



Munich Personal RePEc Archive

**Tendency of corruption and its  
determinants among public servants: A  
case study on Malaysia**

Duasa, Jarita

2008

Online at <https://mpra.ub.uni-muenchen.de/11562/>  
MPRA Paper No. 11562, posted 13 Nov 2008 06:40 UTC

# TENDENCY OF CORRUPTION AND ITS DETERMINANTS AMONG PUBLIC SERVANTS: A STUDY ON MALAYSIA

*Jarita Duasa*

Department of Economics  
Kulliyah of Economics and Management Sciences,  
International Islamic University Malaysia  
Malaysia

## Abstract

*This study attempts to analyze determinants of corruption tendency on a single country, namely Malaysia, using cross-sectional data. Using survey questions on sample of respondents in two states of Malaysia, Kuala Lumpur and Selangor, data are collected and logit model is developed for estimation. The results from the regression on sample indicate that age negatively contributes to corruption tendency among government servants. The results also show that there are two departments, namely Police and Immigration departments, which have high probability of corruption and large spending, in particular, payments of personal debt, is positively contribute to high tendency of corruption among government servants.*

**Keywords:** Tendency of corruption; public servants; Logit model

**JEL Classification:** C31; C42; H00

## **Introduction**

The World Bank has once identified that corruption is as the single greatest obstacle to economic and social development. This is because it distorts the rule of law and weakening the institutional foundation on which economic growth depends. Even the issue of corruption has now become the main agenda at international conference, business gatherings and academic conferences. It also becomes a key election issue in many countries. This new climate of combating corruption and put good governance, which nearly unmentionable before mid 1990s, is due to the awareness of serious impact of corruption in many countries, in particular, developing or 'in transition'.

The impact of corruption is not only felt at political and administration level, it also penetrates negatively on economy and society. Politically, it threatens democracy, political system and the country image. Economically, it contributes to unjust distribution of income, discourages investment and distorts economic growth and development especially in the long-run. Socially, social stability is affected, the tax-payers will be burdened, it put negative perspective on society and it leads to the waste of expertise and knowledge. At national level, serious corruption will undermine both free and fair trade, which should be based on price, quality and service and hinder national, international and multi-national companies from operating legally and ethically.

Having said this, several studies have been conducted on the impact of corruption among government servant/bureaucrats. Among all are Bliss and Di Tella (1997), Myrdal (1968), Mauro (1995), Ehrlich and Lui (1999) and Burget and Che (2004). Bliss and Di Tella (1997) found that bureaucrats may create artificial barriers to entry to generate monopoly rents from which bribes are extracted, at a cost to consumers of less product variety. Bureaucrats may also over-regulate to increase the opportunities to collect bribes, thereby reducing the incentive to invest and diminishing overall economic performance (Myrdal, 1968; Mauro, 1995). Study by Ehrlich and Lui (1999) found that competition to become a bureaucrat with the power to collect economic rents from corrupt activity can cause individuals to over-invest in political capital relative to human or physical capital. Furthermore, Burguet and Che (2004) conclude that the cost of public projects may be higher when corrupt agents are in charge of procurement.

Beside the fact that the above studies have shown that public corruption could harm the economy through different channels, few studies have been done in analyzing the determinants of corruption among public/government servants. Several studies looking on the relationship between civil-service pay and corruption however show that the theory on this relationship is still ambiguous. In regard of other determinants, Ades and Di Tella (1997, 1999) have shown that the degree of competition and industrial policy have a significant effect on corruption. The absence of competition and active industrial policies creates rents, by way of more profitable or favored domestic firms, which

bureaucrats and politicians then extract. Kaufmann (1997) has found a very strong correlation between bribery to public officials and “regulatory discretion”, such as exchange controls. Corruption is also attributed to purely cultural factors or lack of leadership (Tanzi, 1994; Lee, 1986). Alternatively, the level of education of civil servants can be a factor which reduces corruption (Hauk nad Saez-Marti, 2002; Miller, 2005) and finally, Shleifer and Vishny (1993) suggest that more ethnically diverse countries are prone to a disorganized form of corruption.

However, most empirical studies of corruption among public servants was done across countries including studies on the impact of public corruption on economic growth (Mauro, 1997; Mo, 2001), on foreign direct investment (Wei, 2000) and productivity (Lambsdorff, 2003) including the above studies on determinants of corruption. In this study, determinants of public corruption will be analyzed within a single country, namely Malaysia, to avoid many potential problems that international comparison may encounter. Corruption, its definition and factors contribute to it, varies greatly across countries and periods of time within a given country. Thus, by using cross-sectional data on a specific country, this study will attempt to mitigate these problems.

