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# THE INCIDENCE OF OVER-EDUCATION IN MALAYSIA: DESCRIPTIVE ANALYSIS

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**Abstract:** *This article is developed to provide a brief overview on the phenomenon of over-education in Malaysia). Hence, the sample data employed is the Time Series Data from the period of 1984 to 2016 gathered from several other reliable sources. Most researchers have claimed that over-education has negative impacts on individual and firm productivity. In order to describe and elaborate the incidence of over-education in Malaysia, this article has employed the job analysis method of collecting the data on employment with tertiary education and occupation with tertiary education. Referring to the descriptive analysis, the outcome has illustrated that almost 7.7 percent of workers in Malaysia were over-educated.*

***Keywords:*** *Over-education and Descriptive Analysis*

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## Introduction

Since the last four decades, there has been massive surge over the demand for higher education in Malaysia among the young cohort which is from only approximately 43,000 in 1985 to over 600,000 in 2015 (National Higher Education Statistic, 2016). Particular scenario has led to an increase in the number of graduates produced by the higher educational institutions (HIEs) from 22,848 in 1985 to nearly 300,000 in 2015. Accordingly, the total number of highly educated [1] workforce has also significantly speeded up from only 6 percent to over 27 percent between 1982 and 2015. This occurrence has been partly explained by two factors which are the expansion of compulsory schooling and the increasing number of higher educational institutions and another part of the training diversification offered by the HEIs.

However, the job vacancies available for this particular group do not meet the demand hence, has resulted in mismatched or over-education incidence whereby highly educated workers have been placed in jobs for which do not correspond to their educational background.

[1] Higher Education refers to many countries, is synonymous with tertiary education, including graduate and postgraduate education, but excludes vocational education (The World Bank, 2012).

Consequently, such incidence affects productivity whereby it decreases the individual and firm level of performance and this has impacted on economic growth since the country cannot utilize the people's skills in the labour market. Hence, this thesis intends to explore the incidence of over-education which has an impact on macro-economic level i.e. – economic growth. There are plenty of researches documented focusing on the relationship between education and growth (Hanushek, 2010) and what we do not know yet, would happen to growth once over-education incidence is considered.

Between 1982 to 2000, Malaysian economy experienced of shortage of skilled workers, especially among the workers with tertiary level of education. It was discovered that the number of jobs provided which required tertiary education exceeded the number of available workers who possessed such qualification. However, the incidence continuously declined every year. For example, in 1982, the number of skilled shortage workers were around 160 000 and the figures continuously deteriorated to 73 600 in 2000. Skill shortage incidence led firms to hire unqualified workers who owned a diploma degree or workers with post-secondary education to occupy the vacancies (World Bank, 2008).[2] Second, after 2000, the job vacancies available in the economy were insufficient to observe all the highly educated workers produced by HEIs. This has led to what so-called 'over-education' incidence in the labour market.

Furthermore, this phenomenon is well explained, whereby in 2001, the number of employed workers with tertiary education were 1,441.7 thousands compared to the number of vacancies which required tertiary education which were only 1,152.2 thousand. As a result, 289.5 thousands of the employed people were forced to choose occupations which only require secondary or primary levels of education and the number of occupations that did not correspond to their actual qualification level. Unfortunately, such incidence has escalated since then and reaching up to 1,194.5 thousand in 2010 and 1,672.7 thousand in 2015.

## Objective of the Study

The general objective of the thesis is to explore the incidence and the impact of over-education on economic growth in Malaysia for a period of 1984 to 2016. Within this there are three specific objectives outlined:

- To explore the incidence of over-education between 1984 to 2016.

## Literature Reviews

### *Theoretical of Over-Education (Human Capital Theory)*

Education is placed under human capital theory. It is viewed as a testament to economic performance by removing the concept of confinement as a human capital that will support technological change, research and innovation, and increased productivity in competitiveness (Fitzsimons, P. 1999). This theory was introduced by Schultz (1961) and was extended by Becker (1964). Becker (1994) explains that growth in physical capital is a small part of revenue growth. Education and training actually play a more important role in the growth. Education and training will increase the productivity of workers where knowledge and skills that the worker will increase their income generation. This theory emphasizes the importance of education and training as the key to engaging in new economics. Therefore, higher education is an important component in strengthening human capital productivity.

