LABOR SUPPLY OF EDUCATED MARRIED WOMEN IN MALAYSIA AND ITS ASSOCIATION WITH CHILD CARE ARRANGEMENTS

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ABSTRACT

The statistics shows that Malaysia has produced more women graduates than men and those women with tertiary education constitute the highest rate of labor participation compared to women with lower levels of education. However, the labor force participation rate (LFPR) among women in Malaysia has remained low for four decades compared to the rest of the ASEAN countries and it is below the global average. In fact, a deeper analysis revealed that the participation rate among educated women in the labor force participation had actually decreased. The most cited reason for women to choose to withdraw or stay out of the market had been due to work-family conflict, especially concerning the issue of child care arrangement. The government, through various efforts, has tried to ensure that the needs of working or to-be working mothers are fulfilled. Recognizing the important role of women in the economy, this study examined the factors associated with the participation of educated married women in the Malaysian labor market. For those with children, child care arrangement associated with the employment status of educated mothers had been explored. Through the application of sequential explanatory mixed method approach to achieve the research objectives, this research was carried out based on a combined framework with the Theory of the Allocation of Time, as the dominant framework having partial common ground with the Theory of Investment in Human Capital and Theory of Access. Additionally, responses from 593 educated married women (Model 1) collected via online survey were analyzed by using Binary Logistic Regression. Examination on the factors that affected their choice whether to participate in the labor market revealed that their decisions were influenced by economic, socio-demographic, and family factors. Furthermore, educated mothers with children less than six years old were found more likely to be not working (Model 2). For that reason, the importance of child care arrangement was further

explored through an in-depth interview with nine educated married women who were drawn from the respondents of the quantitative survey. Concerns of parents about the safety of children in child care had been the main reason for them to choose not to work and an interview with three experts in the field confirmed this finding. This study expands the scope of the Theory of allocation of time in that it argues that the over-riding constraint related to child care arrangement must first be overcome, and if and only if, time permits, will women then choose to participate in the labor market. Consequently, although they are educated, women will not necessarily work in the labor market, as highlighted in the Theory of Investment in Human Capital. Providing affordable and quality child care centers, is a way to increase participation. Better quality nurseries should be established in order to guarantee the safety of children, as well as to give more attention to the physical, intellectual, and emotional aspects of children. Thus, mother-friendly working policy needs to be more comprehensive to all women employees in Malaysia; not just to civil servants alone.

ABSTRAK

Statistik menunjukkan Malaysia menghasilkan lebih ramai graduan wanita daripada lelaki, dan wanita yang berpendidikan tertiari menunjukkan kadar tertinggi berbanding dengan tahap pendidikan yang lain di dalam kadar penyertaan wanita dalam tenaga buruh. Walau bagaimanapun, kadar penyertaan tenaga buruh di kalangan wanita di Malaysia kekal rendah dalam tempoh empat dekad berbanding negara-negara ASEAN yang lain dan ia adalah di bawah purata global. Analisis lebih mendalam menjelaskan bahawa kadar penyertaan di kalangan wanita yang berpendidikan dalam penyertaan tenaga kerja sebenarnya semakin berkurangan. Alasan yang paling ketara dikaitkan dengan wanita yang memilih untuk tidak berada dalam tenaga kerja adalah kerana konflik pengurusan keluarga terutamanya berkaitan dengan isu pengaturan penjagaan kanak-kanak. Kerajaan telah melakukan pelbagai usaha untuk memastikan keperluan untuk wanita yang bekerja atau untuk menjadi ibu yang bekerja. Menyedari pentingnya peranan wanita dalam ekonomi, kajian ini telah menentukan faktor-faktor penyertaan wanita berpendidikan yang sudah berkahwin dalam pasaran buruh di Malaysia. Bagi mereka yang mempunyai anak, pengaturan penjagaan kanak-kanak berkaitan dengan status pekerjaan ibu berpendidikan telah dikaji. Dengan menggunakan *sequential explanatory mixed method approach* untuk mencapai objektif kajian, kajian ini dibina di atas gabungan kerangka daripada Teori Peruntukan Masa, Teori Pelaburan dalam Modal Insan, dan Teori Akses. Maklum balas daripada 593 wanita berpendidikan yang sudah berkahwin (Model 1) yang dikumpul melalui kaji selidik atas talian telah dianalisis menggunakan *Binary Logistic Regression*. Kajian ke atas faktor yang mempengaruhi pilihan mereka untuk mengambil bahagian dalam pasaran buruh menjelaskan bahawa keputusan mereka dipengaruhi oleh faktor-faktor ekonomi, sosio-demografi, dan keluarga. Ibu berpendidikan yang mempunyai anak yang berumur kurang daripada

enam tahun didapati lebih cenderung untuk tidak bekerja (Model 2). Atas sebab itu, kepentingan pengaturan penjagaan kanak-kanak terus diterokai melalui temu bual mendalam dengan sembilan wanita berpendidikan yang sudah berkahwin yang juga sebahagian daripada responden kajian kuantitatif. Kegusaran ibu bapa tentang keselamatan anak-anak di tempat penjagaan menjadi sebab utama mereka memilih untuk tidak bekerja dan wawancara dengan tiga pakar dalam bidang telah mengesahkan penemuan ini. Kajian ini telah memperluaskan skop Teori Peruntukan Masa apabila menjelaskan bahawa, hanya apabila isu berkaitan pengaturan penjagaan kanak-kanak dapat diatasi, barulah wanita boleh memilih untuk menyertai pasaran buruh. Justeru itu, walaupun mereka ini berpendidikan, wanita tidak semestinya akan bekerja di pasaran buruh, sebagaimana yang diterangkan dalam Teori Pelaburan dalam Modal Insan. Penyediaan pusat jagaan kanak-kanak yang mampu bayar dan lebih berkualiti, merupakan jalan untuk meningkat penyertaan wanita dalam pasaran buruh. Oleh itu, taska yang lebih berkualiti perlu diwujudkan agar keselamatan anak lebih terjamin di samping memberi lebih perhatian terhadap kanak-kanak dari segi keperluan fizikal, intelektual, dan emosional. *Polisi Bekerja Mesra Ibu* perlu lebih menyeluruh kepada semua pekerja di Malaysia, bukan untuk kakitangan awam sahaja.

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LIST OF ABBREVIATIONS

DOSM	:	Department of Statistics Malaysia
GTP	:	Government Transformation Program
ILO	:	International Labor Organizational
KEMAS	:	*Kemajuan Masyarakat* (Community Development Department)
LFPR	:	Labor Force Participation Rate
MDGs	:	Millennium Development Goals
MOE	:	Ministry of Education
MOHE	:	Ministry of Higher Education
MWFC	:	Ministry of Women, Family And Community
NKRA	:	National Key Result Areas
TABIKA	:	*Taman Bimbingan Kanak-Kanak* (Kindergarten program)
TASKA	:	*Taman Asuhan Kanak-kanak* (Nursery)
UN	:	United Nations
UNDP	:	United Nations Development Programme

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CHAPTER 1

INTRODUCTION

1.1 RESEARCH BACKGROUND

Generally, participation of women in the labor market increases with the rising level of their education level. In Malaysia, compared to thirty years ago, the labor force participation rate (LFPR) in 2014, for less educated women had decreased, while the participation rate for those more educated had increased. These reflect the fact that women in Malaysia have benefited from equal access to education and the rising level of education plays a major role in drawing them into the labor market (Rahmah & Fatimah, 1999).

Besides increasing opportunities for education, the government also plays an important role in strengthening women's economic contribution. Gender, as a development focus was first mentioned in the Third Malaysia Plan (1976–1980), which encouraged active participation among women in development and recognized their contribution towards the growth of economy. Nevertheless, in the Sixth Malaysia Plan (1991–1995), a full chapter was devoted to policies and programs that promoted women in the development of the nation. The inclusion of a chapter on women in the long-term development plans was a direct outcome of the National Policy on Women formulated in 1989.

The increase in the female labor force participation may be attributed towards the improvement of economic incentives in employment and policies favoring the employment of women. In addition, the combined effects of improved maternal, child health care, access to family planning services, and increased years of schooling have

allowed women to take advantage of the increased employment opportunities (Asian Development Bank, 1998). Commensurate with the effort, the LFPR for female, which stood at 36.6 percent in 1970 (Aminah, 1999), rose to 44.7 percent in 1995, and 53.6 percent in 2014.

However, the increased participation of women in the labor market has not been encouraging and it has increased only very slightly. When comparing female participation rate in the labor force in 1970 and 2014, what we can conclude is, this figure rose only by 17 percent in 44 years. This growth is too sluggish along with the figure for female LFPR which had never exceeded the South-East Asia and the Pacific rates, since only surpassed the world average in 2013 (International Labor Organization, 2014).

This low participation rate was due to the unavailability of women in the labor market. Based on Malaysian achievement in Millennium Development Goals (MDGs), more than half of the women in the working age group were outside the field of labor force, with around 70.0 percent of these women cited housework as the main reason (United Nations Development Programme (UNDP), 2011). In fact, it was reported that married women who left the workforce did not return to work due to difficulties in reconciling work and family responsibilities (World Bank, 2012a). Furthermore, based on opinions given by several researchers (Rahmah & Noorasiah, 2014; Maurer-Fazio, Connelly, Chen, & Tang, 2011; Yamauchi, 2010; Hotchkiss, Pitts, & Walker, 2008; Wetzels, 2005; Bianchi, 2000), the issues of child care arrangement are the reason that hinders women from participating in the labor market.

In addition, culture also dominantly places the responsibility of managing the family and household chores on women than on men. Therefore, child care arrangements had

been considered as the responsibility of women (Noraini & Nor Diana, 2015b). This opinion is not solely relevant as a way of life in the East, but previous studies have highlighted that the Western societies also share similar values (Noraini & Nor Diana, 2015a; Hotchkiss et al., 2008). However, as suggested by Noraini & Nor Diana (2015b, 2015a), practice of work-life balance is sorely lacking in Malaysia. Work culture in Malaysia, which still needs employees to be in the office and deal with rigid working hours, the situations have makes it difficult for women to work and continue to nurture their children. This condition causes a woman to be unable to withstand in the labor market when they have problems to cope with child care at the same time.

1.2 THE PROBLEM OUTLINED

Although there are rapid economic growth, investment, and export value (Economic Planning Unit, 2013), a significant gender gap is still glaring in the LFPRs, income levels, as well as participation of women in management and entrepreneurship (World Bank, 2012a).

As females constitute almost half (48.6 percent in 2012) of the total population in Malaysia, women definitely play a particularly significant role in the economy. However, the participation rate of female in the labor market, which increased very slowly, is a prior concern as it creates a significant challenge to unlock the potential of women to fully contribute to the economy, society, and their family.

When more girls than boys attend school, a "reverse gender gap" emerges. There had been cases in Malaysia at the secondary and tertiary levels. In primary education, the ratio of female-to-male enrolment was approximately 1, but in secondary education, it

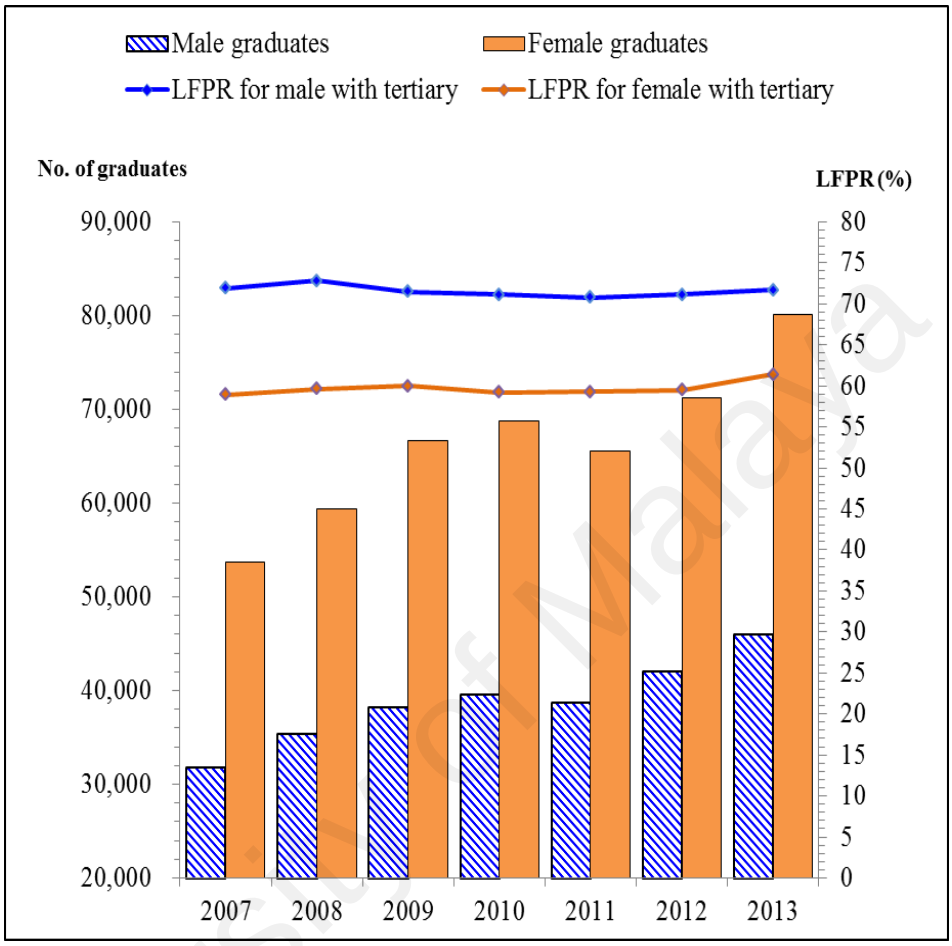
was 1.10 female-to-male enrolment, and a similar situation was observed in Malaysian higher education institutions with 1.3 female-to-male enrolment (World Bank, 2012a).

Figure 1-1 shows the increasing number of total output of graduates in public higher institution in Malaysia (Malaysian Ministry of Higher Education, 2013) from 2007 to 2013. It can be noted that the number of female graduates always exceeded the male graduates. Given that more education increases the returns to supplying labor, the increase in education raises the probability of being in the labor force (Bradbury & Katz, 2005). In general, based on the number of graduates, more educated women should be in the labor market. Thus, one can suggest that the potential of female labor market should be the main source for countries in order to maximize their economic performances.

The same figure also depicts that the participation rate of educated males in the labor market was always higher than that of educated women. This means, although the number of females graduating from tertiary education showed an increment, their rate of participation in the Malaysian labor force was still low. For example, in 2013, while participation in labor force among women with tertiary education was at 61.4 percent, participation of male with tertiary education had been 71.7 percent; 10.3 points higher than women (Department of Statistics Malaysia (DOSM), 2014b). Thus, one can claim that human capital among these women had not been fully utilized.

Besides, the responsiveness of labor force participation to education seemed to be declined. To be precise, education was providing less of a pull into the labor market and this factor placed downward pressure on labor force participation decisions among women (Hotchkiss, 2006). Accordingly, efforts to reduce the gender gap in labor force

participation is a key challenge for Malaysia to achieve the status of high-income developed country (World Bank, 2012a).



Source: Ministry of Education and Department of Statistics (for various years)

Figure 1.1: The number of graduates and the LFPR, 2007 - 2013

Figure 1.1 suggests the case of "missing women from the labor market", who either withdrew from the labor market or remained outside the labor market. Accordingly, the researcher proposed that even with higher education attainment, women would not necessarily participate in the labor market.

Moreover, referring to a study conducted by the Malaysian Ministry Of Women, Family, And Community Development, as well as the United Nation Development

Program (Malaysian Ministry of Women, Family, And Community Development, 2014b), 66.9 percent of married women in Malaysia did not work as they had to look after their children. It had been claimed that matters related to child care, such as cost, availability, and quality of child care, often worried parents group.