Furthermore, this study will use ‘tendency’ of corruption rather than using the ‘numerical’ measure of corruption, which the proxies used by many studies are always debated. For instance, using international data, such as Transparency index, makes it difficult to consistently and accurately measure corruption across different countries and cultures (Mauro, 1995). The use of tendency of corruption measure is also enable empirical study, using economic modeling, to be done from survey questions at specific time for a specific country without worrying about availability of time series data.

This study is thus organized as follows. Following the introduction in Section 1, Section 2 reviews data and empirical work. Section 3 presents the findings and Section 4 concludes.

## **Data and empirical work**

### ***Sample***

The sample in this study consisted of 596 randomly selected government servants from 4 major government departments in capital city of Malaysia, Kuala Lumpur (representing urban area) and nearby state of Selangor (representing suburb area). All respondents were chosen randomly at all level of incomes and rankings regardless of age, gender, marital status, ethnic group and level of education. Table 1 presents details on this sample. Generally, the sample made up of 20.8% from Department of Immigration, 25.7% from Department of Transportation, 8.9% from Malaysian Royal Custom and 44.6% from Malaysian Royal Police.

Based on the sample, it is found that majority of the respondents are from Malay ethnicity and being Malays, they are expected to be Muslim too. Most of them is at the age of less

than 50 years old (96.5%) and most of them has level of education only at secondary level and below (91.6%).

**Table 1: Sample description of respondents**

|                         | Number of respondents |                    | Total              |
|-------------------------|-----------------------|--------------------|--------------------|
|                         | Kuala Lumpur          | Selangor           |                    |
| <b>Total</b>            | <b>298 (100.0)</b>    | <b>298 (100.0)</b> | <b>596 (100.0)</b> |
| <u>Department</u>       |                       |                    |                    |
| Immigration             | 59 (47.6)             | 65 (52.4)          | 124 (20.8)         |
| Transportation          | 90 (58.8)             | 63 (41.2)          | 153 (25.7)         |
| Custom                  | 36 (67.9)             | 17 (32.1)          | 53 (8.9)           |
| Police                  | 113 (42.5)            | 153 (57.5)         | 266 (44.6)         |
| <u>Gender</u>           |                       |                    |                    |
| Male                    | 164 (51.1)            | 157 (48.9)         | 321 (53.9)         |
| Female                  | 134 (48.7)            | 141 (51.3)         | 275 (46.1)         |
| <u>Ethnic group</u>     |                       |                    |                    |
| Malay                   | 275 (92.3)            | 275 (92.3)         | 550 (92.3)         |
| Chinese                 | 5 (1.7)               | 8 (2.7)            | 13 (2.2)           |
| Indian                  | 9 (3.0)               | 5 (1.7)            | 14 (2.3)           |
| Others                  | 9 (3.0)               | 10 (3.3)           | 19 (3.2)           |
| <u>Religion</u>         |                       |                    |                    |
| Muslim                  | 279 (93.6)            | 282 (94.6)         | 561 (94.1)         |
| Christian               | 9 (3.0)               | 5 (1.7)            | 14 (2.3)           |
| Buddhist                | 5 (1.7)               | 5 (1.7)            | 10 (1.7)           |
| Hindu                   | 5 (1.7)               | 5 (1.7)            | 10 (1.7)           |
| Others                  | 0 (0.0)               | 1 (0.3)            | 1 (0.2)            |
| <u>Age</u>              |                       |                    |                    |
| Less than 25            | 51 (17.1)             | 50 (16.8)          | 101 (16.9)         |
| 26 to 33                | 91 (30.5)             | 70 (23.5)          | 161 (27.0)         |
| 34 to 41                | 60 (20.1)             | 44 (14.8)          | 104 (17.4)         |
| 42 to 49                | 62 (20.8)             | 88 (29.5)          | 150 (25.2)         |
| Above 50                | 32 (10.7)             | 43 (14.4)          | 75 (12.6)          |
| No information          | 2 (0.7)               | 3 (1.0)            | 5 (0.8)            |
| <u>Education</u>        |                       |                    |                    |
| Secondary and below     | 267 (89.5)            | 279 (93.6)         | 546 (91.6)         |
| First degree            | 24 (8.1)              | 15 (5.0)           | 39 (6.5)           |
| Second degree and above | 6 (2.0)               | 4 (1.3)            | 10 (1.7)           |
| No information          | 1 (0.3)               | 0 (0.0)            | 1(0.2)             |

**Notes:** Percentages are shown in parentheses

These personal and other information are collected from the respondents using written questionnaires which distributed through field study in year 2006. Other information collected include size of income (per individual as well as per household), size of expenditure and types of debt. All these information are later being used as independent variables/factors which incorporated in modeling the tendency of corruption which will be explained detailed in next section. Summarized data on size of income and size of expenditure of the respondents are shown on Table 2.