[2] The survey (World Bank, 2009) reported that firms in the manufacturing sectors take about four to six weeks to fill a vacancy for a professional or a skilled production worker which seems a quite long.

In relation to Human Capital Theory, the suggestion that firms are willing to take full advantage of their workforce skills by adjusting their production processes in response to any change in the relative supply of labor explicitly from the repeated Becker assumption that employees will always pay their marginal product. Wages are always in line with the marginal product of individual workers, which will be determined by the level of human capital that they have accumulated through either formal education or on-the-job training. Therefore, over-education, associated with under-utilization workers and wage rates under marginal products, will appear entirely inconsistent with the labor market's view.

***The Incidences of Over-Education in Selected Countries.***

This particular issue of university graduates being over-educated was brought to attention by Freeman (1976), who contended that during the 1970s, the supply of graduates passed the need for university-trained workers, pushing many into traditionally non-graduate jobs at relatively lower salary. Since then, a broad international literature has emerged concerning over-education.

For example, Groot and Maassen van den Brink (2000) found that in the Netherlands, by using the data 1994 from Sixth Wave of the Dutch OSA labor market survey, the incidence of over-education has indicated that 15.9 percent (objective measure), 11.2 percent (subjective method) and 11.9 percent (mean method). While by studying the data from the Survey of class structure in 1985 and 1990, the incidence of over-education in Spain is as high as 27.9 percent (1985) and 25.6 percent (1990) using subjective method, but the value of over-education has dropped to 15.2 percent when using mean method (Beneito, Ferri, Molto and Uriel, 2002).

In the United Kingdom, Dolton and Vignoles (2000) have illustrated that the incidence of over-education in 1980 is greater than 1986 with corresponding at 38 percent and 30 percent respectively by using subjective method. The subjective method is also employed by Green, McIntosh and Vignoles (2002) indicated the incidence of over-education and the result showed high value in 1997 with 32 percent compared to 1986 and 1992. Similarly, Dekker, de Grip and Heijke (2002) and Buchel and Pollmann-Schult (2004) also found the workforce in Netherland and West-Germany is over-educated. According to Bauel (2002), by using panel data, the German SocioEconomic Panel (GSOEP) for the period of 1984 to 1998, the finding showed that the over-educated workers earn less earning compared to the under-educated and match-educated.

According to Frenette (2004), in Canada, the percentage of graduates who were overqualified for their jobs was 30.4 to 36.4 percent. His study presented that the academic programs offered are strongly related to over-education and there is a strong negative earning effect associated with an over-qualification at the college and bachelor’s levels. Correspondingly, Karakaya, Plasmam and Rycx (2007) by using the 1995 Structure of Earnings Survey with Job Analysis and Modal method, they found that between 22 and 24 percent of the workforce is over-educated in Belgium. They also illustrated that male workers and people employed in state-owned firms are less affected by over-education.

In Taiwan, the incidence of over-education is as high as 45.8 percent using the self-assessment method, although this number dropped) sharply to 17.31 percent when the realized method is used (Hung, 2008). For Quinn and Rub (2006), they displayed) that by using the mean method,

the whole incidence of over-education in Mexico is 17.2 percent. However, this figure increases to 39.9 percent when a modal value is used. The finding displayed that the over-educated workers in Mexico, the return on wages from additional schooling is slightly more than half the return from an equal increase in required education. In addition to this, David Carroll (2013) in his research by using a new panel data 2007 and 2010 set on current Australian bachelor degree graduates, studied the incidence of over-education and its consequence on earnings, both immediately after course completion and three years later. By using objective method, the result exposed that between 24% and 37% of graduates were over-educated for the jobs they held shortly after course completion in 2007. Based on OLS result, the earnings of young over-educated graduates did not differ significantly to those of their well-matched peers.

***The Impacts of Over-Education in Selected Countries.***

The researchers focusing on this particular topic have a mutual agreement with respect to the impacts, whereby over-education leads to negative impacts on individuals and the firm or workplace. From the previous studies, at individual level, over-education has caused in lower productivity by reducing their income earned (see reviewed made for example by Hartog, 2000; McGuinness, 2006; Leuven & Oosterbeek, 2011), decreasing job satisfaction level (Kler, 2007; Zakariya and Battu 2014, Rasovec, 2014) and quit intention ( Zakariya, 2017). Indeed, the phenomenon of over-education as a whole has led to lower workplace performance and high absenteeism (Belfield, 2010, Zakariya, 2012), lower firm productivity (Buchel, 2000; Belfield, 2010; Zakariya, 2012; Zakariya and Battu, 2014;. Diez de Medina, 2014).