Furthermore, most studies concerning the determinants of women's participation in Malaysian labor market had looked into a few variables including the number of children and the presence of lower-aged children that tremendously affected the amount of participation. Nonetheless, the real problem related to the presence of small children that affected a mother's employment status was only discussed in general perspectives (Noraini & Nor Diana, 2015a; Rahmah & Noorasiah, 2014; Norehan, Rahmah, Zulridah, & Fariza, 2012; Rohaiza, 2009, 2012; Subramaniam, Saadiah, & Norlin, 2010; Noor Rahamah, 2007; Rahmah & Fatimah, 1992). Thus, limited research had looked into child care arrangement and discuss about it further.

For that reason, this study bridged the gap. The determining factors of educated married woman with no children to participate in the labor market are different as compared with those who have children. Above and beyond, child care arrangement is associated with the participation of educated mother in the labor market. By understanding this situation, the current policy can be improvised in order to provide more efficient work-life balance policy, especially for married women with children.

1.3 RESEARCH QUESTIONS

Previous findings had taken into account regarding factors that determined the participation of married women in labor force, such as wages, husband's income,

women's education, women's marital status, and number of children. A few of them also discussed about household income, household size, household asset, education of close relatives, age, age at first marriage, age of children and location. Besides, factors, such as grandparents' help, spousal help, ethnicity, and religion, had been discussed by other researchers as determinants of participation among married women in labor force.

Therefore, this research arranged the entire determinants into four categories; economic factors, socio-demographic factors, family factors, and access factor. On top of that, in order to determine the extent of access to technology impact on participation in the labor force, women with access to the internet had been emphasized. Therefore, the principal question of this research is: What are the **determinants for educated married** women to participate in the Malaysian labor force? Specifically, the research questions are:

RQ 1 : What are the factors that influence **educated married women** to participate in labor force?

RQ 2 : What are the factors that determine the decision of **educated married women with children** to participate in labor force?

RQ 3 : What are the problems faced by **educated married women with children** related to child care arrangement?

1.4 RESEARCH OBJECTIVES

The primary purpose of this research was to examine the supply side determinants of participation among educated married women in the Malaysian labor market. The researcher believes, besides well-known determinants that had been highlighted by

previous researchers, **an attempt is made to explore the role of information as a variable that has not been detailed previously,** as it also relates to the participation of women in the labor market.

Specifically, this research looked into the effects of economics, socio-demographics, family, and access factor on **educated married women** pertaining to participation in the labor force. In addition, the association between children arrangement and women's work status had been studied. Specifically, the research objectives are:

RO 1 : To examine the determinants for **educated married women** to participate in labor force.

RO 2 : To ascertain the determining factors of labor force participation among **educated married women with children**.

RO 3 : To discover the real problems faced by **educated married women with children** in relation to child care arrangements.

1.5 SCOPE OF THE STUDY

This study focused on examining the labor supply choice of educated married women. An educated person is one who has undergone a process of learning that results in mental capability enhancement in order to function effectively (Mohanan, 2013). As the matter of fact, those who have completed their tertiary education are categorized as educated people.

Tertiary education broadly refers to all post-secondary education, including, yet not only limited to those who studied in universities (World Bank, 2013). In Malaysia,

education attainment is classified into four categories – informal education, primary, secondary, and tertiary (DOSM, 2013a). Tertiary level covers all academic qualifications after *Sijil Pelajaran Malaysia* (SPM) or Malaysian Certificate of Education; namely (i) *Sijil Tinggi Pelajaran Malaysia* (STPM) or Malaysian Higher School Certificate, (ii) Certificate, (iii) Diploma, (iv) Degree/Bachelor Degree, (v) Master, and (vi) Ph.D. In this research, the educated women had been referred to women who had completed any academic education after SPM.

According to Bryant, Jacobsen, Bell, & Garret (2004), "*Raising participation increases employment and generates additional millions of GDP***".** Focusing on educated women is significant because as a woman with higher education, she can earn relatively higher income and greater productivity, compared to those without undergone themselves in tertiary education (McConnell, Brue, & Macpherson, 2010a). Moreover, investment in education and human capital had been continued for many years with the hope that they would contribute to higher earning profiles, increase the productivity of employers, and hence, contribute to the country's GDP. Therefore, when educated women refuse to participate in the labor market, it is absolutely necessary and tremendously beneficial to identify the causes for this situation to occur.

Why married women had become the focus in this research? Based on a study carried out by Norehan, Rahmah, Zulridah, & Fariza (2012), there are differences in the determinants of labor force participation by marital status. Moreover, Mahoney (1961) stated that explanation of the labor force behavior among married women must take into account of family factors. Similarly, Narayana & Shongwe (2010) asserted that marital status emerged as the most important determinant for female labor force participation. The decision of a married woman to seek employment outside the household required

some modifications by all members of the family to fit in since the welfare of the family as a unit may be substantially affected by such new decision. Traditionally, the housewife employs her talents full-time in homemaking activities, which contribute directly to the welfare of the family.

On the other hand, women who are educated and unmarried have the greatest chance of being part of the labor force (Ejaz, 2007). For that reason, Mumford & Parera-Nicolau (2003) found that only 32 percent of married mothers in Spain participated in the labor market. Besides, women who worked in the manufacturing sector were more likely to leave the labor force after marriage (Goldin, 1989). In Pakistan, married women were less likely to be involved in income generating activities due to their highly preferences for household activities and nurturing commitment.

Furthermore, in families whose heads or bread winners are unemployed, the relative decline in family income is stronger and higher than the relative decline in the "expected" wage rate of the wife. In such families, the LFPR of wives had been likely to increase in recessions (Mincer, 1962). Data also showed that French women who were or had been married spent more years out of the labor force than never-married women, and this phenomenon was accentuated if children were present (Ribound, 1985). With the presence of children, the opportunity in making the decision to work or vice versa increases.

Hence, this vast literature proposes that participation of women in labor market differed by marital status. As it had been indicated that women have an extra role in the household, the scope of the study focused on educated married women in Malaysia. The reason behind the focus is because they had invested more in human capital compared to those with lower education background.

1.6 SIGNIFICANCE OF THE RESEARCH

Some vital information generated from this research is listed in the following;

i. Discussion of this study involves the application of three theories that contribute to the body of knowledge. Issues related to child care arrangement should be an important aspect based on the expansion of the Theory of Time Allocation. Once the needs of the child care arrangement were completed, then educated married women could increase their participation in the labor market, as highlighted in the Theory of Investment in Human Capital. Moreover, the Theory of Access that discussed in this study also provides a new dimension in the study of women in the labor market.

ii. Critical contribution in the identification of key determinants for educated married women to participate in the labor market that addressed child care arrangement as this factor had not been much discussed previously. In addition to the other factors that also affected participation in the labor market, child care arrangement is the most important decision made by married women to achieve their work-life balance.

iii. The findings obtained from this study could help market players (such as the government, private companies, investors, and human resources managers) to attract participation of educated married women in Malaysia without denying engagement of women in the non-labor market. Therefore, employers can work towards fulfilling facilities needed by working mothers, such as quality child care in workplace and mother-friendly working policy, which could support their retention in the career.

iv. This research proposed the instruments to promote women to participate and to remain in the labor market. By understanding how women make decisions for the supply of labor, negative return on investment in human capital could be avoided. For example, women are willing to quit their jobs to take care of their children if care costs are perceived as a burden and not worth it to be spent.

v. The outcomes of this study also could be beneficial in helping market practitioners to plan their strategies to empower women. The policies and work rules implemented should incorporate the current demands of the workforce and this could be a solution to the constraint of women to participate in labor force.

1.7 STRUCTURE OF THE THESIS

This Ph.D. thesis consists of seven chapters. It starts with an introductory chapter, two chapters related to literature review, one chapter explaining the methodology used in the mixed method research, two analytical chapters explaining the results, and all the findings are concluded in the last chapter.

The first chapter is the introduction chapter. This chapter looks at the situation underlying the study. The research problem that led to this study is discussed concisely. Furthermore, the first chapter also discusses the research questions, the objective of the study, the scope of the study, as well as the significance of this study.

The second chapter depicts the LFPR in Malaysia and child care arrangement in Malaysia. The chapter begins with definition to the concepts of labor force and LFPR. Background of the labor market in Malaysia is discussed starting from 1957, the year

when Malaysia got the independence status. Up to the 1980s, information regarding the participation of workers in Malaysia had been mostly derived from the writings of earlier researchers. More details about labor force and labor force participation were obtained starting from 1982, as it was first published by the DOSM. The developments of female labor force and child care arrangement in Malaysia are also discussed in this chapter.

The third chapter presents the literature review pertaining to the factors that affect women's participation in the labor market. The discussion includes the main theory underlying this study, namely the Theory of Allocation of Time. As this research focused on educated persons, the Theory of Investment in Human Capital is discussed. Additionally, the Theory of Access was also linked as this research had been associated with the access to the internet for educated women to participate in the labor market. Besides, information on child care in Malaysia and key issues related to child care arrangement are also deliberated. In addition, this chapter provides the research framework and lists the hypotheses to be verified.

How the research was conducted is described in the fourth chapter, which is the research methodology. The study about labor supply decisions of educated married women in labor force and issues associated with child care arrangements had been carried by adopting the mixed methodology approach. As the sequential explanatory research design was employed, this study began with a quantitative phase to achieve the first and the second research objectives. Besides, selection of the population and the samples is discussed in the beginning of this chapter, followed by the process of distributing questionnaire via online. Moreover, some preliminary procedures for analysing data via Binary Logistic Regression Analysis are discussed in this chapter.

Next, the qualitative phase was conducted to achieve the third research objective. The selection of informants, collection of data by adapting the triangulation approach, and explanation on how content analysis was performed from semi-structured interview are described in this chapter.

Next, this study provides two chapters to present the findings. The fifth chapter presents the findings obtained from the quantitative research approach. In fact, two models were developed to answer the first two research questions. The labor supply decision of educated married women has been generated through the first model, while the second model specifically looked into the labor supply decisions of educated mothers, especially those who were married and had at least one child aged below six years old. Furthermore, regression and model performance are discussed with explanation on variables based on their significances.

The results of content analysis are discussed in the sixth chapter, namely the findings retrieved from the qualitative research approach. Based on the quantitative research findings that linked the presence of children which making married women less likely to participate in the labor market, the need for this qualitative research approach had been amplified. Five themes emerged in relation to child care arrangement based on the interviews session. Besides, one theme had appeared to be the main result for tendency of educated married women to abandon the labor market. Moreover, due to lack of literature concerning this theme, statistics and media reports were used to support this theme, which developed a new knowledge in the field. In fact, interviews with experts and policy makers were carried out to further validate the findings retrieved from the qualitative study.

The last chapter depicts the conclusions and recommendations. This chapter concludes the findings of both quantitative and qualitative research approaches. The views from those who were involved directly with the issues covered in this study are also discussed. Not less important, the critical contribution of this study is detailed as well. By combining three theories in the framework, it becomes a new contribution to the field. The researcher also had successfully identified that the child care arrangement is a key determinants of educated married women's participation in labor force. Furthermore, how the existing policies could be improved is discussed. Some limitations in conducting the study are listed and recommendations for future research are also proposed. As a concluding remark, this study revealed that Malaysia is in need of more efficient support system in order to ensure that the work-life balance is enjoyed by all. The support system has to be implemented across Malaysia as soon as possible. Thereby, the participation of educated married women in the labor force may continue to grow and an ideal work-life balance can be achieved.

1.8 DEFINITION OF TERMS

A brief definition for words used in the title of the study is given in the following:

1.8.1 Labor supply

Labor supply is the number of hours people are willing and able to supply at a given wage rate (McConnell, Brue, & Macpherson, 2010c).

1.8.2 Educated

An educated person is one who has undergone a process of learning that results in enhanced mental capability to function effectively (Mohanan, 2013). For this research, educated refers to those who had completed any academic education after Sijil Pelajaran Malaysia (SPM).

1.8.3 Married women

Married women refer to women with or having a husband.

1.8.4 Child care arrangement

Child care arrangement refers to the circumstances in which a child needs care. Child care arrangement is more important for mothers who participate in the labor market (Nicodemo, & Waldmann, 2009).

CHAPTER 2

LABOR FORCE PARTICIPATION RATE AND CHILD CARE ARRANGEMENT IN MALAYSIA

2.1 INTRODUCTION

The role of women in all aspects is undeniable. Women, as part of labor force, are a vital component in the production process. Accordingly, the size of the labor force can profoundly affect the potential for economic growth (Hotchkiss, 2009). In economics, the people in the labor force are the suppliers of labor. Besides, neo-classical economist claim that the labor market, similar to other markets, concentrates on supply and demand jointly as they determine the price (wage rate) and the quantity (number of people employed).

However, there is also an opinion that says the labor market differs from other markets in several ways. In markets for goods, if the price is high, there is a tendency in the long run for more goods to be produced until the demand is satisfied. With labor, the overall supply cannot be effectively manufactured because people have limited amount of time in the day, and people are not manufactured. Moreover, there is a study indicated that male labor supply had been quite responsive to change in wage rate compared to female labor supply (McConnell, Brue, & Macpherson, 2010c).

There are opinions say that, the issues related to the female participation rate in the labor market are often associated with work-life balance (Noraini & Nor Diana, 2015b, 2015a). Demographic and cultural factors, as well as environment and facilities availability might affect the rate of female participation in the labor market. For women

with children, child care arrangement needs to be resolved before a mother can choose to work. Hence, this chapter discusses the current situation in relation to the LFPR and child care arrangement in Malaysia. Previous studies underlying this research are discussed in the next chapter.

2.2 THE CONCEPTS OF LABOR FORCE AND LABOR FORCE PARTICIPATION RATE (LFPR)

As for broad generalization, the size of a nation's labor force depends on the size of its population and the fraction of its population which participating in the labor market. For that reason, basically, as the population grows, the number of people in the country also increases. Nevertheless, this is not necessarily true for LFPR. Hence, in order to understand this situation, as well as to provide more clarity in this research, it is essential to understand the concept of labor force and LFPR.

The International Labor Organizational (ILO) (2012b) stated that **labor force** is defined as the economically active population, synonym with manpower and workforce. Meanwhile, Organization for Economic Co-operation and Development (OECD) (2012) defined that labor force is the total labor force, or currently active population, which comprises of all persons who fulfill the requirements for inclusion among the employed or the unemployed during a specified brief reference period.

Accordingly, all labor economics books (Ehrenberg & Smith, 2015b; Borjas, 2010b; McConnell, Brue, & Macpherson, 2010b; Sloman, 2006; Case & Fair, 1994) define labor force *as*;

> *"…all those over 16 years of age who are either employed, actively seeking work or expecting recall from a layoff. Those in the labor force who are not employed for pay are the unemployed".*

Accordingly, with reference to the international standard and definitions that have been established by numerous experts, this research adopted the definition for labor force employed by Department of Statistics Malaysia (DOSM) as;

> *"…those who, during the reference week, are in the 15+ to 64+ years of age group (in completed years at last birthday), who are either employed or unemployed".*

On the other hand, the Labor Force Participation Rate (LFPR) is defined as:

> *"...the ratio of the labor force to the working age population, expressed in percentages".*

The LFPR measures the percent of the population who are willing to supply their labor (Hotchkiss, 2009). According to McConnell et al. (2010b), the LFPR is determined by comparing the actual labor force with potential labor force or what is sometimes called the age-eligible population. In addition, LFPR measures the proportion of the population in the labor force, whether employed or not (Borjas, 2010a). Moreover, the DOSM, using the international standard, defined LFPR as;

> *"…the percentage of the number of persons in the labor force from the total number of persons in the working age (15 to 64 years old)".*

This means, LFPR refers to the number of people in work, unemployed, and those seeking work, as a proportion of a specified baseline population. From all definitions of LFPR, the formula to calculate LFPR is given below;

$$\text{LFPR} = \frac{\text{Actual labor force}}{\text{Potential labor force}} \times 100$$

The actual labor force includes those who are employed and unemployed (but actively looking for a job), while potential labor force includes persons 16 years of age and older who are non-institutionalized. Therefore, the rate is more easily calculated by the following formula;

$$\text{LFPR} = \frac{\text{Employed + Unemployed}}{\text{Working age group}} \times 100$$

Usually, all statistics departments in each country would calculate this LFPR figure.