**Table 2: Income and Expenditure of respondents**

|                                      | Number of respondents |                    | Total              |
|--------------------------------------|-----------------------|--------------------|--------------------|
|                                      | Kuala Lumpur          | Selangor           |                    |
| <b>Total</b>                         | <b>298 (100.0)</b>    | <b>298 (100.0)</b> | <b>596 (100.0)</b> |
| <u>Individual income (per month)</u> |                       |                    |                    |
| < RM1,500                            | 120 (40.3)            | 126 (42.3)         | 246 (41.3)         |
| RM1,500 to RM2,499                   | 141 (47.3)            | 128 (43.0)         | 269 (45.1)         |
| RM2,500 to RM3,499                   | 17 (5.7)              | 29 (9.7)           | 46 (7.7)           |
| RM3,500 to RM4,500                   | 10 (3.4)              | 8 (2.7)            | 18 (3.0)           |
| >RM4,500                             | 8 (2.7)               | 5 (1.7)            | 13 (2.2)           |
| No information                       | 2 (0.7)               | 2 (0.7)            | 4 (0.7)            |
| <u>Household income (per month)</u>  |                       |                    |                    |
| < RM1,500                            | 66 (22.1)             | 60 (20.1)          | 126 (21.1)         |
| RM1,500 to RM2,499                   | 82 (27.5)             | 64 (21.5)          | 146 (24.5)         |
| RM2,500 to RM3,499                   | 49 (16.4)             | 71 (23.8)          | 120 (20.1)         |
| RM3,500 to RM4,500                   | 45 (15.1)             | 53 (17.8)          | 98 (16.4)          |
| >RM4,500                             | 54 (18.1)             | 48 (16.1)          | 102 (17.1)         |
| No information                       | 2 (0.7)               | 2 (0.7)            | 4 (0.7)            |
| <u>Total expenditure (per month)</u> |                       |                    |                    |
| < RM1,500                            | 117 (39.3)            | 101 (33.9)         | 218 (36.6)         |
| RM1,500 to RM2,499                   | 93 (31.2)             | 94 (31.5)          | 187 (31.4)         |
| RM2,500 to RM3,499                   | 36 (12.1)             | 59 (19.8)          | 95 (15.9)          |
| RM3,500 to RM4,500                   | 27 (9.1)              | 23 (7.7)           | 50 (8.4)           |
| >RM4,500                             | 18 (6.0)              | 17 (5.7)           | 35 (5.9)           |
| No information                       | 7 (2.3)               | 4 (1.3)            | 11 (1.8)           |
| <u>Average (per month)</u>           |                       |                    |                    |
| <b>Individual income</b>             | <b>RM1,752</b>        | <b>RM1,745</b>     |                    |
| <b>Household income</b>              | <b>RM3,063</b>        | <b>RM3,030</b>     |                    |
| <b>Total expenditure</b>             | <b>RM2,079</b>        | <b>RM2,129</b>     |                    |

**Notes:** Percentages are shown in parentheses

By looking at individual income per month, more than 80% of respondents earn less than RM2,500.00 per month. Almost similar percentage applies to each area of Kuala Lumpur (87.6%) and Selangor (85.3%). Being in big city with high cost of living, it is highly

expected that income of individual person alone is insufficient to afford the whole family especially those who are married with children. Thus, information of household income, which includes income of spouse and family members are also worth to be collected in order to incorporate in our analysis as the amount of household income is more reasonable and reliable. Table 2 shows that when household income is considered, more than 80% of respondents earn less than RM4,500.00 per month. On average, household income is almost double of individual income in each area. As for expenditure, the survey questions which ask on spending of respondents are designed quite detail on types of spending made by respondents per month. Those include how much they spend on foods, transportation, rents, education as well as payments of debt/mortgage/loans such as home mortgage, car loans, personal loans etc. However, we also perceive that size of debt alone could be an important attribute to tendency of corruption among government servants. In order to capture this important factor in our analysis, the amount of debt (size and percentage from income) are recomputed separately from total expenditure. Information on size of debt of respondent is displayed on Table 3.