Nevertheless, there has been documented in the literature that higher education has a significant impact on growth due to the widely adopted human capital view is that higher education increases- skill and knowledge (Mankiw, 1992; Hanushek, 2016), innovation capacity (Lucas, 1988; Romer, 1990; Aghion and Howitt, 1998) and facilitate the diffusion and transmission of knowledge (cf. Nelson and Phelps, 1966; Benhabib and Spiegel, 1994; Kruss, McGrath, Petersen and Michael Gastrow, 2015). However, as discussed above, over-education seems to be a long-term phenomenon in the labour market and failure to utilize workers' skills and knowledge for a long period may hamper the growth, i.e. Growth Domestic Product (GDP).

In addition, some employees received job offers even though the offers do not fully make use of their skills and abilities because there are more organizations rely on part-time workers. Moreover, research denotes that new groups of graduates who confront increased labor market competition will recompense for their deficiency of work experience through even further education, heading to even larger mismatches between possessing and obligatory qualifications (Martinez, 2015).

**The Incidence of Over-education in Malaysia**

As discussed before, the number of students pursuing studies at tertiary level has been in growing trend due to undoubtedly. Firstly, is due to the rising number of admission in the universities at tertiary level and secondly, the escalating amount of budget allocated by the government in education. Consequently, there has been unsurprisingly increase in the number of graduates produced by both public and private higher educational institutions (HEIs) and also the number of graduates joining in the labour force. By such increment, it encourages the

country to boost the supply of educated and skilled workers in the labour market, hence enhancing the quality of the employees in terms of educational attainment.

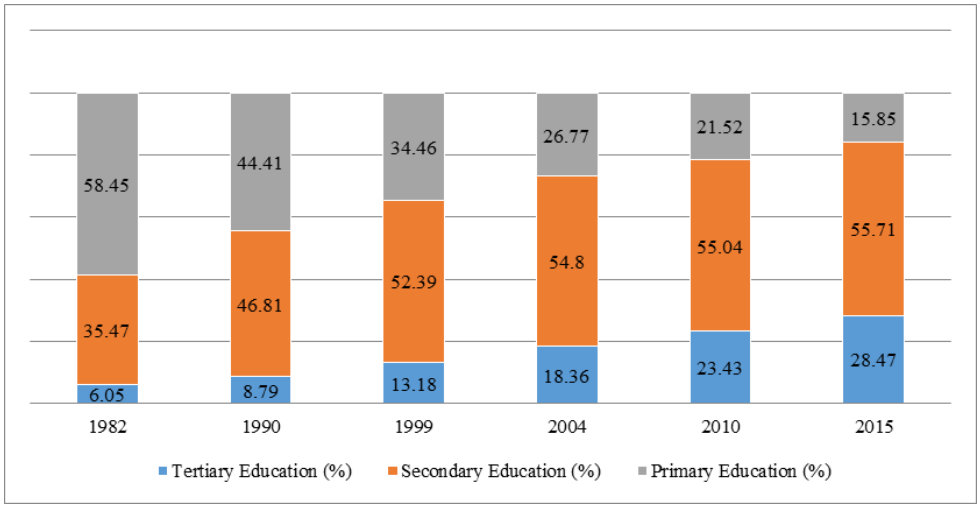



**Figure 1: The Percentages of employed person by educational level from 1982 to 2015.**

Figure 1 illustrates that entirely the number of workers with tertiary and secondary education has increased between 1982 to 2015 whereas the total number of workers with primary education has been in decreasing trend over the same period. The escalation in percentages of employed people based on the educational level only occurs in secondary and tertiary education.

Particularly, in 1982, the percentage of employed people with tertiary education elevated from 6.06 percent to 8.79 percent in 1990 and constantly escalated by 28.47 percent in 2015- an increase by 3.23 times. Moreover, similar trend has also been reported for secondary education, from just 35% to 56% from 1982 to 2015. Meanwhile, the percentage of employed people with primary education has illustrated a decreasing trend from 58.5% percent in 1982 to 16% in 2015.