2.3 MALAYSIAN LABOR FORCE AND LABOR FORCE PARTICIPATION RATE (LFPR)

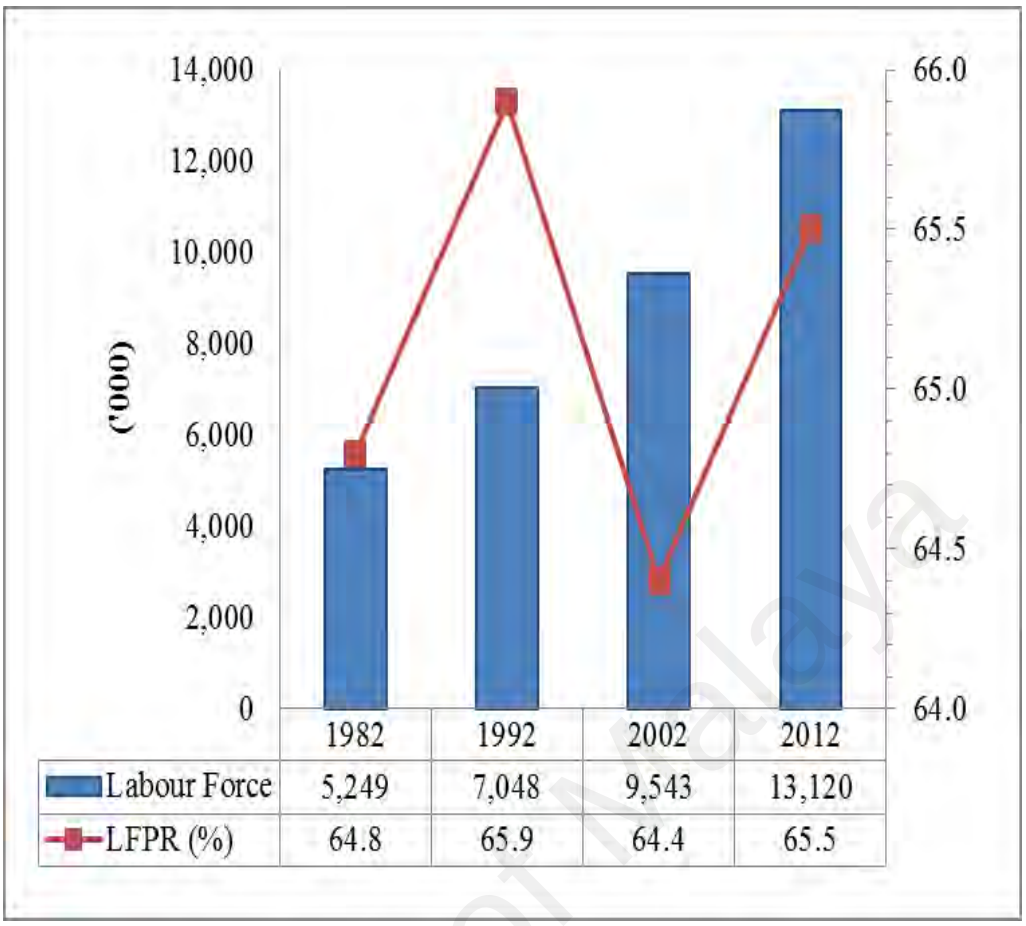
Time series data released by the DOSM began only in 1982. For the data before 1982, previous researchers stated that the source of their data related to labor force and LFPR were collected based on publications compiled from the DOSM, Malaysian plans, and other related reports. Accordingly, for this research, information provided by previous researchers had been utilized as the data for labor force and LFPR before 1982. After 1982, sources of data were supplemented from those that been provided by DOSM.

In 1957, *Tanah Melayu* (now called Malaysia) achieved the status of independence. In that year, LFPR for male was 90.9 percent, while female was at 30.8 percent (Siti Rohani, 1994). However, it had been difficult to look at the trends because before 1963, Malaysia was referred as Peninsular Malaysia (consisted of 11 states and two federal territories). Only after the formation of Malaysia in 1963, data for Malaysia included those from Sabah and Sarawak.

Based on the census of 1970 and 1980, the Malaysian population had been, respectively, 10.44 and 13.14 million people, with 49.6 percent in 1970, and 49.8 percent in 1980 were females. In 1970, there were 65.3 percent of men in the labor market as compared to only 31.7 percent of women (Tham, 1983). This number increased in 1980, respectively, 69.3 percent (male) and 34.6 percent (female).

For both genders within these periods, it was found that the number of men who had been outside the labor market decreased from 33.2 percent (1970) to 29.6 percent (1980), while for women it decreased from 66.6 percent (1970) to 63.4 percent (1980). This situation led to the participation rates in the labor market in 1970 to be 66.3 percent of men and 32.2 percent of women. Meanwhile, in 1980, the participation rates of men and women, respectively, were 85.9 percent and 44.0 percent (Aminah, 1999; Tham, 1983).

Figure 2.1 shows the differences in the total labor force and the LFPR for every ten years. It was found that the number of labor force continued to increase for every ten years. Meanwhile, as for the participation rate in the labor market, an increase was noted from 1982 to 1992 and from 2002 to 2012. However, the participation rate declined from 1992 to 2002.

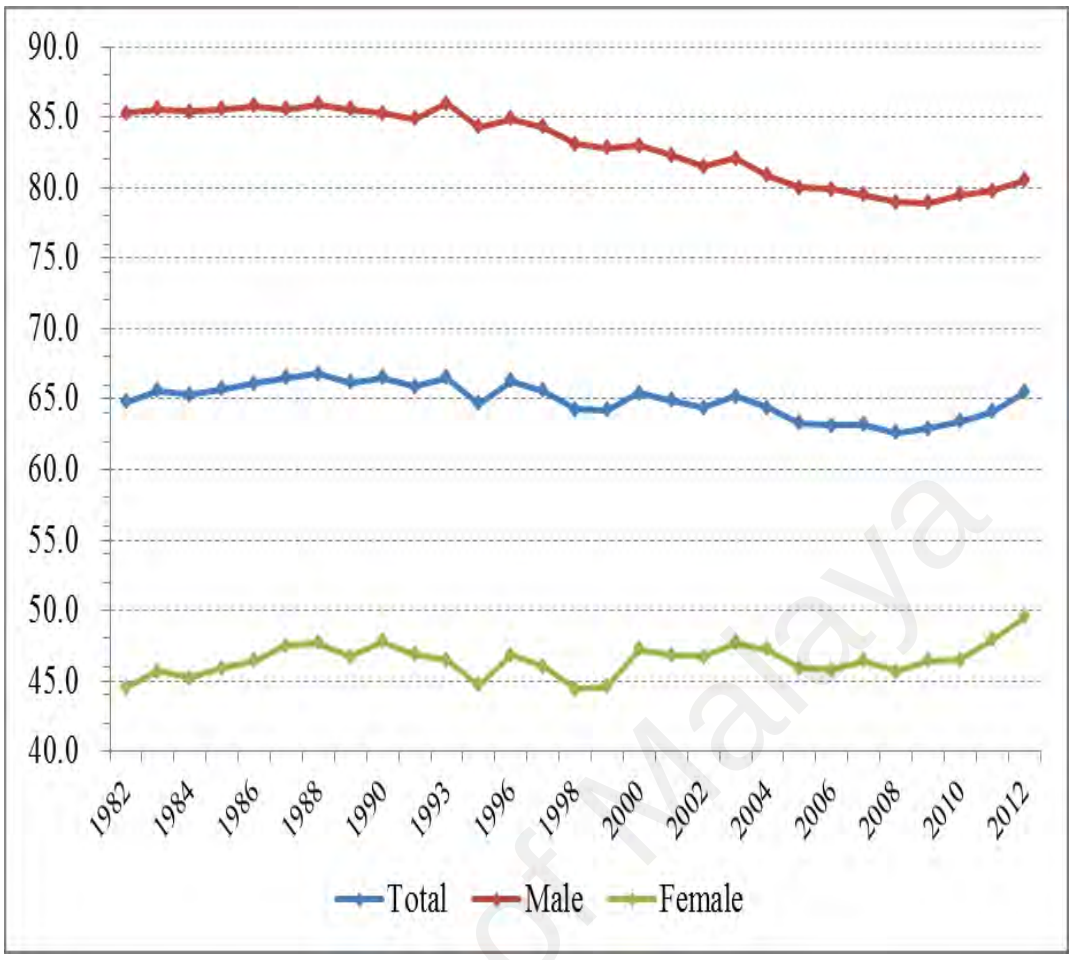


Source: Department of Statistics, Malaysia, various year

Figure 2.1: Labor Force and LFPR

In 1982, the number of labor force was 5.25 million and it increased by 150 percent to 13.12 million in year 2012. However, the LFPR did not change much. In fact, 64.8 percent of LFPR in 1982 increased to only 65.9 percent (1992), and after 10 years, it dropped to 64.4 percent (2002) before rising again to 65.5 percent (2012). Within these 30 years, more than thirty percent had been outside the labor force.

Based on **Figure 2.2**, the LPFR for Malaysia did not change much because it reflected the total of LFPR for both male and female. In the 1980s, the male LFPR was about 85.0 percent and it started to decline in 1996, but increased in 2009. As for women, the LFPR found never exceeded 50.0 percent.



Source: Department of Statistics, Malaysia, various year

Figure 2.2: LFPR by Gender, 1982-2012

2.3.1 Employed graduates by sector

As the classical breakdown of economic sectors divide the industry into primary, secondary, and tertiary (Sloman, 2006; Herbst & Barnow, 2007), this section discusses the distribution of employed graduates in each sector. As shown in **Table 2.1**, the number of employed graduates in 2009 increased more than seven times compared to those in 1982. Thus, one could also suggest that for each period, the number of educated workers had been more concentrated on the tertiary sector, followed by the secondary and the primary sectors.

Table 2.1: The number and the percentage of distribution for employed graduates by sector for 1982, 1992, 2002, and 2009

Sector	1982		1992		2002		2009	
	'000	%	'000	%	'000	%	'000	%
Primary	6.4	2.8	13.1	2.9	15.4	1.2	43.0	2.2
Secondary	14.7	6.4	53.5	11.8	197.6	15.8	260.6	13.6
Tertiary	207.0	90.7	386.5	85.3	1,039.2	83.0	1,608.9	84.1
Total	228.1	100.0	453.1	100.0	1,252.2	100.0	1,912.5	100.0

Source: Department of Statistics, Malaysia, 2011

While the total number of those employed in services sector had continued to increase, the percentage had been getting smaller from 1982 to 2002, but it rose in 2009. Manufacturing, as a secondary sector, also showed an increase in each period. This increment can be easily understood as the focus of industrialization was on industries, which required low labor skill and less technical process. However, the data showed a decrease in 2009 due to global economic crisis. As for primary sector, a better improvement was displayed in terms of the actual number and the percentage of graduates involved.

2.3.2. Employed graduates by occupation

Prior to 2001, occupation in Malaysia was classified based on the Dictionary of Occupational Classification, 1980 published by the Manpower Department of the Ministry of Human Resources. Starting from 2001, occupation has been classified

according to the Malaysian Standard Classification of Occupations (MASCO) 1998 based on the International Standard Classification of Occupations (ISCO-88). In fact, there were seven categories of occupation before 2000 (as shown in **Table 2.2**), and nine categories starting from 2001 (as shown in **Table 2.3**).

Table 2.2:The number and the percentage of distribution for employed graduates by occupation for 1982, 1990, and 2000

Category of occupation	1982		1990		2000	
	'000	%	'000	%	'000	%
1. Professional, technical and related workers	172.9	75.8	265.5	69.4	573.9	57.0
2. Administrative and managerial workers	30.9	13.5	49.9	13.1	195.4	19.4
3. Clerical and related workers	12.0	5.3	34.3	9.0	105.8	10.5
4. Sales workers	4.1	1.8	13.8	3.6	57.6	5.7
5. Service workers	1.8	0.8	5.7	1.5	19.1	1.9
6. Agricultural, animal husbandry and forestry workers, fishermen and hunters	2.5	1.1	3.1	0.8	6.4	0.6
7. Production and related workers, transport equipment operators and laborers	3.9	1.7	10.2	2.7	48.1	4.8
Total	228.1	100.0	382.5	100.0	1006.4	100.0

Source: Department of Statistics, Malaysia, 2011

Table 2.2 shows that the percentage of graduates, who were grouped in the category of *Professional, technical, and related workers*, decreased from 75.8 percent (1982) to 57.0 percent (2000). However, there was an increase in the percentage of those

employed in the category of *Production and related workers, transport equipment operators, and laborers* although they had graduated at the tertiary level. This means, there were graduates who had been grouped in the category of underemployed.

Table 2.3: The number and the percentage of distribution for employed graduates by occupation for 2001 & 2009

Category of occupation	2001		2009	
	'000	%	'000	%
1. Legislators, senior officials & managers	239.7	21.8	357.7	18.7
2. Professionals	374.9	34.1	606.7	31.7
3. Technicians and associate professionals	343.8	31.3	622.1	32.5
4. Clerical workers	77.6	7.1	179.5	9.4
5. Service workers and shop and market sales workers	28.3	2.6	86.4	4.5
6. Skilled agricultural and fishery workers	2.3	0.2	9.9	0.5
7. Craft and related trade workers	16.3	1.5	25.4	1.3
8. Plant and machine-operators and assemblers	10.9	1.0	16.1	0.8
9. Elementary occupations	4.7	0.4	8.8	0.5
Total	1,098.3	100.0	1,912.5	100.0

Source: Department of Statistics, Malaysia, 2011

Moreover, based on the occupational categories portrayed in **Table 2.3,** graduates in the category of *Legislators, senior officials, managers, and Professionals* in 2009 showed a decrement in percentage compared to the data stated in 2001. Meanwhile, employment

in the category of *clerical workers* and *service workers, as well as shop and market sales workers* showed an increment.

2.4 FEMALE LABOR FORCE PARTICIPATION IN MALAYSIA

The Malaysian LFPR among women had remained low as compared to other countries in ASEAN. **Table 2.4** shows the female LFPR for Association of Southeast Asian Nations (ASEAN) countries estimated by ILO. The female LFPR in Malaysia was 47.0 percent in 2013, while the nearest neighbors, such as Thailand, was at 71.0 percent, Singapore was with 65.0 percent, Brunei at 56.0 percent, and Indonesia at 54.0 percent. In addition, based on the statistics produced by the DOSM itself, the rate was actually higher at 52.4 percent. However, the figure contributed by Malaysia exhibited the lowest achievement for female participation rate in labor force in comparison to the neighboring countries in the ASEAN region.

Furthermore, the report found that "the number of working age women who were employed or looking for employment was lower in Malaysia as compared to other countries with similar income levels" (World Bank, 2012b). The data also showed that the rate of female participation in the Malaysian labor market before 2013 had never exceeded the global average rate, including the South-East Asia, and the Pacific. For example, in 2012, women's LFPR was at 49.5 percent, while the global average was at 51.1 per cent, and the average for both South-East Asia and Pacific was at 58.8 percent (ILO, 2013). In addition, in the groups of South-East Asia and the Pacific countries, Malaysian female participation rate in the labor force was at the second lowest after East Timor.