It is found that almost 70% of respondents spend RM1,500.00 and below to pay for their debts per month in each area of Kuala Lumpur (71.4%) and Selangor (68.0%) regardless of their income levels. To be more specific in getting information about the burden of debt, re-computation of the amount of debt as a percentage of individual and household incomes is made. When individual income is considered, it is found that almost 70% of respondents, in each area, spend 0% to 79% of their income on debt. Obviously, this reflects high burden of debt among government servants especially when it is also found that there are some respondents spend more than 100% of their income on debt (3.7% in KL and 5.4% in Selangor). On the other hand, when household income is taken into consideration, the findings on the burden of debt are seemed reasonable. Almost 80% of respondents, in each area, spend 0% to 59% of their income paying debts (81.9% in KL and 76.4% in Selangor) and no respondents spend more than 100% of their income on debts. However, these findings should be taken with precaution as there are some respondents are unwilling to declare any information on their debts.

In regard of types of debt the respondents are dealing with, as expected, they are mostly burdened with debts on necessities such as home and vehicle. However, surprisingly, almost 40% of respondents are also burdened by personal debt. This is probably caused by recent trend in Malaysia where personal loan is highly promoted by some financial institutions to government servants who have stable and secured income as compared to employees in private sectors.

**Table 3: Size and types of debt of respondents**

|  | Number of respondents                   |                    | Total              |
|--|---|--------------------|--------------------|
|  | Kuala Lumpur                            | Selangor           |                    |
| <b>Total respondents</b>                             | <b>298 (100.0)</b>                      | <b>298 (100.0)</b> | <b>596 (100.0)</b> |
| <b>Total respondents who has debt</b>                | <b>249 (83.6)</b>                       | <b>232 (77.9)</b>  | <b>481 (80.7)</b>  |
| <u>Estimated amount of debt (per month)</u>          |   |                    |                    |
| < RM500  | 102 (34.2)                              | 80 (26.8)          | 182 (30.5)         |
| RM500 to RM999                                       | 77 (25.8)                               | 77 (25.8)          | 154 (25.8)         |
| RM1,000 to RM1,499                                   | 34 (11.4)                               | 46 (15.4)          | 80 (13.4)          |
| RM1,500 to RM1,999                                   | 17 (5.7)                                | 16 (5.4)           | 33 (5.5)           |
| >RM2,000   | 19 (6.4)                                | 13 (4.4)           | 32 (5.4)           |
| No information                                       | 49 (16.4)                               | 66 (22.1)          | 115 (19.3)         |
| <u>% of debt from individual income</u>              |   |                    |                    |
| < 20%  | 54 (18.1)                               | 38 (12.8)          | 92 (15.4)          |
| 20% to 39%   | 89 (29.9)                               | 85 (28.5)          | 174 (29.2)         |
| 40% to 59%   | 55 (18.5)                               | 55 (18.5)          | 110 (18.5)         |
| 60% to 79%   | 20 (6.7)                                | 22 (7.4)           | 42 (7.0)           |
| 80% to 100%  | 20 (6.7)                                | 16 (5.4)           | 36 (6.0)           |
| > 100%   | 11 (3.7)                                | 16 (5.4)           | 27 (4.5)           |
| No information                                       | 49 (16.4)                               | 66 (22.1)          | 115 (19.3)         |
| <u>% of debt from household income</u>               |   |                    |                    |
| < 20%  | 105 (35.2)                              | 91 (30.5)          | 196 (32.9)         |
| 20% to 39%   | 112 (37.6)                              | 108 (36.2)         | 220 (36.9)         |
| 40% to 59%   | 27 (9.1)                                | 29 (9.7)           | 56 (9.4)           |
| 60% to 79%   | 4 (1.3)                                 | 4 (1.3)            | 8 (1.3)            |
| 80% to 100%  | 1 (0.3)                                 | 0 (0.0)            | 1 (0.2)            |
| > 100%   | 0 (0.0)                                 | 0 (0.0)            | 0 (0.0)            |
| No information                                       | 49 (16.4)                               | 66 (22.1)          | 115 (19.3)         |
| <b>Average debt (per month)</b>                      | <b>RM764</b>                            | <b>RM807</b>       |                    |
| <b>% of debt from individual income (on average)</b> | <b>42.2%</b>                            | <b>47.1%</b>       |                    |
| <b>% of debt from household income (on average)</b>  | <b>24.4%</b>                            | <b>25.7%</b>       |                    |
| <u>Types of debt</u>                                 |   |                    |                    |
|  | <b>% of respondents having the debt</b> |                    |                    |
| Home   | 49.7                                    | 50.0               |                    |
| Vehicle (car, motorcycle etc.)                       | 64.1                                    | 61.4               |                    |
| Business   | 1.7                                     | 3.7                |                    |
| Personal   | 39.9                                    | 45.0               |                    |
| Credit card  | 16.1                                    | 20.1               |                    |
| Others   | 8.7                                     | 12.1               |                    |

**Notes:** Percentages are shown in parentheses

### ***Tendency of corruption***

Data on ‘tendency of corruption’ among government servant are also collected using survey questions which are constructed using example of corruption cases (5 cases) and the respondents have to answer, using scale, whether the acts in those cases are considered as acceptable or not acceptable, serious or not serious offence from his/her own view and the department’s view. Five scales of answers are provided and those answers which are below scale of 3 are considered most likely to allow corruption acts to happen or, in other words, has high tendency of corruption and the score of 3 and above are considered low/no tendency of corruption.