Furthermore, in terms of human capital development, the escalating percentage of the employed people with ~~a~~ tertiary education is a positive indicator as it enhances the accumulation of human capital in the country. Despite these excellent progress and significant resources which have been dedicated to enhance the quality of labour force in the last decades, there are however, a number of outstanding challenges and obstacles encountered in the labour market.

Apart from the increasing number of graduate unemployment,[3] there are some evidences which display the rising number of highly educated workers who are not compatible with the number of job opportunities for this group resulted in skills shortage and over-education. Skills shortage can be explained as a situation whereby there is not-enough workers with a particular skill to

[3] Though the general unemployment rate has stayed at around 3.5% between 2000 and 2015, graduate unemployment has increased from 15.2% to 34% over the same period (Department of Statistics, 2016).

meet the demand (Zakariya, 2017). In other words, the quality and type of education possessed by workforces do not match the requirement by the industry.
Meanwhile, over-education is defined as a worker who has possessed higher educational or qualification level than what the job required (Zakariya, 2014). Both incidences can be examined in Table 1 where the table shows the number of the employed persons by educational level (left side of the table) and occupational category by educational level (right side of the table) between 1982 and 2015.[4]

**Table 1: The numbers of employed persons with education level and an occupation with education level from year 1982 to 2015 (multiple years).**

| Year | Employed with level of education ('000) | | | Occupation with level of education ('000) | | |
|---|---|---|---|---|---|---|
| | Primary | Secondary | Tertiary | Primary | Secondary | Tertiary |
| **1982** | 3068.2 | 1861.9 | 318.2 | 3184.7 | 1577.1 | 487.2 |
| **1986** | 2991.9 | 2340.1 | 428.1 | 3300.8 | 1870.0 | 589.4 |
| **1990** | 2968.6 | 3129.2 | 587.3 | 3843.5 | 2176.9 | 664.6 |
| **1994** | 2850.5 | 3862.3 | 801.2 | 4106.0 | 2476.0 | 932.0 |
| **1998** | 2963.3 | 4505.3 | 1131.0 | 4448.0 | 2892.3 | 1259.3 |
| **2000** | 2858.7 | 5071.7 | 1338.7 | 4610.2 | 3246.6 | 1412.3 |
| **2001** | 2775.5 | 5135.3 | 1441.7 | 6188.1 | 7,209.9 | 1152.2 |
| **2002** | 2789.2 | 5163.3 | 1588.4 | 6187.8 | 7,194.5 | 1269.8 |
| **2006** | 2524.7 | 5774.3 | 1975.2 | 6604.2 | 7,771.6 | 1395.5 |
| **2010** | 2561.2 | 6549.6 | 2788.6 | 7426.4 | 8,951.7 | 1594.1 |
| **2015** | 2195.8 | 7587.0 | 3853.3 | 9239.1 | 9,941.2 | 2180.6 |

*Sources:* Extracted from Department of Statistics, Malaysia (multiple year).