Table 2.4: Female LFPR by ASEAN countries, 2013

Countries	Female Participation Rate
Cambodia	82.0
Laos	80.0
Myanmar	79.0
Vietnam	79.0
Thailand	71.0
Singapore	65.0
Brunei	56.0
Indonesia	54.0
Philippines	53.0
Malaysia	47.0
	(52.4 *)

Note: * The Malaysian female participation rate had been based on country estimate

Sources : http://data.worldbank.org/indicator/SL.TLF.ACTI.FE.ZS

As illustrated in **Figure 2.2**, male participation rate had been higher than that of female. Thus, gender gap existed in the labor market participation. Some international reports concerning the gender gap of several aspects could help clarify the view. The *Global Gender Gap Report 2014* was established to emphasize the persisting gender gap that divides across and within regions (World Economic Forum, 2014). In addition to the assessment of sub-index in education attainment, other information provided in this report helps us to understand the glaring issue of gender gap in Malaysia.

The Index that examined the gap between men and women had been based on four sub-indices: (i) economic participation and opportunity, (ii) education attainment, (iii) health and survival, as well as (iv) political empowerment. The Index was constructed to rank 142 countries on their gender gaps, and not on their development level. The highest

possible score was “1” to show equality, and the lowest possible score was “0” as a value of inequality.

Of the 142 countries assessed in that index, the position of Malaysia in the global gender gap continued to slide as it was ranked at 107th in 2014, compared to 102th (2013), 100th (2012), and 97th (2012). Malaysia trailed behind Philippines (9), Singapore (59), Laos (60), Thailand (61), Vietnam (76), Indonesia (97), and Brunei (98); ranking second last in the Southeast Asian region, with Cambodia at the bottom just one spot below (108).

Even ranked at 102th, the score obtained by Malaysia for sub-index of *Health And Survival* was 0.969 (a value that indicated near-perfect equality). As for sub-index of *Political Empowerment*, Malaysia was ranked 132 with a score of 0.052, which was close to inequality (The details as shown in **Appendix 1**).

Meanwhile, the score for sub-index of *Education Attainment* was at 0.969; making Malaysia ranked at the first place in the index for category of enrolment in tertiary education. However, despite almost no gender gap in enrolment of women in tertiary education, the sub-index for *Economic Participation and Opportunity* showed that Malaysia was placed 104 (with a score of 0.617). In this category, the overall labor force participation for women was ranked at 117 with a score of 0.59. In fact, the ratio of female legislators, senior officials, and managers compared to those of males had been 0.27:1, whereas among professionals and technical workers, the ratio of women to men was at 0.77:1.

The comparison of Malaysian female participation rates in labor market with those from ASEAN countries and Malaysia's position in the Global Gender Gap Report 2014

shows that Malaysia had been in an uncomfortable state. The contribution of women in the economy was still not optimized. Policies which designed to empower women had failed to provide the best benefits to women. Hence, in order to refine these matters, further discussion need to explain the female LFPR since the independence day of Malaysia. Besides, the steps that had been taken by the government to encourage more women to join in the labor market is provided.

2.4.1 Progress in women's participation rate in the labor market

Generally, a positive development was displayed in female LFPR since Malaysia gained her independence. This section discusses the development of women's participation rate in decades and its condition at present. Furthermore, the factors that support and hinder the development of labor participation among women are also discussed in this section.

In the last three decades, Malaysian women have achieved great progress. The main factors that have contributed to their changing economic status are (i) the rapid expansion of education facilities that provide equal access for females and males in every level of education, (ii) the rapid economic development and industrialization that create new job opportunities for women, as well as (iii) the implementation of the New Economic Policy that facilitated the transition of Malay women (Siti Rohani, 1994).

Meanwhile, the education policy provided both boys and girls equal access to education, resulting in a rising level of education attainment among Malay girls in particular. During the Second Malaysia Plan (1971-1975), the education system aimed to promote national integration, as well as to close the gap in education opportunities among regions and races. Besides, establishments of institutions, colleges, and universities

increased the enrolments at the tertiary education level (Rusmawati, Asmaddy, & McNabb, 2009).

In addition, the implementation of the New Economic Policy (NEP) in 1970 also resulted in rapid changes in many aspects of the Malaysian society. The NEP was designed to eliminate the identification of race with occupation, and the state's diversification / industrialization strategies subsequently facilitated the flow of Malay women into the modern sectors of the economy. This was concomitant with a policy of positive discrimination for Malays in the spheres of education, employment, and access to credit. On top of that, secondary and tertiary education became readily available for Malays from both rural and urban areas.

By 1980s, there was little difference between Malay and Chinese women pertaining labor market participation rate in the urban areas. Additionally, the share of Malay women's participation in the manufacturing sector also rose. Thus, the state education policy facilitated women's movement into the paid work force (Kaur, 1999). The equal access to education was further reinforced by The Universities and University College Act 1991 that stipulated open membership to education for all citizens irrespective of sex, which categorically forbade discrimination against gender (Rohaiza, 2012).

On the other hand, changes in national government policy played a key role in the pattern of migration. Prior to World War II, the colonial government imposed almost no control on migration. This had allowed the large scale movement of migrants from China, India, and the Netherlands East Indies to Malaya. After 1957, the Malayan government imposed restrictions on immigration and the movement of foreign labor into Malaya was curtailed. In the expanding economy, as a range of jobs became

available, they also provided opportunities for women to involve and contribute their skills (Kaur, 1999).

In a similar way, past studies found that industrialization and urbanization affected the overall participation of women in labor force (Siti Rohani, 1994). According to Ariffin (1994), the pattern and the rates of Malaysian women's participation in the industrial sector was related to the industrial development policy. Before 1970, the majority of the industrial factories in Malaysia which were imported, had been capital intensive industries, and most of them had less than 5, 000 workers who were normally men. After 1970, the industrial pattern of work changed. Most of the industries were export-based, labor intensive-oriented, and the majority of workers were women.

The rapid economic growth was largely due to the important growth in the manufacturing and services sectors, where substantial and proportionally larger increase of female workers had been registered. In Malaysia, among all sectors of the economy, the manufacturing sector recorded the highest growth rate during the last decade. The manufacturing sector, in fact, created about 0.6 million new jobs between 1990 and 1994, and the respective sector in 1994 alone had provided employment to 1.9 million people. According to Aminah (1998), this led to the rapid absorption of women into the Malaysian labor market.

Due to its comparative advantage of cheap labor, Malaysia had a competitive edge in the manufacturing sector. The marked increase in women's share in manufacturing employment in absolute and relative terms was associated with export-oriented industrialization and the new international division of labor. The recruitment of women followed economic rationality rather than being based on women's essential traditional

skills. This unique role of women in manufacturing was a key variable in the success of the Malaysian government's development effort (Kaur, 1999).

As the number of educated women had increased since the 1970s, their attitude towards marriage, child-bearing, and career also changed as their education improved. In 1980, females were marrying at an average age of 23.5, however in 1991, the age of marriage increased to 24.9 years old. The postponement of marriage among women subsequently led to postponement in giving birth to the first child. Thus, this delayed age of marriage and reduction in fertility had further reduced the burden of homemaking and child care responsibilities, which at the same time trigger as an encouragement for women in Malaysia to seek for paid employment (Siti Rohani, 1994).

What can be concluded is that participation of women in economic activities has improved nowadays as compared to decades ago. Besides, growth in the manufacturing sector has boosted the demand for labor. Equal opportunity which given to both gender in order to gain knowledge has also lead to the increment of educated women in present. From micro aspect, changes in demographic characteristics were also found to increase the number of women in the labor market. **Table 2.5** is referred to observe the changes in the participation of women in the labor market.

Between 1957 and 2010, **Table 2.5** shows that the rate of female participation in the labor market increased after Malaysia gained its independence. Prior to retirement age, the participation rate was found to have increment in all age groups. Therefore, it also increased the rate of female participation in the labor market as a whole. The overall participation rate of women was increased from 30.8 percent (1957) to 47.2 percent (2009), but dropped slightly to 46.8 (2010). For the period between 1957 and 1980, the majority of the female labor force was of the age group of 35-54 years, but this trend

changed as more women from the age group of 25-34 years dominated the participation in the labor force in the period between 1990 and 2010.

Table 2.5: Female LFPR by age group for selected years

Age group	1957*	1970*	1980*	1990*	2000**	2010***
15-24	29.6	37.5	43.8	47.7	42.0	33.8
25-34	29.1	38.7	42.55	51.9	57.5	64.8
35-54	35.3	40.2	42.6	48.4	49.1	51.6
55-64	25.9	26.5	27.9	26.7	25.5	23.4
15-64	30.8	36.3	39.3	46.8	47.2	46.8

Note:

* Sources were adopted and adapted from Yahya, S. R. (1994). The Development process and Women's Labor Force Participation - A Macro Level Analysis of Pattern and Trends 1957-1990. In *Readings On Women and Development in Malaysia* (pp. 23–54). MPH Group Printing, Kuala Lumpur (republished).

** Source direct from DOS officer, Malaysia, emailed on July 13, 2012

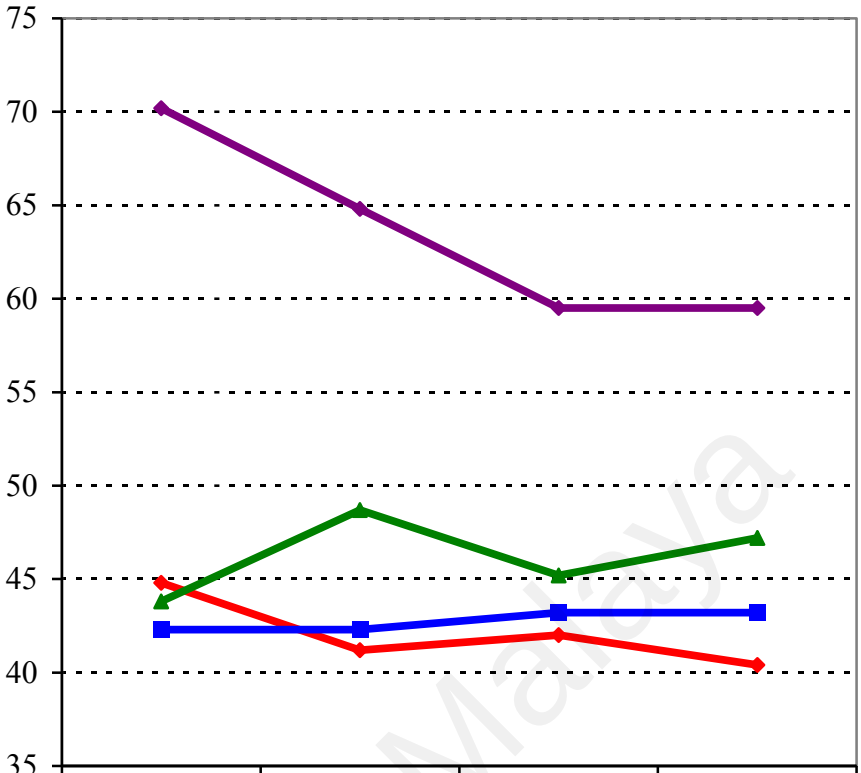
*** Source DOSM. (2013a). *Key Indicators of the Labor Market (KILM) Malaysia, 2002-2012*.

After 53 years of independence, in 2012, it had recorded a growth rate by 16.0 percent for female participation in labor force. However, in order to observe the change at this rate, the recent rate was compared with the rate which obtained in the year of 1970. This is because; 1970 was the start of the Second Malaysia Plan, and the New Economic Policy (NEP); a starting point of strategies that placed focus on women in development.

Even though the comparison between 1970 and 2010 displayed a significant improvement, women's participation rate in the labor market was slightly increased. With 36.3 percent of LFPR for female in 1970, it roses to 46.8 percent in 1990, and this figure was remained in 2010. This means, from 1970 to 2010, the rate of female participation in the labor force only increased by 10.5 per cent in 40 years. Next, figure 2-3 explain the groups that contributed to the low rate of female participation in the labor market.

Figure 2.3 shows that in 1982, the participation rate of women in the labor market with tertiary education was 70.2 percent. This value, nevertheless, continued to decrease over the years. Besides, it was found in 2012 that their participation rate was only at 59.5 percent. Meanwhile, the participation rate of women with primary education did not exhibit much change. On the other hand, those from secondary education displayed a fluctuation rate, whereas those with no formal education faced a decreased in LFPR.

Consequently, **Figure 2.3** portrays that the low rates of female participation in the labor market had been contributed by the diminishing rate participation by educated women,. Meanwhile, it should be progressively increasing together with the increase of education opportunities, and the increased number of female graduates from higher education institutions in Malaysia. For that reason, the researcher suggested that the low participation rate of Malaysian females in the labor force had been due to the deterioration among those women with tertiary level education.



	1982	1992	2002	2012
No formal edu.	44.8	41.2	42	40.4
Primary	42.3	42.3	43.2	43.2
Secondary	43.8	48.7	45.2	47.2
Tertiary	70.2	64.8	59.5	59.5

Source: Department of Statistics, Malaysia

Figure 2.3: Female Participation Rate by Education Attainment for selected years

2.5 MORE INFORMATION ON FEMALE PARTICIPATION RATE IN THE MALAYSIAN LABOR FORCE

Due to low participation in the labor market for educated women, women with secondary level education had been dominating the job market. The participation rates also had been found to be varied according to age and the data showed that not all women worked until their retirement age. Since many women chose not to work, the unemployment rate also increased. Furthermore, graduates who choose not to work and

those who are uninterested in working are rather worrisome issues. A more detailed analysis on female participation rate is discussed in the next topic.

2.5.1 Working women do not reach the age of retirement

In discussing about women who do not reach the age of retirement, **Table 2.5** (page 50) is referred as it depicts the female LFPR by age group for a number of selected years. **Table 2.5** indicates a similar pattern in all duration; the lowest percentage of female participation rate was found among those in the age group of 55-64 years.