Answers obtained for those cases are later re-coded into binary numbers (0 or 1) which are used as data of dependent variable in modeling determinants of tendency of corruption, where 0 represents no tendency of corruption and 1 represents high tendency of corruption. Value of 0 is computed if score of all 5 cases are 3 and above and value of 1 is computed if at least 1 case scores below 3.

### ***Modeling determinants of corruption tendency***

In this study the model used is a nonlinear regression model specifically designed for binary dependent variables. Unlike linear probability model, this model adopts a nonlinear formulation that forces the predicted values to be between 0 and 1 by using cumulative probability distribution function (c.d.f.) which denoted by  $F$ . Apart from using logit regression, probit regression could also be used in modeling binary dependent variables. The difference between logit and probit regressions is that probit regression uses the standard normal c.d.f. and logit regression uses the “logistic” c.d.f.<sup>1</sup>. The logistic cumulative distribution function has a specific functional form, defined in terms of the exponential function. The population logit model of the binary dependent variable  $Y$  with multiple regressors could be expressed as:

$$\Pr(Y = 1|X_1, X_2, \dots) = F(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)}}$$

The main motivation for logit regression was that the logistic c.d.f. could be computed faster than the normal c.d.f. (Stock and Watson, 2007)

In modeling determinants of corruption tendency, we develop a Logit Model as follows:

---

<sup>1</sup> Refer to Stock and Watson (2007) for detail explanation.

$$L_i = \ln\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \beta_1 \text{SIZEDEBT}_i + \beta_2 \text{DPNDT}_i + \beta_3 \text{SPEND}_i + \beta_4 \text{AGE}_i + \beta_5 \text{GENDER}_i + \beta_6 \text{INCOME}_i + \beta_7 \text{RACE}_i + \beta_8 \text{TDEBT}_i + \beta_9 \text{EDU}_i + \beta_{10} \text{RLGN}_i + \beta_{11} \text{DEPT}_i + \nu_i$$

(1)

where  $L_i$  is a dummy variable with value of 0 or 1.  $L_i = 0$ , if there is no tendency of corruption and  $L_i = 1$  if there is tendency of corruption. As explained in earlier section, value of  $L_i$  is obtained by re-coded the scale answers of respondents on the developed corruption cases in the survey questions. SIZEDEBT is size of debt (as percentage of household income), DPNDT is number of dependents, SPEND is the amount of spending (in Ringgit Malaysia), AGE is age of respondent in years, GENDER is a dummy variable of gender (1=male, 0=female), INCOME is the level of household income (in Ringgit Malaysia), RACE is a dummy variable of race (0=non-Malay, 1=otherwise), TDEBT is dummy variables of types of debt (5 dummies for 6 types of debt), EDU is a dummy variable of education level (0= secondary and below, 1=otherwise) and RLGN is a dummy variable of religion (0=non-Muslim, 1=Muslim) and DEPT is dummy variables of government departments (3 dummies for 4 departments)

In general, if we take the antilog of the  $j$ th slope coefficients ( $\beta$ 's), subtract one from it, and multiply the result by 100, we will get the *percent change* in the odds for a unit increase in the  $j$ th regressor. The percentage change could be interpreted as probability the corruption will change (increase or decrease) due to a unit increase in independent variable such as size of debt, spending, age and others.

It is also important to note that the  $R^2$  is a poor measure of fit for the linear and nonlinear probability model (Stock and Watson, 2007). Therefore, we use another measure of fit for this model of binary dependent variable, namely "fraction correctly predicted". The fraction correctly predicted uses the following rule: If  $Y_i=1$  and the predicted probability exceeds 50%, or if  $Y_i=0$  and the predicted probability less than 50%, then  $Y_i$  is said to be correctly predicted. Otherwise,  $Y_i$  is said to be incorrectly predicted. The "fraction correctly predicted" is the fraction of the  $n$  observations  $Y_1, \dots, Y_n$  that are correctly predicted. Using EVIEWS, the fraction is stated in term of percentage which displayed as "% correct" in our results. It indicates how many % the estimated model correctly predicts the observations. Besides, we will also perform Pearson  $\chi^2$ -type tests of goodness-of-fit, namely Hosmer-Lemeshow (1989) and Andrews (1988a, 1988b). The idea underlying these tests is to compare the fitted expected values to the actual values by group. If these differences are 'large' the model is rejected as providing an insufficient fit to the data.