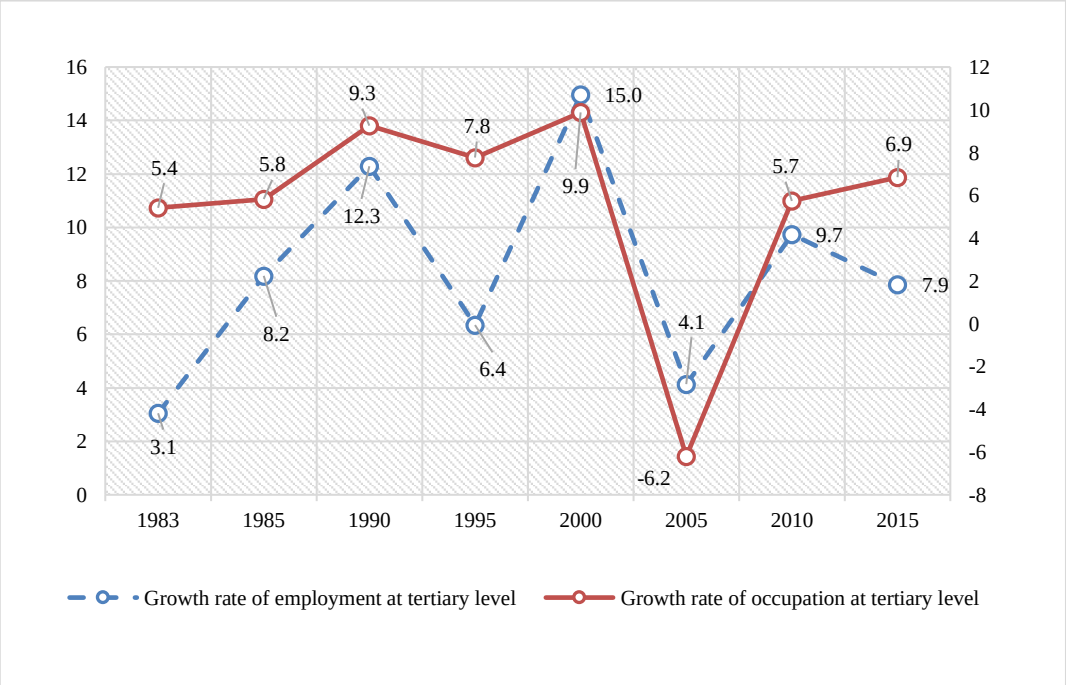
Referring to Table 1, from 1982 to 2000, Malaysian economy experienced of shortage of skilled workers, especially among the tertiary education whereby the number of jobs provided which required tertiary education exceeded the number of available workers who owned such qualification. Nevertheless, the incidence has continuously declined every year. For example, in 1982, the number of skills shortage workers were around 160 000 and the figure constantly dropped to 73 600 in 2000.

Skill shortage incidence has led firms had to hire unqualified workers who may only possess a diploma or workers with post-secondary education to fill the vacancies (World Bank, 2008).[5] After 2000, job vacancies available in the economy are not enough to observe all the highly educated workers produced by HEIs. This has led to what so-called 'over-education' incidence in the labour market.

This phenomenon is well explained in Table 1, whereby for example, in 2001 the number of employed persons with tertiary education were 1,441.7 thousand compared to the number of occupations with tertiary education were only 1,152.2 thousand. This resulted in a situation where 289.5 thousand workers were forced to choose an occupation with secondary or primary education and the number of an occupation that did not correspond to their actual qualification

[4] Using the Malaysia Standard Classification of Occupations (MASCO), occupational are categorised by educational level where workers in the Managerial, Professional and Associate Professional required tertiary education; workers in the Clerical Support Workers, Service and Sales Workers, Skilled Agricultural, Forestry and Fishery Workers and Craft and Related Trades Workers required secondary or post-secondary education; and lastly workers in Plant and Machine-operators, and Assemblers First Primary education require primary education.
[5] The survey (World Bank, 2009) reported that firms in the manufacturing sectors take about four to six weeks to fill a vacancy for a professional or a skilled production worker which seems a quite long.

level. Unfortunately, such incidence has increased since then and reached up to 1,194.5 thousand in 2010 and 1,672.7 thousand in 2015.




Sources: Extracted from Department of Statistics, Malaysia.

