationship with the appeal of government jobs [3] [15], hence, the coefficient for this variable has no expected sign in the table. For the variables of *MalayPro* and *EngPro*, respondents indicate their SPM examination grades in both languages where the grades include A+, A, A-, B+, B, C+, C, D, E and G. For both *MalayPro* and *EngPro,* the value 1 is assigned to those who obtained grades A+, A and A- (Good) and 0 to those who did not. Malay language is the main language used in the public sector. Hence the relationship between choosing government jobs and *MalayPro* is expected to be positive. English proficiency is useful in both the public and private sectors and especially valued in the private sector where the language is widely used. Being weak in English is therefore a greater disability in the private sector. As such, it is expected that those who are weak in English would shy away from the private sector, hence the relationship between choosing government jobs and *EngPro* is expected to be negative.

The final group of independent variables, namely background characteristics, concern race (*Race*), gender (*Gender*), civil-servant parents *(CSparnt)*, and monthly family income (*Income*). For *Race*, the respondent group of Chinese takes a value of 0 and 1 otherwise. In Malaysia, it is widely believed, especially among non-Malays, that discrimination occurred in recruitment and promotion practices in the public sector even though officially public personnel recruitment policy is colour-blind [24]. Malaysian Chinese are said to be less interested in civil service jobs [25] compared to non-Chinese. And, released official data indicate that total number of civil servants appointed, of all ethnic groups increased from 2011 to 2012, however, the lowest increase in terms of percentage was for Chinese civil servants (merely 11% of Chinese compared to 59% of Malays, 49% of Indians and 93% of Others) [26]. Hence, the relationship between *Race* and public employment is expected to be positive. For the variable of gender (*Gender*), female takes a value of 0 and 1 for male. Literature review shows that women are more attracted by public employment compared to men [3] [4]. This study expects likewise. In other words, the sign of the coefficient for gender is expected to be negative. As for civil-servant parents *(CSparnt)*, respondent who does not have any parent working in the civil service takes a value of 0 and 1 otherwise. Literature review indicates that those who have civil-servant parents are more likely than others to choose government jobs [4] [15] [21], hence, the relationship between *CSparnt* and public employment are expected to be positive. For the variable of income (*Income*), the value 0 denotes to those whose monthly family incomes are at RM 5,000 and below, and 1 is for those whose monthly family incomes are above RM 5,000. Literature review shows that those with lower economic background are more attracted to the public sector [3]. Thus, the relationship between public employment and *Income* is expected to be negative.

4. Findings and Discussion

4.1.   Estimation results of logit regression

Results of the Logit model are presents in Table 2. The model fits the data well as indicated by the Likelihood Ratio statistic (LR) = 394.921 and the probability value is almost zero, implying that one or more of the total effects in the model is important for predicting the probability of graduating students working for the government. The model is also found to be a relatively good fit, as it correctly predicts 76.8% of the outcomes in the sample. Of the eight independent variables, four are statistically significant in affecting the likelihood of graduating students choosing government jobs, namely rating public employment as High in attractiveness, being a non-Chinese, being Good in Malay and English languages. Impacts of the specific explanatory variables on choosing government jobs decision are further discussed below.

TABLE 2: Effect of Independent Variables on Choice of Public Employment: Summary Statistics of the Logit Model

Independent Variable	Coeff.(β)	Std. Errors	Odds Ratio Exp (β)	Sig.	Marginal Effect
Constant	-2.608	1.012	0.074	0.010	-
Attrctv	0.466	0.270	1.594	0.084***	0.112
CGPA	0.023	0.308	1.023	0.942	0.003
MalayPro	1.274	0.306	3.575	0.000*	0.269
EngPro	0.650	0.312	1.916	0.037**	0.153
Race	0.891	0.308	2.438	0.004*	0.215
Gender	0.230	0.264	1.259	0.382	0.057
CSparnt	0.179	0.345	1.196	0.604	0.045
Income	-0.354	0.282	0.702	0.209	-0.086

Model Chi-Square = 90.2000 (significant at 0.000 level); Likelihood Ratio Statistics = 394.921; Percent of Correct Predictions = 76.8%
*Significant at 0.01 level (99% confidence level); **Significant at 0.05 level (95% confidence level); ***Significant at 0.10 level (90% confidence level)

Attrctv. As expected, the index of public employment attractiveness is statistically significant and positively related to the probability of choosing government jobs. Holding other things constant, the odds of respondents who rate public employment as High in attractiveness is 1.594 times that of those who rate it Low in attractiveness, *ceteris paribus*. In addition, the probability of choosing government jobs increases by 11.2% for those who rate the index of *Attrctv* as High in attractiveness than those who rate it as Low. The results confirm the importance of job characteristics and the attractiveness of government jobs perceived by job seekers in seeking a job.

MalayPro. The effect of proficiency in Malay language is statistically significant and positively related to the decision of choosing government jobs. The odds of choosing government jobs increase by 3.575 times for respondents who have Good grades in Malay compared to those do not have Good grades in the language, *ceteris paribus*. As shown by the marginal effect, the probability of choosing government jobs increases by 26.9% for those who have Good grades in Malay in relation to those who do not have Good grades in the language. The results are hardly surprising given the fact that Malay is the main language used in the government.

EngPro. Surprisingly, proficiency in English language is statistically significant and positively relate to the likelihood of choosing government jobs. The odds of choosing government jobs increase by 1.916 times for respondents who have Good grades in English compared to those who do not have Good grades in the language. The marginal effect shows that respondents who have Good grades in English are 15.3% more likely to choose government jobs compared to respondents do not have Good grades in the language. Riding the crest of globalization and technology, English language proficiency is increasingly emphasized. The results indicate that the Malaysian public sector is not losing out in attracting applicants who are good in the language.