## Findings

The regression of the logit model is done both using split sample and the whole sample. The former method is used by splitting the whole sample by area (Kuala Lumpur and Selangor) and the regression is done separately in order to look at factors lead to

tendency of corruption in each area. The latter method is used with total sample of respondents regardless of the area.

Column 2 of Table 4 displays result of logit regression for area of Kuala Lumpur. It is found that age and department, where the respondents are working, are significant factors contribute to tendency of corruption among government servants, other things remain constant. Negative sign of age coefficient indicates that there is high tendency of corruption among young respondents as compared to aged respondents. Positive signs for coefficients of departments of Immigration and Royal Police, reflect that there are high tendency of corruption among government servants who are working in these departments as compared to other departments in study. Both coefficients of age and Immigration department are significant at 5% level while coefficient of Police department is significant at 1% level. By converting the coefficients of each variable to percentage change in the odds, as mentioned in earlier section, it is found that a year younger of the respondents contributes to 5.85% increase in tendency/probability of corruption, vice versa.

Further analysis is done on data of Selangor and column 3 of Table 4 displays the results of logit regression on these data. Similar to Kuala Lumpur, age is also important factor contributes to tendency of corruption as it is significant at 1% level. Besides, department of Immigration and personal debt are also other important factors in the regression which significant at 5% level and 1% level, respectively. Similar to results obtained for Kuala Lumpur, coefficient of age is negative which again indicates that young respondents have high tendency of corruption as compared to older respondents. The re-computation of coefficient into percentage change shows that a year younger of respondents contributes to 6.74% increase in tendency of corruption. As for department of Immigration, the positive sign reflects that those who are working in this department, as compared to other departments in study, have high tendency to involve in corruption. Interestingly, type of debt, that is, personal debt also has positive sign which indicates that the burden of debt especially personal debt of respondents also contributes to high tendency of corruption.

For the whole sample, results of logit regression which depicted in column 4 of Table 4 identify four significant attributes to tendency of corruption in these 2 states/areas. As expected, age contributes negatively to tendency of corruption which tells that young government servants have high tendency to involve in corruption as compared to the aged one. The percentage change of odd for this variable is about 5.71%. It is also found that both Police and Immigration departments are positively contributes to high tendency of corruption as compared to other departments in study with percentage changes of odd of 479.66% and 410.30%, respectively. In this regression too, a new attribute to tendency of corruption which able to be identified is 'spending' which also positively correlated with

**Table 4: Results of Logit Regression**

| Equation<br>Variable                 | Dependent Variable: <i>Tendency of Corruption</i> |                        |   |
|--------------------------------------|---|------------------------|---|
|                                      | (1)<br>Kuala Lumpur                               | (2)<br>Selangor        | (3)<br>Whole sample<br>(Kuala Lumpur<br>and Selangor) |
| <i>constant</i>                      | 0.6128<br>(0.499)                                 | 0.3352<br>(0.158)      | 0.5100<br>(0.516)                                     |
| <i>dependent</i>                     | 0.0632<br>(0.634)                                 | -0.0419<br>(-0.381)    | 0.0338<br>(0.489)                                     |
| <i>gender</i>                        | -0.2486<br>(-0.7043)                              | 0.4897<br>(1.161)      | 0.0051<br>(0.020)                                     |
| <i>education</i>                     | -0.0704<br>(-0.180)                               | -0.6849<br>(-1.282)    | -0.1500<br>(-0.513)                                   |
| <i>age</i>                           | -0.0602**<br>(-2.553)                             | -0.0698***<br>(-2.588) | -0.0588***<br>(-3.536)                                |
| <i>Religion</i>                      | 0.2642<br>(0.196)                                 | 1.9953<br>(1.017)      | 0.8207<br>(0.789)                                     |
| <i>Size of debt</i>                  | 0.0045<br>(0.329)                                 | -0.0507<br>(1.296)     | -0.0177<br>(-1.284)                                   |
| <i>Immigration<br/>department</i>    | 1.2277**<br>(2.022)                               | 2.429**<br>(2.000)     | 1.6298***<br>(3.238)                                  |
| <i>Transportation<br/>department</i> | 0.8147<br>(1.271)                                 | 0.6429<br>(0.515)      | 0.6442<br>(1.238)                                     |
| <i>Royal Police<br/>Malaysia</i>     | 1.8092***<br>(2.921)                              | 2.0589<br>(1.635)      | 1.7573***<br>(3.506)                                  |
| <i>Income</i>                        | -0.000068<br>(-0.480)                             | -0.0002<br>(-0.949)    | -0.0001<br>(-1.113)                                   |
| <i>Spending</i>                      | 0.000324<br>(1.482)                               | 0.0003<br>(1.252)      | 0.0003**<br>(2.086)                                   |
| <i>Race</i>                          | -0.7959<br>(-0.589)                               | -0.6178<br>(-0.364)    | -0.6196<br>(-0.631)                                   |
| <i>Debt_vehicles</i>                 | 0.0048<br>(0.013)                                 | -0.1101<br>(-0.255)    | -0.1738<br>(-0.652)                                   |
| <i>Debt_credit<br/>cards</i>         | -0.3582<br>(-0.799)                               | -0.2264<br>(-0.430)    | -0.3703<br>(-1.137)                                   |
| <i>Debt_personal</i>                 | -0.0589<br>(-0.176)                               | 1.0487***<br>(2.651)   | 0.3557<br>(1.463)                                     |
| <i>Debt_house/home</i>               | -0.1882<br>(-0.494)                               | -0.1646<br>(-0.389)    | -0.1669<br>(-0.619)                                   |
| <i>% Correct</i>                     | 65.35   | 71.89                  | 67.70   |
| <i>H-L statistic</i>                 | 7.1398  | 9.1374                 | 7.0691  |
| <i>Andrews statistic</i>             | 9.3984  | 24.7592***             | 8.3194  |