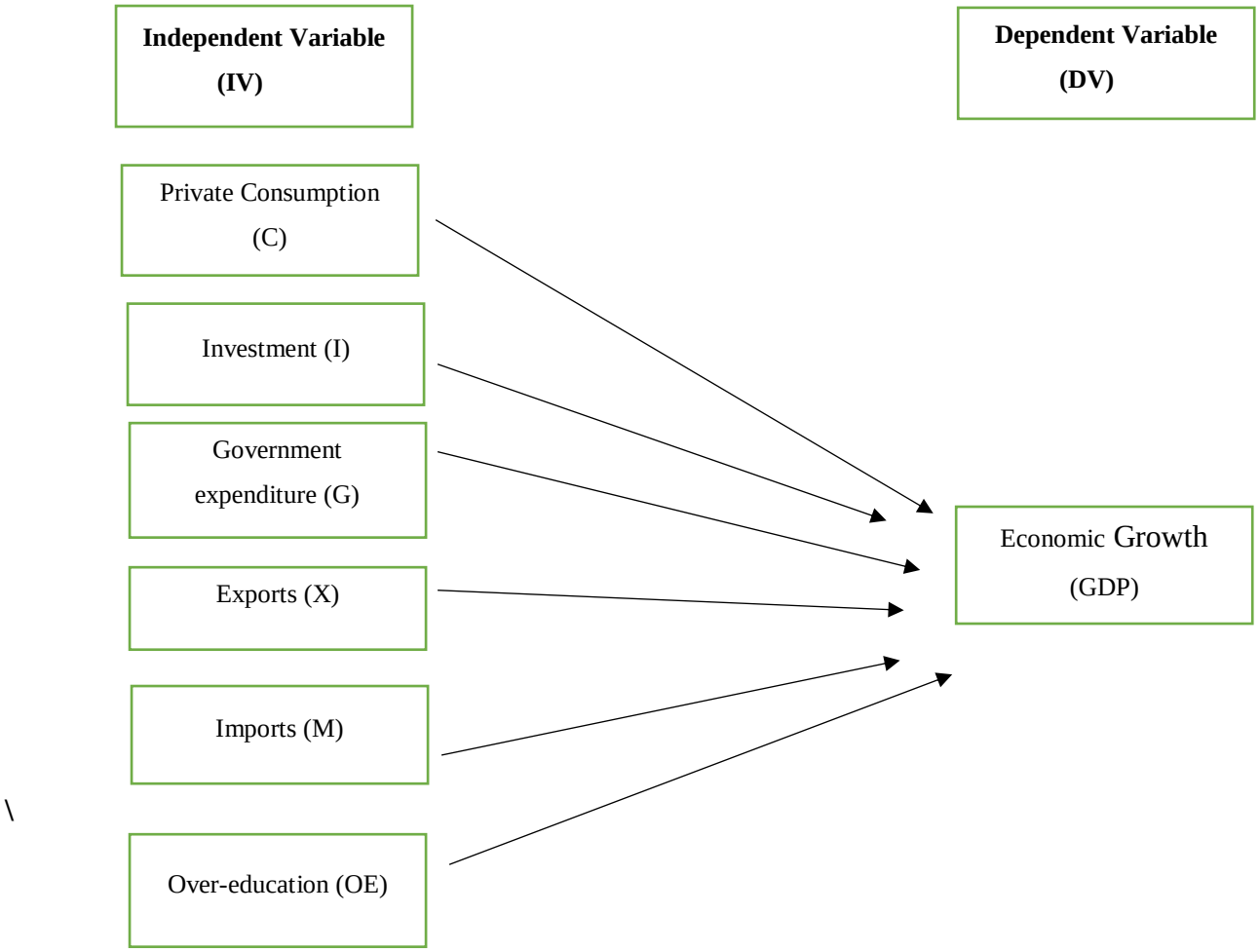
**Figure 2: The growth rate of employment at tertiary level and growth rate occupation at tertiary level from year 1982 to 2015.**

On the other hand, the patterns of growth rate of occupation straight line and employment dotted line at tertiary level between 1982 and 2015 is illustrated in Figure 2. There are at least two patterns which can be seen from the figure. First, in general, there is a similar trend between occupation and employment rate where both have escalated from 1983 to 2015 which is from 5.4 to 6.9 for the former and from 3.1 to 7.9 for the latter. Then, the growth rate of occupation outnumbered the growth rate of employment for the period of 1983 to 2000. (Once) Again, this caused in skill shortage in the labour market. In contrast, between 2001 and 2015, the growth rate of the former was lesser than the growth rate of the letter. Consequently, this has led to over-education occurrence among highly educated employees. Since the growth rate of occupation at tertiary level cannot accommodate the growth rate of employment at tertiary level, the workers need to choose careers which are not equivalent to their educational level.

**The conceptual Framework**

The below diagram shows the relationship between six (6) types of independent variables and one dependent variable.