Race. In terms of ethnicity, *Race* is statistically significant and positively related to the probability of choosing government jobs. Other things being equal, the results reveal that the odds of non-Chinese respondents to choose government jobs are 2.438 times as likely as Chinese respondents to choose government jobs. In addition, the marginal effect indicates non-Chinese are 21.5% more likely to choose government jobs compared to Chinese. In Malaysia, race is an important factor in public employment. The results confirm the perception of the preference for Malays and other *bumiputras* in public employment is prevalent among Malaysian Chinese and this perception has a negative effect on Malaysian Chinese with respect to choosing government jobs.

4.2. Predicting the probability of choosing government jobs

Given a set of values in the explanatory variables, the probability of choosing government jobs can be predicted. Table 3 below shows the typical characteristics of respondents for the independent variables.

TABLE 3: The Typical Respondent and Characteristics

Independent Variable	Mean Sample/Base Value	Typical Characteristic
The index of *public employment attractiveness* (*Attrctv*)	1	High
Ethnic (*Race*)	0	Chinese
Gender (*Gender*)	0	Female
Civil-servant parent(s) (CS*parnt*)	0	No civil-servant parent
Respondent's monthly family income (*Income*)	0	At RM 5,000 and below
Academic performance (*CGPA*)	3.17	Mean: 3.17
Proficiency in Malay Language (*MalayPro*)	1	Good
Proficiency in English Language (*EngPro*)	1	Good

Based on the calculated mean/base values for all the respondents, the "typical" respondents in this sample is assumed to be one who is High on the index of public employment attractiveness, is a Chinese and a female, has no parent working in the civil service, has a monthly family income of RM 5,000 and below, has a 3.17 CGPA, has Good grades in both Malay and English languages. By inserting the values for the typical respondent into the estimated Logit equation as discussed earlier, the log of odds of choosing government jobs is -0.1451.[1] Thus,

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[1] $\text{Log} \ [\hat{P}/(1-P)] = $ -2.608 + 0.466 (1) + 0.023 (3.17) + 1.274 (1) + 0.650 (1) + 0.891 (0) + 0.230 (0) + 0.179 (0) - 0.354 (0)

the probability of choosing government jobs is calculates as 0.464,[2] which indicates that the typical respondent described earlier has a 46.4% chance of choosing government jobs after graduation (numbered 0 in Table 4).

TABLE 4: Selected Predictions of the Probability of Choosing Government Job[3]

No.	Characteristics	Marginal Effect	Pred. Prob.
0	Typical or as for the typical respondent, as shown in Table 3		0.464
1	Typical, except does not have Good grades in Malay language (*MalayPro*)	-0.269	0.195
2	Typical, except of non-Chinese ethnicity (*Race*)	0.215	0.678
3	Typical, except does not have Good grades in English language (*EngPro*)	-0.153	0.311
4	Typical, except Low on index of public employment attractiveness (*Attrctv*)	-0.112	0.352

Using the typical respondent as the base for comparison, we can then evaluate the effect when only one of the independent variables is changed or assumes a non-typical value. If the typical does not have Good grades in Malay language, the probability of choosing government jobs decreases from 46.4% to 19.5% (Example 1). However, this probability of choosing government jobs increases appreciably from 46.4% to 67.8% if the respondent is non-Chinese instead of Chinese (Example 2). On the other hand, this probability decreases to 31.1% if the respondent does not have Good grade in English language (Example 3). And, lastly, the probability of choosing government jobs drops by 11.2%, from 46.4% to 35.2%, if the respondent is Low on the index of public employment attractiveness.

5. Conclusion

This study aims to examine factors affecting PHEIs graduating students in choosing or not choosing government jobs after graduation. The results indicate that the decision choosing government jobs is significantly determined by the importance they attached to job characteristics and the attractiveness of public job characteristics they perceived (*Attrtv*), race (*Race*), Malay language proficiency (*MalayPro*) and English language proficiency (*EngPro*), holding all else constant. This suggests that those who have high rating on the index of public employment attractiveness, non-Chinese, have Good grades in both Malay and English languages are more likely to work with the government.

Several notable implications can be culled from these results. First, similar to western countries, it is expected that job characteristics have great impact on graduating students' career choice. As argued earlier, whenever a job seeker evaluates the attractiveness of a job, he/she rarely looks at a single job characteristic alone. The evaluation of the attractiveness of a job is more likely to be based on all job characteristics. The significance of the index of public employment attractiveness (*Attrctv*) constructed for the study confirms its usefulness in predicting PHEIs graduating students' career choice after graduation. The decision to work with the government is more likely to increase when respondents have High on the index. Improving the attractiveness of public job characteristics generally will attract more talents to consider working with the government. Second, results of the study confirm that Malaysian Chinese shy away from government jobs. More efforts need to be taken to attract more Chinese to join the civil service in order to rectify the increasingly mono-ethnic civils service [27] [28] [29]. Finally, while the results suggest that more than 35% of graduating students of the study are attracted to government jobs, probably public policy makers and public personnel managers need to investigate the reasons why there is no (or so few if any) graduate graduated from local PHEIs is being recruited into the civil service. If there are obstacles, either stem from current public policy or current recruitment practices, have to be rectified, and appropriate measures need to be devised in order to tap talents from this untapped talent pool.

6. Acknowledgements

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[2] P (Y = 1) $= -0.1451$
$= e^{(-0.1451)} / 1 + e^{(-0.1451)} = 0.4638$

[3] Negative signs are placed before the value of marginal effects for the variables of *Attrctv, MalayPro* and *EngPro* because the base values for comparison used for these variables are not their majority groups (explained in Data Analysis).

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