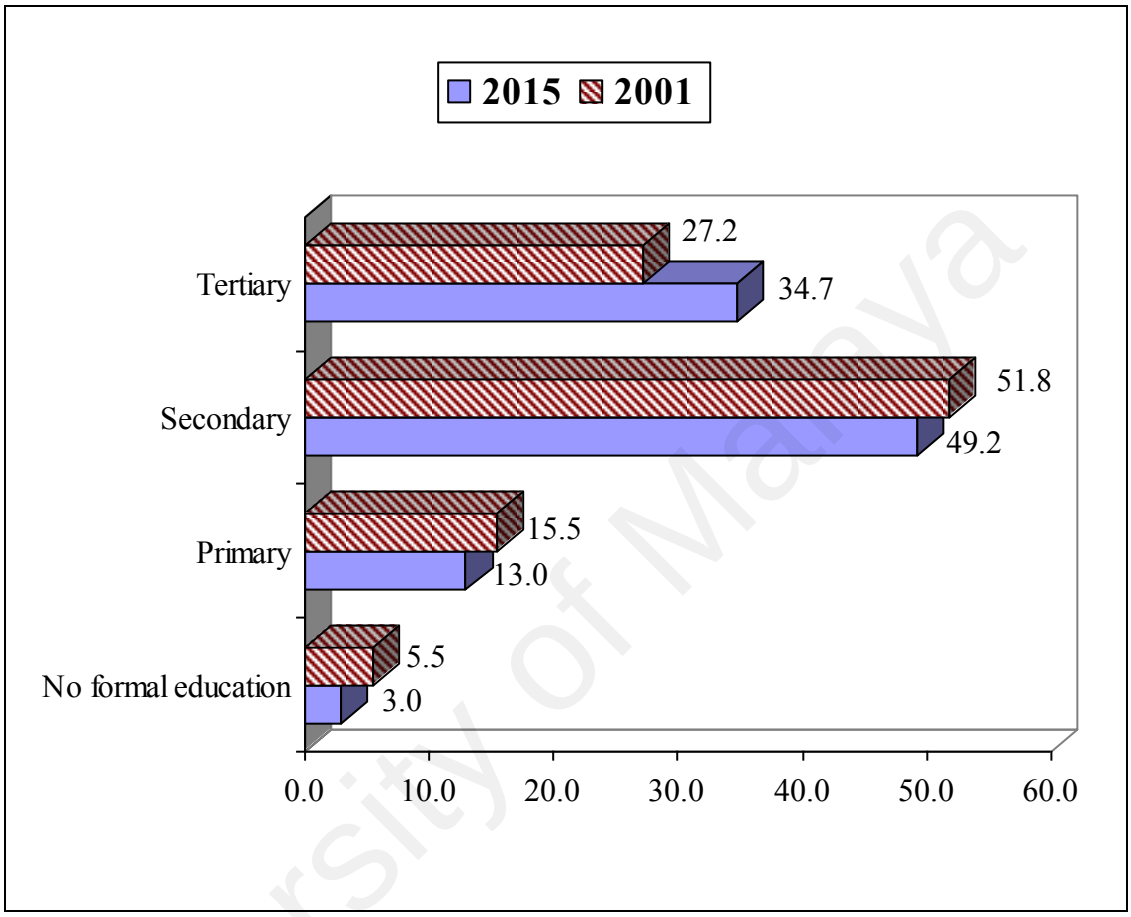
Since 1990, the highest female LFPR was within the age group of 25 to 34, coinciding with the end of schooling age and before the age of marriage (Aminah, 1998). For the group age of 35-54 years, the participation rate of women decreased and suggested that only a few women remained in the job market until their retirement age. This indicates the withdrawal of women from the labor market after marriage or after child birth.

This means that at a younger age, labor participation by women was as high as in the Western countries, but then it decreased. This pattern proposed that the participation of Malaysian women after marriage was more sensitive to life-cycle transition. To be precise, married women who left the workforce did not return to work due to difficulties in reconciling work and family responsibilities (World Bank, 2012a).

2.5.2 More women with secondary education level in the labor force

Figure 2.4 demonstrates that in 2015, the percentage of female employed with tertiary education increased from 27.2 percent in 2001 to 34.7 percent in 2015. On the other

hand, female employed with primary education experienced a decline from 15.5 percent to 13.0 percent, while those with no formal education declined from 5.5 percent to 3.0 percent within fourteen years.



Source: Department of Statistics, Malaysia, 2001 and 2015

Figure 2.4: Percentage of employed females by education attainment

Even though declined by 2.6 percent (49.2 in 2015 compared to 51.8 in 2001), the majority of females employed in Malaysia were made up of those with secondary education. Thus, one could suggest that the highest employed females came from those with secondary educational level, and not from educated women with tertiary education.

2.5.3 The rise of unemployment rate among women with tertiary education

Table 2.6 presents the percentage distribution of unemployed females by education attainment for Malaysia in years 2002, 2007, and 2012. Compared to 2002, unemployed females without formal education in 2002 witnessed a reduction in 2007, but this percentage increased in 2012. Meanwhile, for women with primary and secondary education attainments, the percentage showed a good decreased from 2002 to 2007, and then, to 2012. However, unemployed females from the tertiary level increased from 24.8 percent (2002) to 34.8 percent (2007) and 40.9 percent (2012).

Table 2.6: The percentage of distribution for unemployed females by education attainment

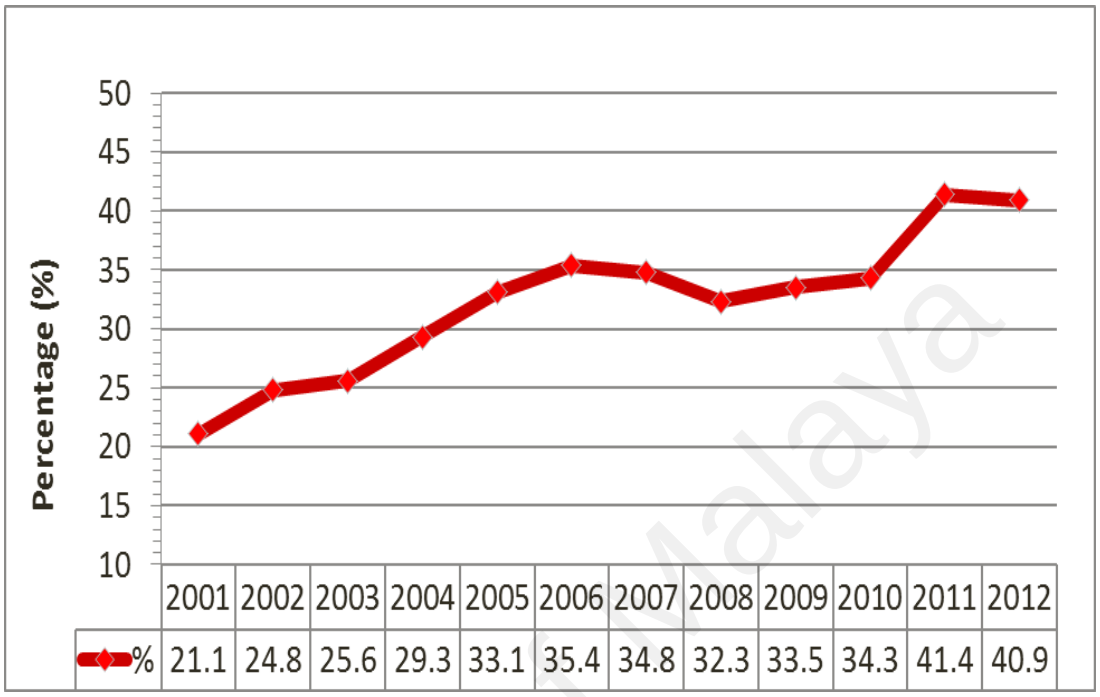
Category/ Year	2002	2007	2012
Total Female	100.0	100.0	100.0
No formal education	4.9	2.0	3.2
Primary	9.4	9.2	6.2
Secondary	60.9	54.0	49.7
Tertiary	24.8	34.8	40.9

Source: Department of Statistics, Malaysia, for various year

The increase in the unemployment rate for women with tertiary education can be seen clearly from **Figure 2.5**. Until 2004, the unemployment rate among tertiary educated women continued to increase, but not more than 30 percent. Nonetheless, the rate began to fluctuate from year 2005 to 2010. In 2011, this rate exceeded 40 percent.

Between genders, the LFPRs had been found lower for women. Among women, the unemployment rate was high for those with tertiary education. In fact, the increase in

the unemployment rate among those with tertiary education explains the situation of the diminishing participation rate of educated women in the Malaysian labor market.



Source: Department of Statistics, Malaysia, for various year

Figure 2.5: Unemployment Rate for women from tertiary education attainment

2.5.4 Higher percentage of graduates who *chose not to work* and were un*interested to work*

The Malaysian Ministry of Higher Education (MOHE) had issued an instruction for all local graduates from institutions of higher learning to undertake a *Graduate Tracer Study*. This survey was conducted with the intention to measure the employability and the marketability rates among graduates.

Some information obtained from the survey had been the reason for Malaysian graduates being still unemployed when the survey took place, about three to four

months after completing their studies. The reasons given by the respondents were still seeking for job, job offered was unsuitable, family responsibility, lack of self-confidence to face the working environment, chose not to work, uninterested to work, taking a break, health problem, and waiting for placement to further studies (MOHE, 2010).

Table 2.7: Reasons given by Malaysian Graduates for Unemployment

Reasons	Graduate Tracer Study 2009 (in percent)	Graduate Tracer Study 2010 (in percent)	Graduate Tracer Study 2011 (in percent)
Still seeking for job	71.8	71.5	69.5
Job offered were not suitable	2.2	2.1	3.0
Family responsibility	2.0	2.5	3.6
Lack of self-confidence to face the working environment	0.7	0.7	0.9
Taking a break	2.9	3.4	4.6
Health problem	0.4	0.4	0.6
Waiting for placement to further study	16.7	16.2	12.2
Choose not to work	**0.4**	**0.5**	**1.1**
Not interested to work	**0.4**	**0.3**	**1.2**
Other reason	2.6	2.3	3.2

Source: Graduate Tracer Study Report for 2009 - 2011

What is more important to be highlighted in this section is the increased percentage of graduates who responded to the Graduate Tracer Study survey and gave reason for their unemployment status as *choosing not to work* and *uninterested to work*, as shown in

Table 2.7. In fact, those who responded "choose not to work" increased from 0.4 percent (2009) to 1.1 percent (2011), whereas those who were "uninterested to work" showed a larger increase, from 0.4 percent (2009) to 1.2 percent (2011). Parallel with the objectives of this study to determine the participation of educated women in the labor market, the reasons for graduates to avoid participating in the labor market should be emphasized.

2.6 THE ORGANIZATION TO STRENGTHEN WOMEN IN MALAYSIA

The Malaysian Ministry of Women, Family, and Community Development (MWFCD) that we have at present focuses on empowering women in all aspects, actually had gone through several phases before it was established in 2004. Understanding the history of this institution is believed to provide more input, so that one can understand the policy implemented upon women, which has been done by the Malaysian government for the past 40 years.

In 1975, the Government established the National Advisory Council on the Integration of Women in Development (NACIWID) to ensure participation among women in the development process. In 1983, the Secretariat for Women's Affairs Department of the Prime Minister or the HAWA was established to take over the duties of the NACIWID. Then, HAWA was upgraded to the Division in August 26, 1985. Next, on 27th October 1990, the Division of Women's Affairs was transferred from the Department of the Prime Minister to the Ministry of National Unity and Social Development. Later on, in January 29, 1997, the Cabinet had decided that the Women's Affairs Division to be upgraded to a department.

However, only in July 1, 1997, HAWA operated as a department under the Ministry of National Unity and Social Development. Then, in December 18, 1999, the Department of Women's Affairs was placed again in the Prime Minister's Department before it became a ministry in January 17, 2001 under the name of the Ministry of Women Affairs. The role and functions of the ministry were then enlarged and expanded. The ministry was subsequently re-named as the Ministry of Women and Family Development on 15th February 2001. Thus, HAWA, as well as the National Population and Family Development Board were placed under the jurisdiction of this Ministry.

After the 11th General Election in March 2004, the roles and responsibilities of the ministry were further broadened. On 27th March 2004, the Ministry of National Unity and Social Development was dissolved and some of their functions were subsequently subsumed and re-named as the Ministry of Women, Family, and Community Development.

2.7 EFFORTS TO IMPROVE THE PARTICIPATION RATE OF WOMEN IN THE LABOR MARKET

Higher female labor force participation is also recognized as being instrumental in building capacity for economic growth. "*Increasing women's participation in the labor force can translate to an annual GDP increase and hence, has the potential to contribute to Malaysia's economic growth targets. If female labor force participation rate is increased to 70 percent, it would boost Malaysia's GDP by 2.9 percent*" (UNDP, 2010). This fact depicts the importance of women's role in economic activities and the reason to increase more women to participate in the labor market.

Most of the efforts and plans to encourage active participation among women in development began around in the 1970s, in line with the start of the Second Malaysia Plan (1971-1975) and more focus was given in the Third Malaysia Plan (1976-1980). In the early stages, most of these efforts had been towards providing more education opportunities to all citizens. Thus, the implementation of the New Economic Policy in 1970 had successfully created more new job opportunities for women.

Initially, in year 2000, 23 major international organizations and 193 countries that made up the United Nations (UN) agreed to make a concerted and coordinated effort *to reduce extreme poverty* in the world. With that eight international development goals were structured and the UN members agreed to achieve the goals by the year 2015. As an organizational that coordinated global and national efforts to achieve the Millennium Development Goals (MDGs) by year 2015, the United Nations Development Programme (UNDP) monitored Malaysia's achievement towards all goals. Among the eight goals, the third target was *to promote gender equality and empower women* (UNDP, 2015).

Recognizing the power of *womenomics*, the Malaysian Government aggressively took steps to leverage the roles of women. Ambitiously, the 10th Malaysia Plan (2011-2015), had aimed to *increase women's labor force participation to 55 percent in 2015*, within the broader framework of labor market reform. As a regulator for the women's community, The Malaysian Ministry of Women, Family, and Community Development aimed to achieve the objectives set by the ministry to *increase the participation and active role of women, families, and communities as contributors and beneficiaries for the development of the country.*

On top of that, an Economic Transformation Program (ETP) was launched by the government on 25th September 2010. ETP was formulated as part of the Malaysia's National Transformation Programme with a goal to elevate the country to the developed-nation status by 2020 (PEMANDU, 2015). *Empowerment Women* was similarly integrated as part of the Strategic Reform Initiative on Human Capital Development, a Roadmap for Leveraging Women's Talent, which was developed to measure all stages of a woman's career (Talent Corporation Malaysia Berhad, 2013a).

Apart from these policies, the government and its agencies had initiated targeted incentives to retain and recall women back to the workforce. Accordingly, many actions had been taken to encourage family-friendly workplace practices, including flexible working arrangements, community child care and nursery centers, child subsidy, tax exemption for employers to establish child care centers and paternity leave, as well as retraining opportunities to boost participation among women in the labor force. These steps had been believed to help women get better balance in their work, child care, and household duties (Malaysian Ministry of Women and Family Development, 2007).

Moreover, a study in the West indicated that organizational that offered and implemented family-friendly or work-life balance policies and practices were able to attract and retain a higher percentage of employees than those without these policies (Noraini & Nor Diana, 2015a). The next discussion looks into the efforts that had been taken by Malaysia to encourage active participation among women in the labor market.

2.7.1 Maternity leave

Akta Kerja 1955 or Employment Act 1955 suggested that women workers are given the right to take maternity leave for a period of 60 consecutive days for those who are having their first child until the fifth. However, this provision is for those earning below RM2, 000 and has been working for four consecutive months before giving birth (Malaysian government, 1957).

Meanwhile, the Employment Act (Amendment) 2012, which amended the Employment Act 1955, introduced a new section, namely Section 44A, stating that all provisions for maternity protection is applicable to all women regardless of their salary. Besides, women workers are allowed to take leave more than thirty days after childbirth (confinement).

Nevertheless, in January 2011, the Malaysian cabinet approved the National Family Policy and the 2012 Budget to facilitate women-friendly towards enhancing women's economic capabilities, economic security, and to reduce dependency on the social safety net (Jorah, 2012). This Act also introduced 90 days of maternity leave that would benefit the 3.7 million women in the labor force if the policy was extended to all and not restricted to the 1.3 million civil servants. This means, the mandatory paid maternity leave for all women in Malaysia had been still 60 days (UNDP, 2014). However, the option to take 90 days maternity leave applied only to civil servants.

2.7.2 Paternity leave

Pekeliling Perkhidmatan Bilangan 9 Tahun 1991 or Service Circular No. 9 of 1991 stated facilities paternity leave was three days without record. Through *Pekeliling*

Perkhidmatan Bilangan 9 Tahun 2002 or Service Circular Number 9 in 2002, the government agreed to extend the paternity leave without record for seven days to government employee beginning January 1, 2003 (JPA, 2002).

However, the private sector in Malaysia had not been female-friendly in many cases. In the private sector, leave granted may range from one to four days, depending on the company (Noraini & Nor Diana, 2015b). Thus, improvements had been made, such as longer leave provision for women who give birth and paternity leaves are more of a company incentive than a legal benefit as there is no existing law about it in Malaysia.