**Diagram 1**

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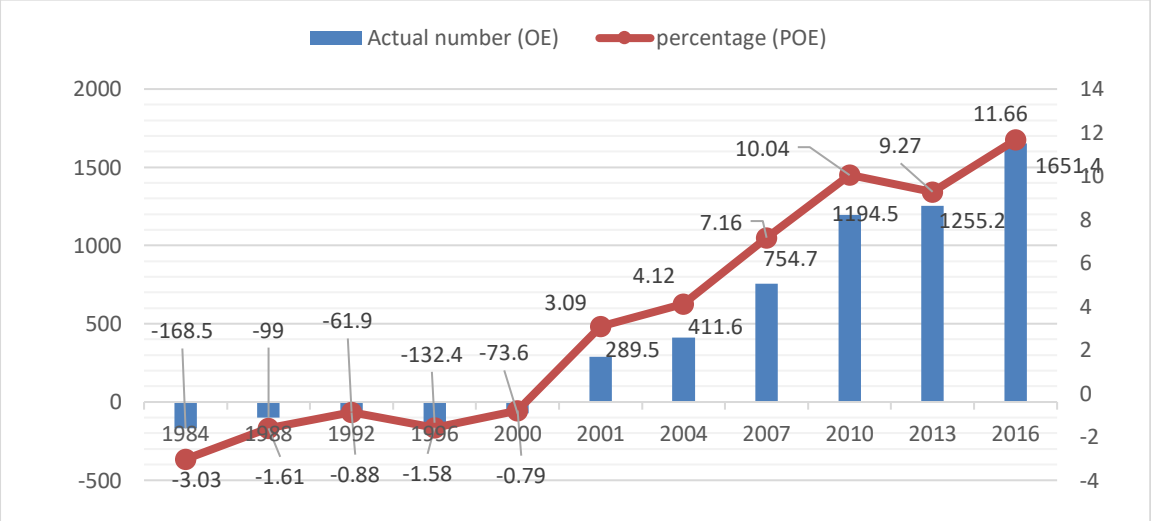
**Descriptive Analysis**

Table 2 shows the descriptive analysis (mean and standard deviation) of the key variables used in the study. With respect to Gross Domestic Product (GDP), in general, the GDP and growth rate over the period 1984-2016 was RM457 billion and 5.8%, respectively. The average of government expenditure (G) over the same period was RM57.7 billion, with the highest was in 2016 (RM 154 billion). Meanwhile, Private Consumption (C) and Investment (I) on average were higher than government expenditure, roughly RM 222 billion and RM111 billion, respectively over the same period. With regard to Exports (X) and Imports (M), it was found that generally the value of X outnumbers the value of M, on average RM 408 billion against RM 348 billion.

**Table 2: Descriptive statistic for major key variables (mean and standard deviation)**

| Variable | Mean | Std.Dev. |
|---|---|---|
| Gross domestic Product (RM million) | 457960 | 360893 |
| Gross domestic Product (growth rate) | 5.841471 | 3.779409 |
| Government expenditure (G) (RM million) | 57738 | 47400 |
| Private Consumption (C) (RM million) | 222429 | 188613 |
| Investment (I) (RM million) | 111447 | 105977 |
| Export (X) (RM million) | 407904 | 289642 |
| Import (M) (RM million) | 347936 | 240418 |
| Over-education (OE) ('000) | 933.82 | 487.01 |
| Dummy over-education (DOE) | 0.52 | - |
| Percentage over-education (POE) (%) | 7.729 | 3.096 |
| logY | 12.68 | 0.909 |
| logC | 11.94 | 0.906 |
| logI | 11.24 | 0.901 |
| logG | 10.62 | 0.868 |
| logX | 12.52 | 1.035 |
| logM | 12.39 | 0.996 |

## The Incidence of Over-education in Malaysia.




*Sources: Extracted from Department of Statistics, Malaysia.*

**Figure 3: The incidence of over-education in Malaysia from 1984 to 2016.**

Based on figure 3, the average shows that most of workers almost 400,000 are over-educated. In general, the incidence of over-education in Malaysia represents 7.7 percent of the workers. The lowest number of the incidence was in 2001, i.e. - 289.5 thousand (3.1 percent). This incidence had been growing in trend to 754.7 thousand (7.16 percent) in 2007 and recorded the highest value in 2016 with 1. 6 million (11.7%) in 2016. Thus, the phenomenon of over-education in Malaysia has existed since 2001 until 2016.

## Conclusion

Based on the literature reviews, almost of the country facing with the phenomenon of over-education. Generally, researchers have discovered that the incidence of over-education has negative impacts on individual as well as firm perspective. Therefore, this particular article's concern is to investigate the incidence of over-education in Malaysia. In conclusion, the phenomenon of over-education has existed in Malaysia since 2001 to 2016. This occurs since the number of workers who obtained tertiary education outnumbered the occupations with equivalent requirement. The outcome from this descriptive analysis found that almost 7.7 percent workers in Malaysia were over-educated.

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