Notes: 1. Z-statistic in parentheses  
2. \*\*\* significant at 1% level  
\*\* significant at 5% level  
\*significant at 10% level.

high tendency of corruption with 0.032% change in the odd/probability. This reflects that high spending habit of government servants could also lead to tendency of corruption. Though definition of 'spending' is quite general in this case, which might include payments of debt, by looking at regression result of Selangor and even the descriptive analysis on Table 3, it is obvious that payments of personal debt as a component of total spending is the main contributor to the tendency of corruption among government servants.

Overall, the results obtained are mostly consistent with earlier findings. For example, Rijckeghem and Weder (2001) had also found that large spending is highly contribute to corruption and a study by Swamy , Knack, Lee and Azfar (2001), also found that young people and men, instead of women, have more tendency to commit corruption crime when demographic factors are taken into consideration as determinants of corruption.

In addition, three models of logit regression depicted in Table 4 are also tested in terms of correct/incorrect classification (based on a user specified prediction rule) and goodness-of-fit tests based on HL and Andrews statistics. As for logit regression of Kuala Lumpur, the estimated model correctly predicts 65.35% of the observations and the H-L and Andrews statistics indicates that there is small differences between the fitted expected values to the actual values by group and thus represent a good fit of model. The logit regression on Selangor reflects that about 71.89% of observations is correctly predicted by the estimated model. However, since the p-value of HL test is large while the value of Andrews test statistic is small, they provide mixed evidence of problems. As for the whole sample, 67.70% of observations is correctly predicted by the estimated model and both HL and Andrews tests indicate that the model fit the data very well.

The findings from this study would have significant policy implication in mitigating the involvement of bureaucrats in corruption, in particular, in Malaysia. The results imply that proactive measures should be taken seriously to reduce the tendency of corruption especially among young government servants, for examples, by increase the awareness of clean acts/services and the worse impacts from the act of corruption through education and training. Since the majority of government servants are Muslim, the fact that Islam prohibits the act of corruption and bribery and treat 'work' as a trust from God which must be carried/done with full responsibility, more religious awareness should be given to them through systematic module of talks and seminars.

Nevertheless, since departments of Police and Immigration are identified as 2 important departments, among others, which have high probability of corruption, disciplinary acts should be tightened in all government departments, particularly in these departments. Besides, protection on 'whistle blower' has to be elevated to encourage more servants to provide information willingly on any corruption act done within departments. As personal debt also contributes positively to the tendency of corruption, it is highly suggested that size of debt of government servants should be monitored seriously. For instance, the cooperation between finance department and financial institutions, who are the loan providers, has to be established. The government servants should not be allowed to borrow money beyond his/her affordable income. This is to avoid a serious problem of

debt which might lead to tendency of corruption. Having said this, a regular check on value of assets owned by bureaucrats, which currently have been practiced, should be strengthened and conducted more efficiently.