2.7.3 Staggered working hours

In Malaysian government departments, *Waktu Bekerja Berperingkat* (WBB) or staggered working hours is a method for flexi-working hours performed extensively in the government sector beginning from June 1, 2007. Under this system, employees can choose their own working hours, whether from 7:30, 8:00 or 8:30 am until after 9 hours of time in the office. However, this timing had been based on rotation because for office, particularly those involved in the counter, they should start as early as 7.30 am every day (Jabatan Perkhidmatan Awam, 2007).

With the choice of staggered working hours, the employees need not come out at once to the office. This reduces congestion, while employees can start working on their preferred time. However, this system received many complaints from the employees. For those who chose working hours that started at 8.30 am, they had difficulty in getting a car park, as well as the frustration in facing crowded traffic conditions on return.

Meanwhile, the private sector, such as multinational companies, is currently on the front line of this initiative. Companies, such as BASF, DELL, IBM, Intel Malaysia, Standard Chartered Bank Malaysia Berhad, and Sunway Group, have practiced staggered working hours, but with more varied start and times of workdays (Noraini & Nor Diana, 2015b). For example, several different working times were offered to be chosen by executive and administrative workers, workers in the operational level, and those in the sales division. Some workplaces operated between 9.00 and 10.00 am and finished in the late evening.

2.7.4 Establishment of child care centers at workplace

The Best Business Practice Circular 1/2010 (BBPC 1/2010) issued by the Companies Commission of Malaysia (SSM) had been intended to provide guidance for employers in the private sector in setting up of child care centers for their employees (SSM, 2010). In line with the National Plan of Action for Children, this circular focused on the establishment of child care centers to be set up at or near business premises, which should operate during the usual work hours of the employer.

For employers who provide child care in the workplace, the government has provided a few incentives, which are the Industrial Building Allowance and tax deductions on maintenance expenditure. Besides, a 10 percent of tax reduction per annum on the cost of setting up child care centers for a period of 10 years was given for employers who set up child care centers. However, not all employers can provide a child care center to their employees. The development of child care centers in Malaysia is discussed in detail in section 2.6.

2.7.5 Flexible Working Arrangement (FWA)

As an alternative to the traditional standard working hours that usually starts from 8:00 am and ends at 5.00 pm, Flexible Working Arrangement (FWA) had been proposed so that civil servants can balance the needs of office tasks and responsibilities within their family (Malaysian Ministry of Women and Family Development, 2015b). This system allows employees to choose a different work schedule to meet personal or family needs.

In fact, a work-from-home program was introduced by *Jabatan Kerja Raya (JKR) Malaysia* or the Malaysian Public Works Department (PWD) in 2010. Thirty-five drafters, the majority of whom were women, were allowed to work at home and only needed to report to the office once a week workdays (Noraini & Nor Diana, 2015b). Starting from Mac 2015, the Malaysian Ministry of Women, Family, and Community proposed a trial period to implement this new working system, which is the FWA. However, the current FWA was not implemented fully within government offices and departments.

But in fact, FWA is not something totally a new practice in Malaysia because some private companies have been found to practice FWA since past few years ago. For example, Agilent Technologies (formerly known as Hewlett-Packard) failed to recall the exact date when FWA was commenced (indicating that FWA had found common practice in the company) and PwC Malaysia started FWA in the early 2000s (Talent Corporation Malaysia Berhad, 2013b).

2.7.6 Child care subsidy

Realizing that many women left the labor market due to the presence of children and the high cost of care, child care subsidy was introduced by the Malaysian government. The effort was undertaken by *Jabatan Perkhidmatan Awam* or the Public Service Department. This department plays the role as personnel management, including planning, managing, and developing for civil servants.

Moreover, through *Pekeliling Perkhidmatan Bilangan 4 Tahun 2007* or the Service Circular No. 4 of 2007, the government approved subsidies for child care fees, which were provided in public sector workplaces. The benefits were granted to civil servants with household income not exceeding RM2, 000.00 a month. However, in *Surat Pekeliling Perkhidmatan Bilangan 13 Tahun 2008* or the Letter of Service Circular No. 13 of 2008, the government amended the rate of household income not exceeding RM3, 000.00 per month. This rate was again amended to RM5, 000.00 per month through *Pekeliling Perkhidmatan Bilangan 38 Tahun 2013* or Service Circular No. 38 of 2013.

In addition, under the National Key Result Areas (NKRA) and the Government Transformation Program 2.0 (GTP 2.0) announced in Budget 2014, *Jabatan Kebajikan Masyarakat (JKM)* or the Social Welfare Department was given a mandate to manage child care subsidy for *taska* (child care) fee as continuation of government initiatives to reduce the burden of child care cost. The subsidy could be applied by Malaysians with RM250 per month for children below the age of 4 years and registered in a child care center under JKM.

However, this subsidy had been limited to parents or guardians with capita income RM900 per month or less. Besides, each child was only eligible to receive a one-time

fee subsidy in that year and only two children of a family were eligible to receive the subsidy for that year. Application for this assistance subsidy fee just started in April 1, 2015 and the application was closed in April 30, 2015 (JKM, 2015).

2.8 CHILD CARE IN MALAYSIA

Child care arrangement is an important instrument for women to enter in paid employment. If women could get a child care as they need, participation in the labor force would increase. As the child care system is organized differently across countries (Nicodemo & Waldmann, 2009), this section explains the management of child care arrangement in Malaysia.

Normally, parents start sending their children to learn formally as early as 4 years old. However, compulsory education for children in Malaysia begins at the age of seven years old by birth to be enrolled in Standard 1 in primary school. Before entering the first year of primary school, children usually are enrolled into pre-school class, whether provided by the government or a private establishment.

Furthermore, parents generally consider their own comfortable setting when selecting child care centers. They look at the warmth, the amount, and the kind of interaction between the child and the caregiver. They also look for values that are similar to their own practices. On the more practical side, parents normally ask, *what is the price*, *where is the care located, how was the performance of the nurseries,* and *is there space available for their children*? The answers to these questions would determine the decision made by the mother for child care arrangement when they go to work.

The quality of child care services available in Malaysia leaves much to be desired. According to Yusuf, Wong, Ooi, & Hamid-Don (1987), the national survey of child care practices at the local centers showed clearly the lack of any pre-established standards and regulations concerning the actual premises and management. They found that the child care centers were generally located in poorly designed premises, had bad environmental health conditions, and were unsafe for very young children. At present, related improvement of child care centers have undergone several amendments; the establishment of guidelines for child care centers and compounds liable for any child care center that violated the rules set by the authorities.

A few options a Malaysian mother could choose from to take care of their children are hiring of maid, sending children to a babysitter, taking a nanny or finding a relative. A maid can take care for the child or children in their own home. The mother can provide training and leave instructions for the maid to run errands as they wish. In fact, many Malaysian parents find this as a good and practical arrangement as a maid is also available to clean up and do other household chores (http://www.babycenter.com.my, 2014).

Other than that, many babysitters or child-minders are parents themselves and also have their own children to care for. They look after children in their own home. Some parents opt to leave their babies with the babysitter during the working week. This maybe because both mum and dad have demanding jobs for long hours, one or both parents work out-of-state, or they feel that this is the most economic and practical option for their family. This is commonly known as weekend parenting.

Meanwhile, a nanny will care for the children in the children's own home. Out of all child care options, a nanny will probably be the most difficult to find and it is difficult

to justify the cost. Hence, hiring a nanny is not popular in Malaysia to take care of the children when the mother goes to work.

Besides, many parents also seek a grandparent or another relative to look after their children. Informal arrangements with relatives make up the majority of child care arrangements in Malaysia. It is low-cost and flexible, and it means the child will be looked after by someone they know very well. Relative care works best if they are willing and able to help. If the mother can arrange for a relative to take care of her child, it may give more love and security than other child care options. Some mums also hire a maid to assist an older relative.

The child care centers, also known as nurseries, employ a combination of qualified and unqualified staff to care for babies and young children in a child-centered environment. The children are usually grouped according to age, and staff should be trained to create a safe and stimulating environment for them to enjoy and develop, while their parents are at work. Day-care centers are generally open for 10 or 11 hours per day, to accommodate the parents' working day and travel.

There are also some women who choose to take care of their children at home. Most mothers are more satisfied when children are cared in their own way. Besides, health and safety aspects of children can be monitored by the mother. However, these methods can usually be done if the mother does not work because most work requires employees to be in office. However, some self-employed women could earn an income, in addition to self-managing their children's needs.

Whatever the method of child care is chosen, every parent would hope for the best for their children. However, by age group, there is a difference in child care approach that

would take into account the learning process. According to Rokis (2014), child care and pre-education are two different establishments that take care the needs and the well-being of young children of different ages. For children aged below 5 years, child care is a center that provides care, while child-minding is for infants and toddlers at the age of 0 to 4 years old. It is also known as a children's nursery. Pre-education center is an established educational institution that offers program learning for children at the age of 4 to 6 years old. Its activities and syllabus are more on academic, as well as on social development.

The child care management in Malaysia is under the authority of *Jabatan Kebajikan Masyarakat (JKM)* or the Social Welfare Department under the Malaysian Ministry of Women, Family, and Community Development. However, being committed to focus on human resource development, the Community Development Department under the Malaysian Ministry of Rural and Regional has established child care centers for those earning a low income, as well as those underprivileged, especially for rural and suburban communities. Therefore, the next discussion focuses on the two most important institutions related to child care in Malaysia.

2.8.1 Child care under the supervision of Social Welfare Department, Malaysian Ministry of Women, Family, and Community Development

Under the Social Welfare Department, Malaysian Ministry of Women, Family, and Community Development, there are four categories of child care. As stated in Section 2, Act 308 "Taman Asuhan Kanak-Kanak (TASKA)" or child care center means any premise that receives four (4) or more children under the age of four (4) years from more than one household to be kept with wages (Malaysian Ministry of Women and

Family Development, 2015a). Meanwhile, Section 5 of Act 308 provides four categories of child care; child care in institution, child care in the workplace, child care in community, and child care in the house. As shown in Table 2-10, within states and territories, the most child care centers had been available in Selangor. Detailed explanation for each type of child care is given below.

Child care in Institutions, which can receive 10 or more children. Child care in this category was established on the initiative of the private sector and Non-Governmental Organizations (NGOs). Table 2-10 shows that most child care centers were established in institution compared to the other types of child care managements in Malaysia. The total child care in institution covered 81.3 percent of nurseries under the supervision of Social Welfare Department.

The second type of child care is child care in the workplace. This type of child care centers had been established with the initiative of the employer for their workers, which can accept 10 children or more. As shown in Table 2-8, more child care centers had been established by the government compared to those in private companies. In fact, there were only 19 percent in the private sector, which had set up nurseries in this category.

Child care in Community could receive 10 children or more, as well as receive assistance from the Federal Government or the State Government and it had been established on the initiative of the community to benefit low-income families in both urban and rural areas. Although not many, all states and territories in Malaysia have nurseries in this category. Lastly, the fourth category is child care at home that can receive 4 to 9 children in custody, carried out in their own homes. Based on **Table 2.8**,

registered child care at home are not much, and besides, none could be found in Kelantan and WP Labuan.

Table 2.8: The number of Child care Centers under SWD, by State and category, April 2015

State	Child care in Institutions	Child care in the workplace		Child care in Com-munity	Child care at home	Total
		Private	Gov.			
Johor	242	2	4	3	36	287
Kedah	251	-	5	3	7	266
Kelantan	191	1	1	2	-	195
Melaka	73	-	1	2	20	96
Negeri Sembilan	138	1	2	1	21	163
Pahang	194	2	19	2	59	276
Perak	280	1	4	1	27	313
Perlis	39	-	-	2	5	46
Pulau Pinang	148	-	5	2	17	172
Sabah	198	-	12	4	18	232
Sarawak	98	-	4	6	24	132
Selangor	817	10	20	7	200	1,054
Terengganu	205	4	8	3	8	228
WP Kuala Lumpur	211	8	35	4	77	335
WP Labuan	15	-	2	2	-	19
Total	3,100	29	122	44	519	3,814

Source : Social Welfare Department, Malaysia

As in April 2015, **Table 2.9** shows that almost 70, 000 children aged from 0 to 6 years old had been taken care in more than 3, 800 registered child care centers in Malaysia.

Table 2.9: The number of Registered Child care Centers, Child care Providers, and the number of Children under JKM by State, April 2015

State	Registered child care center	No. of caregivers	Number of children			
			0 – 3 years	3 – 4 years	4 – 6 years	Total
Johor	287	915	2,214	1,858	404	4,476
Kedah	266	973	2,470	1,753	256	4,479
Kelantan	195	531	1,316	818	137	2,271
Melaka	96	352	1,193	617	199	2,009
Negeri Sembilan	163	511	1,409	638	440	2,487
Pahang	276	721	2,800	1,413	280	4,493
Perak	313	1,265	2,803	2,372	672	5,847
Perlis	46	132	417	198	62	677
Pulau Pinang	172	714	1,620	2,066	0	3,686
Sabah	232	1,171	2,311	2,983	345	5,639
Sarawak	132	581	1,427	1,128	119	2,674
Selangor	1,054	4,149	8,728	6,719	2,875	18,322
Terengganu	228	823	2,265	1,298	161	3,724
WP Kuala Lumpur	335	1,488	4,140	3,451	407	7,998
WP Labuan	19	95	190	184	54	428
Total	3,814	14,421	35,303	27,496	6,411	69,210

Source : Social Welfare Department, Malaysia

This table also presented that the most registered child care providers had been in Selangor, as well as the number of caregivers and the number of children for every age

group. This figure is in line with the distribution of population in the country where Selangor is the most populous compared to other states in Malaysia. However, as registration for child care at home is not compulsory for those who care less than four children, it is believed that there are more caregivers in Malaysia.

2.8.2 Child care under the supervision of The Community Development Department, Malaysian Ministry of Rural and Regional

KEMAS is the acronym for '*Kemajuan Masyarakat*' or The Community Development Department established under Community Development Department, Malaysian Ministry of Rural and Regional. KEMAS is responsible for the implementation of early childhood education and committed to focus on a more comprehensive human resource development effort, which is executed through non-formal education. Meanwhile, Taman Bimbingan Kanak-Kanak (TABIKA) and Taman Asuhan Kanak-kanak (TASKA) are two central roles in early childhood education administration under KEMAS.

TABIKA is a kindergarten program that provides early education opportunities for children aged between 4 and 6 years old. TABIKA adopts *Kurikulum Standard Prasekolah Kebangsaan (KSPK)* or the National Preschool Curriculum Standard, which has required its use starting from 1st January 2010 in accordance with the Education Act 1996 (Amendment 2002) drafted by the Ministry of Education. The teaching and learning duration in TABIKA KEMAS is 4 hours from 7.30 am until 11.30 am or from 8.00 am until 12.00 noon. The teacher or the Community Developer / Kindergarten teacher is responsible for the teaching and learning process, management of co-curriculum activities, and sometimes, activities involving parents.

On the other hand, TASKA is a nursery that focuses on children aged between 2 and 4 years old, as well as provides services for low income and underprivileged rural, urban, and suburban communities. TASKA KEMAS uses the Child care module issued by the Social Welfare Department, which is integrated with the National Preschool Curriculum, Ministry of Education. The daily TASKA KEMAS period is from 7.30 am until 5.00 pm (6 days a week). Certain TASKAs, especially those in rural areas, only operate half a day from 7.30 am until 1.00 pm for 5 days a week. The teachers in TASKA or the child-minders are responsible for child care, taking care of the basic needs, cleanliness, healthy relationships, providing a good environment, and stimulating child development together with the parents.

Table 2.10 shows the number of classes, teachers, and children in TASKA, as well as TABIKA, organized by KEMAS in 2013. Provision of TASKA and TABIKA includes all states and territories in Malaysia. The child care centers regulated by the Social Welfare Department, Ministry of Women, Family and Community Development, and the number of TASKA and TABIKA under KEMAS are not related to the total population by states. This is in line with the objectives of the establishment of TASKA and TABIKA under the Ministry of Rural and Regional, which is to improve rural community development. The rural areas are generally located far from the city center, and most of the people earn lower income and have limited access to available public facilities. For that reason, Table 2-10 shows that Sabah and Sarawak had the most classes of TASKA and TABIKA in 2013 although the total number of students was not as many as those in other states.

Table 2.10: The number of classes, teachers, and children in TASKA and TABIKA under KEMAS by State, 2013

State	TASKA			TABIKA		
	Number of class	Teacher	Number of children	Number of class	Teacher	Number of children
Johor	45	148	983	1,213	1,172	24,162
Kedah	44	163	1,034	834	816	19,780
Kelantan	16	48	289	790	793	20,884
Melaka	14	56	334	325	326	7,342
Negeri Sembilan	29	79	429	458	466	9,981
Pahang	21	109	387	966	1,003	19,202
Perak	32	109	633	868	866	16,938
Perlis	13	49	324	155	176	3,067
Pulau Pinang	12	52	227	330	334	7,097
Sabah	46	120	656	1,446	1,445	30,634
Sarawak	66	154	769	1,516	1,518	24,235
Selangor	27	105	557	995	981	26,361
Terengganu	19	61	364	864	848	21,226
Wilayah Persekutuan	20	78	397	305	285	6,835
Total	404	1,331	7,383	11,065	11,029	237,744

Source: The Community Development Department, Malaysia

2.9 CONCLUSION

For the development of the country, the researcher believes that it is important to increase the participation rate of women in labor market. Bryant et al. (2004) stated that employment and GDP will increase with the rising participation. Moreover, based on the report prepared by UNDP (2010), Malaysia's GDP would boost by 2.9 percent if female LFPR is increased to 70 percent.

The rate of female participation in the labor market has indeed improved at present compared to Malaysia after independence. At that time, Malaysia focused on the expansion of education opportunities for all genders and races. The subsequent industrial era increased employment opportunities. However, since 1980s, the female participation rate in the labor market had been identified to be less than 50.0 percent. Besides, the implementation of the MDGs at the national level had been a trigger for the Malaysian government to improve women's participation rates in labor force.

In addition, previous studies in Malaysia showed that the strong social norms see women as being primarily responsible for the home and children. Many workplaces also lack work–life or family-friendly policies and practices, such as affordable and quality child care, as well as flexible work arrangements that can facilitate their return to work after childbirth (Noraini & Nor Diana, 2015b). This scenario had been the primary reason for the low participation in the labor market among Malaysian women. Hence, for educated mothers to join the labor market, children should be cared for by individuals who are trusted. If children, especially who are still small, are not cared by family, these children are sent to child care centers. Nonetheless, the problem of sending their children to child care centers have become an issue.

CHAPTER 3

LITERATURE REVIEW

3.1 INTRODUCTION

Factors that determine women's participation in the labor market at a macro level is inadequate in explaining the women decision to work or otherwise. Hence, research at a micro level is needed since this approach allow each individual to be analyzed in further detail (Rahmah & Fatimah, 1992). The individual is open with option either to choose between utilizing their time for working or for leisure purposes, as emphasized in the Neoclassical Theory of Labor Supply. By looking at how individuals make choices, one can explain the properties of labor supply and begin to understand the conditions of participation in the labor market.

For women who have studied up to the tertiary level, theoretically, they will have increased earning profile (McConnell et al., 2010a). Women who are educated and unmarried, no household chores would prevent them to take seriously regarding working issue due to the lessen of their responsibility. However, for those who are married, they understand that the dual role of women at home and at office is crucial because failure to manage one of them will cause these women to make a choice between career and marriage.

As a result, it is indeed essential to determine the extent of previous studies on the role of economic, socio-demographic, and family factors in influencing educated married women to participate in the labor market. Moreover, access to the internet is a new aspect to observe its impact on women participation. Last but not least, the issues of

child care arrangement, which had been cited as the most influential factor of educated women's decision to work in industry is also explored.

As educated women had been selected as the subjects in this study, the theoretical framework associated to the study is the Theory of Allocation of Time. Furthermore, the Theory of Investment in Human Capital and the Theory of Access, which are related to educated married women, are also discussed in this study. Taking into account that the theories involved and the variables highlighted by previous studies might influence the participation of women in the labor market, while the research framework and hypotheses are deliberated at the end of this chapter.

3.2 THEORY OF ALLOCATION OF TIME

Becker (1965), in his article, stated that;

> *"At the heart of the theory is an assumption that household are producer as well as consumers; they produce commodities by combining inputs of goods and time according to the cost-minimization rules of the traditional theory of the firm".*

In practice, household (as a consumer) buys ingredients for cooking. Besides, in order to prepare food for family, household member also acts as a producer. They chose to minimize costs by producing the food themselves because they have an option to buy food that has been cooked.

When buying goods, the households will maximize utility functions of the form as;

$$U = U(y_1, y_2, \ldots y_n) \quad (1)$$

Subject to the resources constraint

$$\Sigma p_i' y_i = I = W + V \quad (2)$$

Where

y_i	-	goods purchased on the market
p_i'	-	the price
I	-	money income
W	-	earning
V	-	other income

With the extension of the utility maximization problem of consumer theory, economists have traditionally analyzed labor supply through the use of the Neoclassical Model of Allocation of Time or the Model of Labor-Leisure Choice (Kimmel & Connelly, 2007; Smith, 1981; Becker, 1965; Mincer, 1962). Thus, the new aspect is how individuals make choices in deciding how they will spend a fixed amount of time.

The Neoclassical Theory of Labor Supply explained that when individuals choose to hold a paid job, he or she needs to allocate between paid work and leisure as the source of individual utility. The theory is based on the consumption-leisure trade-off with a limited amount of time that the individual can allocate to work and leisure, with the individual choosing the optimal labor supply that maximizes utility. Since working hours entail a reduction in leisure time, the individual's utility loss which caused by labor time is implicitly presumed.

Therefore, referring to Munoz (2007):

> *"Individuals who wish to maximize their utility or satisfaction (U) by purchasing goods and services (C) in the marketplace and by consuming time in leisure activities (L). The amount of both consumed will depend on the individual's market wage (W), personal preferences, and the non-labor income (V) that person enjoys. The individual's utility function will be:*
>
> $$U = f (C, L)$$
>
> *Where U is an index that measures the individual's well-being, assuming people are able to rank in order all possible situations from the least desirable to the most. Thus, a higher index U means more C and / or L and more satisfaction. Moreover, C and L are economic "goods" – that is, whatever economic quantities they represent, we assume that more of any particular good is preferred to less.*
>
> *When the individual seeks to maximize his/her utility with respect to time in the period under analysis, he is bound by two conditions: first, he must allocate the day's discretionary time (T) either to working for pay (H) or to leisure (L). The other condition is related to the income he needs to buy goods and services in the market place: Labor wages (W * H) and non-labor income (V) are the only sources of the individual's income".*

Evidently, the wage that an individual can demand constitutes an important factor in the choice of the quantity of labor supplied. Thus, for an employee, an increase in the real

wage rate will create a tendency to work longer hours, and thus, result in leisure time would become relatively more expensive. This theory recognizes that women do not only arbitrate between leisure and labor hour, but between leisure, labor, and their home production of goods and services (Jaumotte, 2003).

The household maximizes a utility function subject to the constraints they face to determine the time allocated for homework, market work, and leisure for the individuals. Thus, the time allocated to work depends on the number of personal and household characteristics, as well as on the labor market characteristics.

However, Becker and other neo-classically-trained labor economists failed to explain findings on women's labor supply in the United States with theories which based on individual labor/leisure trade-offs. On the other hand, Mincer's (1962) contribution was based on the realization of labor supply which is decided in a family context. Meanwhile, the time not spent in the labor force includes not only leisure activities, but also household production, child care, and education. Thus, the analysis of labor supply through demand for leisure theory is actually a comprehensive dichotomy (Mincer, 1962).

In reality, the allocation of individual's time depends on trade-offs more complex than a simple choice between work and leisure. In the first place, the counterpart of paid work is not solely on leisure in the usual sense which substitutes for products available in the consumer goods market. Apart from working time within 24 hours, women also devoted their time to "household production" (some examples are preparation of meals, housekeeping, and raising children). This implies the supply of wage labor to take into account the costs and benefits of this household production and that most often, it is the result of planning, and even actual negotiation within the family (Grossbard, 1993). The

family situation, the number of children and the income a person enjoys apart from any wage labor (personal wealth, spousal income, etc.) are all weigh heavily in this choice.

In addition, "new home economics" (NHE) which developed by Mincer, Becker, and Lancaster explained that household structure was given a significant role in the economic theory (Grossbard, 1993). NHE expands on other economic analysis by taking into consideration upon family connections which bind households together and by expanding the domain of economic analysis. NHE suggested that it is insufficient to analyze labor force behavior (especially of women) in terms of the demand for leisure only. Personal wealth, income derived from sources outside the labor market, demographic factor, and even the familial environment are also playing such decisive role.

In fact, a similar research that employed this theory revealed that the factors that affected participation in the rate of labor force were varied. Most previous researches included education of women, husband and also close relatives, women's wage, husband's salary, household income, household asset, birth of child, number of children, and household size as determinants of participation among women in the labor market (discussed in topic 3.6).

Moreover, other factors, such as marital status, women's age, women's age at first marriage, location, grandparent's help, religiosity, and ethnicity, also were verified as determinants of women's participation in labor force. However, even by using similar variables, the relationship of these variables with the proportion of women in the labor market could possibly differ (detailed in topic 3.6).

3.3 THEORY OF INVESTMENT IN HUMAN CAPITAL

When a firm invests in physical capital, it acquires some assets that are expected to enhance the flow of net profits in the firm over a period of time. Similarly, when a person makes a current expenditure on education, it is anticipated that the individual's knowledge and skills will enhance future earning (Ehrenberg & Smith, 2015a; Borjas, 2010a; McConnell et al., 2010a). This is called *investment in human capital.*

As in any study of investment decisions, in order to determine if it is worthwhile, one must compare the expenditures and the receipts incurred at different periods (Munoz, 2007). The investor must be able to calculate the returns to the investment by comparing the current costs with the future returns or benefits. The basic model of human capital investment assumes people as an utility maximizer and take a lifetime perspective when making choices about education and training. The widely used concept of present value allows us to calculate the value of amounts received in different time periods as given below;

$$\text{Present Value} = \frac{B_1}{1+r} + \frac{B_2}{(1+r)^2} + \frac{B_3}{(1+r)^3} + \ldots\ldots + \frac{B_T}{(1+r)^T}$$

Where;

BT - a stream of yearly benefits (*B1, B2,...)* over a period of time (1 to *T*)

R - the discount rate

Since *r* is positive, benefits into the future will be increasingly discounted. In making decisions, workers compare the present value of future benefits with the costs. Besides,

the utility maximization requires people to stop generating additional human capital investment when the benefits of additional investment are equal to or less than additional costs (McConnell et al., 2010a).

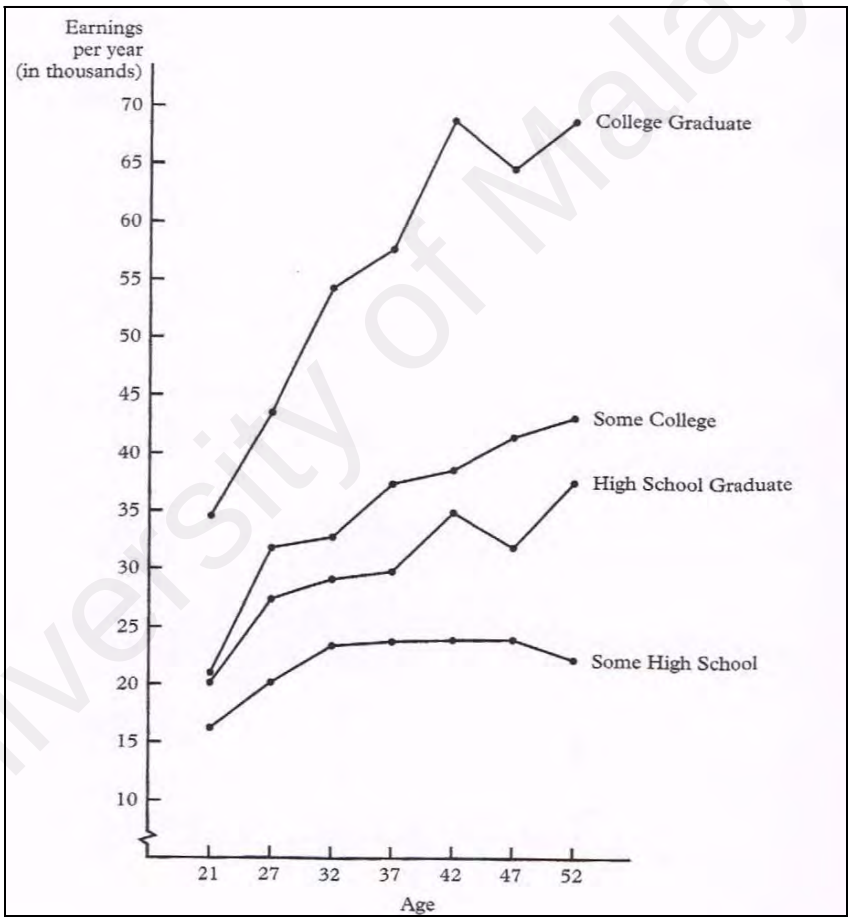
Moreover, the Theory of Investment in Human Capital or the Human Capital Theory suggested that education or training has raises the productivity of workers by imparting useful knowledge and skills, thus raising workers' future income by increasing their lifetime earnings (Becker, 1962). Subsequently, it can be argued that with knowledge as the level of education increases, the people in the society become more productive, skilled, and well-equipped. Furthermore, the theory suggested that education and employment are the two most important determinants of individual earnings in that equalization of education, while employment opportunities tends to equalize individual earnings (Becker, 1994).

Hence, in relation to the necessity of people that meets the demand from the labor market, it had been postulated that expenditure on training and education is expensive, and should be considered as an investment since it is undertaken with a view to increase personal incomes. Thus, the Human Capital Theory regarded participation in education as an investment in human capital, which explained that the greater the amount on education attainment, the higher the participation rate in labor market (Becker, 1994).

Even though the earnings were influenced by both wage rates and hours of work, basically, earning by those more educated had been higher than those who less educated as the capability of people can be increased by education and training (Theodore, 1961). Besides, the growth of physical capital only had a small part of development in the growth of income. This is because; the emergence of education and skills training can enhance one's skills and competencies (Mincer, 1962), as they played an important

element to earn higher income. In general, **Figure 3.1** shows that the average earning of more educated female workers in US exceeded those who are less educated (Ehrenberg & Smith, 2015a).

Figure 3.1 also reveals that at early stage of employment, the most rapid increase in earning occurred when giving a concave shape to the age / earning profile of women. However, the age / earning profiles tend to fan out which point out the education related-earnings differences at the older age to be greater than those early on.



Adapted from : Modern Labor Economics, Theory and Public Policy (Ehrenberg & Smith, 2015a).