## **Conclusion**

Due to the fact that only few studies have been done on determinants of corruption among government servants and most previous studies on corruption which was done across countries encounter potential problem of international comparison, this study attempts to analyze determinants of corruption tendency on a single country, namely Malaysia, using cross-sectional data. Using survey questions on sample of respondents of 596 in 2 states, Kuala Lumpur and Selangor, data are collected to develop an economic model of determinants of corruption. Logit model is developed for split samples by area and whole sample to identify significant factors contribute to tendency of corruption. The results from the regression on those samples indicate that age negatively contributes to corruption tendency among government servants which suggest that young servants are more likely to involve in corruption. The results also show that there are two departments, namely Police and Immigration departments, which have high probability of corruption. In addition, it is also found that large spending, in particular, payments of personal debt, also positively contribute to high tendency of corruption among government servants. The results are mostly consistent with previous findings and most importantly they could assist the authority to take few steps on reducing the corruption problem by monitoring their spending habits, increasing the awareness of good governance among servants in each government department, in particular, Police and Immigration departments as well as among young and new government servants.

## **References**

Ades, A. and Di Tella (1997), "National Champions and Corruption: Some Unpleasant Interventionist Arithmetic", *Economic Journal*, Vol. 107, pp. 1023-42.

Ades, A. and R. Di Tella (1999), Rents Competition and Corruption, *American Economic Review*, No. 89, pp. 982-993.

Andrews, Donald W.K. (1988a) "Heteroskedasticity and Autocorrelation Consistent Covariance Matrix Estimation," *Cowles Foundation Discussion Papers 877R*, Cowles Foundation, Yale University, revised Jul 1989.

Andrews, Donald W.K. (1988b). "Asymptotic Normality of Series Estimators for Nonparametric and Semiparametric Regression Models," *Cowles Foundation Discussion Papers 874R*, Cowles Foundation, Yale University, revised May 1989.

Blackett, Isabel, 'Corruption: Whose problem is it?', <http://www.tear.org.au/resources/harambee/023/02corruption-iblackkett.htm> (accessed on 29/06/2007)

Bliss, C. and Di Tella, R. (1997), Does Competition kill Corruption?, *The Journal of Political Economy*, 105(5), pp. 1001-1023.

Burguet, R. and Che, Y-K (2004), Competitive Procurement With Corruption, *RAND Journal of Economics*, 35(1), pp 50-68.

Ehrlich, I. and Lui, F.T. (1999), Bureaucratic Corruption and Endogeneous Economic Growth, *The Journal of Political Economy*, 107(6), S270-S293.

Hauk E. and Saez-Marti, M. (2002), On Cultural Transmission of Corruption, *Journal of Economic Theory*, Vol. 107, pp. 311-335.

Hosmer, D.W., Jr., & Lemeshow, S. (1989), *Applied Logistic Regression*, New York: John Wiley and Sons.

<http://www1.worldbank.org/publicsector/anticorrupt/> (accessed on 29/06/2007)

Kaufmann, D. (1997), Corruption: The Facts, *Foreign Policy* 107, pp.114-131.

Lambsdorff, J.G. (2003), How Corruption Affects Productivity, *Kyklos*, 56, pp. 457-474.

Lee, R.P.L. (1986), Bureaucratic Corruption in Asia: The Problem of Incongruence Between Legal norms and Folk Norms, In: Carino ( ed.), *Bureaucratic Corruption in Asia: Causes, Consequences and Controls*, NMC Press, Quezon City, Phillipines, pp. 69-107.

Mauro, P. (1995), Corruption and Growth, *The Quarterly Journal of Economics*, 110(3), pp. 681-712.

Mauro, P. (1997), The Effects of Corruption on Growth, Investment and Government Expenditure: A Cross-country Analysis, In: *Corruption and the Global Economy*, Washington, D.C.: Institute for International Economics, pp. 83-107.

Miller, W.L. (2005), Corruption and Corruptibility, *World Development*, Vol. 20, No. 10, pp.1-10.

Mo, P.H. (2001), Corruption and Economic Growth, *Journal of Comparative Economics*, 29, pp.66-79.

Myrdal, G. (1968), *Asian Drama: An Inquiry in the Poverty of Nations*, Vol. 2, New York: The Twentieth Century Fund.

Rijckeghem C.V. and Weder B. (2001), 'Bureaucratic corruption and the rate of temptation: do wages in the civil service affect corruption, and by how much?' In *Journal of Development Economics*, Vol.65, (307-331)

Stock, James & Mark Watson (2007), *Introduction to Econometrics*, Pearson Education Inc., Boston.

Shleifer, A., Vishny, R (1993), Corruption, *Quarterly Journal of Economics*, 108(3), pp. 599-617.

Swamy A., Knack S., Lee Y. and Azfar O. (2001), 'Gender and corruption', *Journal of Economic Development*, Vol.64, (25-55)

Tanzi, V., (1994), Corruption, Governmental Activities and Markets, IMF Working Paper No. 94/99.

Wei, S-J (2000), How Taxing is Corruption on International Investors, *Review of Economics and Statistics*, 82, pp.1-11.