Figure 3.1: Mean money earnings for full-time female workers in 2011

Furthermore, Faridi, Chaudry, & Malik (2012) suggested that education of the workers turned out to be very significant factors on labor force participation. Education raised people's productivity and creativity, while straightly promoting entrepreneurship and technological advances. It also increased the overall productivity and intellectual flexibility of the labor force. Likewise, for experienced and trained workers, they would have more chances to get profitable jobs and aggravate the employed labor force. In addition to the Theory of Investment in Human Capital, previous studies displayed a positive relationship between level of education and participation in the labor market. To be precise, those with higher education are more likely to participate in the labor market than those with lower in their education.

3.4 THEORY OF ACCESS

The classical definition highlights access from property as per stated by *the right to benefit from things*. This formulation includes a wider range of social relationships that constrain or enable benefits from the usage of resource rather than property relations alone. However, the Theory Of Access introduced by Ribor & Peluso (2003) highlighted *access* with a new definition, which is *the ability to derive benefits from things*. In other words, access is about all possible means by which a person is able to benefit from things. The categories that they used to illustrate the relations power, which definitely could affect the rights-based mechanisms of access, namely the access to technology, capital, markets, labor, knowledge, authority, identity, and social relations.

To explain further, Ribot & Peluso (2003) expressed the following statement;

> *"Access to technology mediates resource access in a number of ways. A fence is a simple technology of access control both because it physically keeps some people away from a resource and it symbolizes or communicates intent to restrict access. Many resources cannot be extracted without the use of tools or technology; more advanced technology benefits to those who have access to them. Less direct are the technologies that increase or facilitate the ability to physically reach a resource. For example, access to tube-wells, pumps, and electricity can determine who can benefit from groundwater pumped from ever-greater distances below the surface. A road alters the number of people and the types of vehicles able to reach remote localities, changing the nature of physical access. Weapons are also technologies that can facilitate the upholding of rights-based and illicit access".*

This study implicitly attempted to provide a broader definition of technology accessibility. Besides, it has been generally known that the Internet is part of the ICT. Thus, access to the Internet is related to access to technology (Melhem & Tandon, 2009). With the availability of the Internet, a lot of activities could be carried out. Moreover, as stated by Joseph (2013), Internet had been found as one of the main elements of ICT that played an important role in the development and capable to provided many opportunities for women's empowerment.

Furthermore, with the advent of high accessibility to the internet at home, women can balance their career and family-life. According to Suhaida, Nurulhuda, & Mohd Faizal (2014), the time in the office for working women can be reduced as more work arrangements can be made at home. For those who do not work, the availability of

accessing the Internet will allows them to generate income generously. In addition, the sophistication of ICT means that women are not bound by the need to attend at the office within a certain time (Suhaida, Nurulhuda, & Yap, 2013).

Thus, referring to Macho-Stadler & Perez-Castrillo (1995), the activity of information searching can be easily carried out with Internet accessibility. Moreover, with high access to Internet, there is no barrier for information. This means, aspects of asymmetrical can be reduced. As imbalance is achieved when the information is not optimal, high access to the Internet may act as a remedy to the imbalance and the significant optimization can be achieved.

3.5 FACTORS THAT INFLUENCED THE PARTICIPATION AMONG EDUCATED WOMEN IN LABOR FORCE

Factors that affected participation rates had been found to be varied. B. Spencer (1973) investigated the wide range of economic and social factors on the labor force participation of women. Mahoney (1961), Widarti (1998), Hafeez & Ahmad (2002), Faridi, Chaudhry, & Anwar (2009), as well as Hotchkiss, Pitts, & Walker (2010), categorized their variables into a few groups in order to analyze the relationship between each group of variable related to the decision of women, either to work or not to work. This is because; factors affecting participation rates, especially for married and educated women, were varied and complex, whereas single variable usually would not make a significant impact upon women's decision to work. In fact, many studies related to the participation of women showed the presence of children, the number of children, and their age which had been closely related to their career decision.

In addition, in order to identify the determinants of educated married women's participation in Malaysian labor force, both for all educated married women and also for those with children, the variables had been divided into four categories namely economic factors, socio-demographic factors, family factors, and access factor.

3.5.1 Economic factors

Economic factors generally refer to any consideration related to women's decisions involving economic variables, such as prices and wages. The economic factor that refers to wages reflects the wages received by the women together with the wages earned by the husband or the bread winner of the family. This wage values are combined to examine the role of household income and household assets; to what extent these factors influence educated women's participation in the labor market.

Referring to a research conducted by Mahoney (1961), economic considerations undoubtedly enter into the decision of a married woman who seek for an employment, but the findings suggested that these considerations were less critical. Besides, it had been often assumed that economic factors were closely related to other more and dominant of predictive variables.

Meanwhile, a study by Hafeez and Ahmad (2002) revealed that economic factors had been the most important in influencing the labor force participating decision among women, as well as in shaping their wage and work profiles. In Malaysia, although parental education level may come into the room of maneuver, the need for a second income and better-paying jobs to cater for the rising cost of living have made it more

likely for women to seek higher education and tend to get better income by participating in the labor market (Aminah, 2009).

i. Income of women

The decision to participate in the labor force varied directly with wage opportunities expected in the labor market and inversely with the value of time at home. In a general way, the decision to enter the labor force can, thus, be modelled as function g(w, w*), where w is the expected wage and w* is the value of time at home. The value of time is usually considered as a function of household characteristics, such as marital status and presence of young children (Grossbard-Shechtman & Neuman, 1988).

The economic theory also posited that the effect of female wages on female labor force participation depended on the relative strengths of substitution and income effects. The substitution effect will be positive since higher female wages will produce more female labor force participation. Nonetheless, the income effect will be negative as that has rises the workers' desire in seeking more leisure and less work type of working environment (Tansel, 2002).

Meanwhile, for women from agriculture or the informal sector, higher income in other sectors could promote their participation in new job. These changes in social norms and the influence of the market place had been instrumental in promoting women participation (Aminah, 1998). Hence, one can suggest a positive relationship between high income and women's participation in labor market.

However, a research by Fatima & Sultana (2009) revealed a negative coefficient of female wages towards labor force participation. This was due to the increase in wages

and leisure time instead of working hours; which simultaneously provide a strong support to the backward-bending supply curve theory. Backward-bending supply curve of labor is the concept in which the income effect is averagely stronger than the substitution effect, while an increment of wage rate would result to the decrement amount (hours) of work offered by labor suppliers (Anaman & Kassim, 2006). All these arguments explain the possibility for women's income to be paired and relate to the participation rate, either directly or indirectly.

ii. Husband's income

For married women, income earned by husbands is generally responsible for fulfilling the financial needs of the family. Thus, small or large income of the husband is often seen as a feature that also affects the wife's participation in the labor market. B. Spencer (1973) claimed that if the husband's annual income before taxes is more than $6,000, the wife is less likely to devote themselves in the labor force. For those who married to husband with higher earnings, Becker (1993) stated that the husband will allow his wife to reduce her market work and to focus more on household chores.

Moreover, male wages had been expected to have a negative influence on female participation in labor force since the higher the wages of the husbands, the less likely the wives need to work (Faridi et al., 2009; Tansel, 2002). According to Sasaki (2002), the participation of labor force among Japanese women was significantly and negatively associated with husband's earnings. Similarly in Pakistan, the empirical result portrayed that husband's income was inversely correlated with women's participation in labor force (Chaudhry & Jabeen, 2010). Meanwhile, referring to the situation in Malaysia, researches carried out by Rahmah & Noorasiah (2014) and Nor'Aznin & Norehan

(2007) which resulted to negative impact upon the correlation of husbands' income and women participation in the working industry.

iii. Household income

According to Mincer (1962), the analysis of economic factors which influencing labor force behavior among married women had carried a direct implication of family income composition and distribution, as well as consumption behavior and labor supply, which had been intimately related. Decisions of family members about work are related to family income in an ex-ante sense and are reflected in the ex-post total money income of the family.

Hafeez & Ahmad (2002), in fact, identified various factors that influenced the decision of educated married women about participating in the District of Punjab, Pakistan's labor market. It appeared that one of the most important factors that affected the labor force participation's decision among women was household income.

The rising household income reduced labor force participation due to the declining positive effect of higher income (Klasen & Pieters, 2013). However, the effect of household income on labor supply had changed over time (Contreras, Mello, & Puentas, 2011). If household income had been sufficient, the need of wives to go out to work would reduced (Norehan et al., 2012). However, due to high cost of living, insufficient household income could contribute as a factor that influences women's decision to work.

iv. Availability of other financial resources

Besides husband and wife's monthly salary, some would have other side income, namely non-labor income. The term "non-labor income" is also referred by some economists as "non-earnings income". It consists of dividends, interest, and rent (collectively often referred to as money earned from investments). Transfer payments, payments from governments to individuals, age-related, including medicare, disability insurance payments, and retirements are also grouped in that category (McConnell et al., 2010c). Thus, an increase in non-labor income will decrease labor supply because they do not only depend on fixed monthly income.

Other than that, Bradbury & Katz (2005) found that greater increase in other sources of family income, such as the stock market, could also be a factor for women to reduce labor market involvement. Greater income from non-wage sources could also be a factor because stock holdings are more concentrated among high-income households. Besides, on average, non-labor income had accounted more for the low participation rates of South African women (Ntuli, 2007). However, without explanation, a research conducted by Rahmah & Noorasiah (2014) found that Malaysian women did not portray a negative relationship between non-labor income and participation of women in the labor market, as generally specified in the theory.

3.5.2 Socio-demographic factors

Demographic factor is the quantifiable statistics of a given population. Normally, it refers to the socio-economic population, such as gender, ethnic, religion, age, education level, residential location, and marital status. Hafeez & Ahmad (2002) suggested that

demographic characteristics had a major impact on the participation in labor force pertaining decision of women either to work or vice versa.

Meanwhile, Hotchkiss (2005) suggested that the decline in female LFPRs was not entirely a response to predictable demographic changes. Besides, Aboohamidi & Chidmi (2013) examined the impact of demographic factors on female labor force participation in Egypt, Morocco, Turkey, and Pakistan. While these countries are widely consist of Muslim in majority, the female LFPR displayed some similarities though the economic and social environments differed.

i. Ethnicity

Ethnicity, like other cultural terms, are central to social identity (S. Spencer, 2006). It is related to races or large groups of people who usually share similar customs, religion or origin. Ethnic groups distinguish themselves differently from one-time period to another. They typically seek to define themselves, but also are defined by the stereotypes of dominant groups. Thus, different ethnics symbolize the principle of life, and different customs can distinguish female characters and the way of life (S. Spencer, 2006). Therefore, there is no similar situation for different ethnics and countries.

Cultural values could affect women's economic roles, thus, according to Hirschman & Aghajanian (1980), Chinese women in Malaysia were more likely to respond to employment opportunities than Malay and Indian women. However, a research which was done in Malaysia and the information collected were based on ethnicity, demographic profile; not as a variable in order to confirm if ethnic had any influence upon labor force participation.

Furthermore, Tienda & Glass (1985) highlighted that the influence of race and ethnicity on mothers' propensity to enter the labor market were varied by headship status and living arrangement, whereas, findings by Widarti (1998) suggested that ethnicity had a strong impact on labor force participation among married women in Indonesia.

Next, Ackah, Ahiadeke, & Fenny (2009) discovered a significant effect on the presence of children at home substantially based on ethnic status. Meanwhile, a research by Amin (2004) indicated that women employment and fertility depended are also on women's tastes and preference, social values, and culture. Thus, it had been noticed that the element whichrepresent an individual's ethnicity could possibly affect many aspects, such as headship status, living arrangement, and fertility. Despite that, ethnicity also could affect labor force participation among educated women.

ii. Religion

Religion is a comprehensive sociological term used in referring the numerous aspects of religious activity, dedication, and belief. Religion may influence female employment decisions due to the specification of different religions which contain different life styles and cultures.

B. Spencer (1973) found that the wife's labor force behavior among Roman Catholics and other families did not differ significantly from the Protestant families. He estimated the probability that a Jewish wife being in the labor force lower than for other religious affiliations. Hence, there is a definite and rather strong religious factor presented.

Other than that, Amin & Alam (2008) investigated the effects of religious affiliations on the labor market behavior among women in Malaysia. The results suggested that

religion exerted a significant influence on human behavior. Specifically, the labor market behavior among Muslim women was been compared to women of Buddhist, Hindu, and other religious faiths in Malaysia. The results showed that religion was less influential in urban areas than in rural areas. This is because; it was possible that urban living had eroded many traditional values as people are adjusting themselves to the discipline of markets. Similar findings were obtained by Sackey (2005) in Ghana. However, a research by Neil & Bilgin (2013) revealed that religion did not appear to act as a direct impact on Turkish women, specifically Muslim, who still prefer to work respectively. Besides, Anaman & Kassim (2006), who did their study in Brunei, highlighted that religious preference and class status did not influence the likelihood of employment.

iii. Age of women

An analysis conducted by Mahoney (1961) indicated that age of the married woman was classified as an important moderator variable that exhibited relationships between independent variables and labor force participation varying with age. Besides, evidence given from B. Spencer (1973) had been consistent with the idea that advancing age by itself and made them less likely to be in the labor force. To be precise, a married woman would be more likely to work at a younger age.

Furthermore, in referring to Malaysian cases, Aminah (1998) found that the highest female labor force participation was within the age group of 20 to 24, coinciding with the end of schooling age and before the age of marriage. The decline in the participation rate after the age of 24 was related to marriage and the beginning of an active reproductive life. However, despite of the decline in the participation rate of women in

their early 20s, some of the women over the age of 50s remained in the workforce over the course of their reproductive lives.

In Pakistan, the probability of female labor force participation increased with age (Hafeez & Ahmad, 2002). Specifically, Ali Khan & Khan (2009) found that the participation in labor force had reached its maximum at the age of 39.49 years old, while the average age estimated was 41.61 years. The result was corroborated with the Pakistan national statistics, where labor force participation among women was highest in the age group of 40-45 years. In addition, a research done by Faridi et al. (2009) found that female labor force participation was highly influenced by their age and their responses were varied by different age groups.

Generally, Japanese female workers in the age group of 15-24 years were less likely to participate in economic activities due to early age of marriage (Sasaki, 2002). However, in rural areas, social constraints, lack of experience and skill, as well as still studying in various educational institutions were the reasons. Hence, the probability of female labor force participation rose for age groups of 25-34 and 35-44 years old. In contrast, female workers in the age groups of 45-54 and 55-64 years old were most likely to participate in the labor market because they already had the grown-up children and had more time to devote and focus in market work.

In addition, most studies showed that at a certain age, women tend to be in the labor market or go out of the labor market. However, not all studies support this finding. Euwals, Knoef, & Vuuren (2007) concluded that the female 'motherhood dip' around the age of 30s was indeed explained by the presence of children. It was, however, remarkable that the age profile began to decrease at 40 years old. Complementarity of leisure time with an older partner could be regarded as an explanation for the early

retirement which relatively happened among women. Besides, empirical results showed that women's age had a negative relationship with women's participation in labor force (Chaudhry & Jabeen, 2010).

iv. Education level of women

To date, many studies have adopted the Theory of Investment in Human Capital as their foundation because the education aspect is becoming increasingly important in the world of knowledge. Either men or women, everyone has realized that education can change their lives. Due to the significance of education with development of individual and the country, Becker (1962, 1994) elaborated that higher amount of education attainment increased the participation rate in labor market. Therefore, educated women portrayed greater LFPRs than less educated women (Cebula & Christopher, 2007; B. Spencer, 1973; Mahoney, 1961).

Moreover, there had been some compelling reasons (such as increase in knowledge, skill, ability) to expect a positive association between education achievement of women and their labor force participation. According to Euwals et al. (2007), high level of education resulted in high probability of participation. Nevertheless, the relationship between these two variables was not always positive. This mixed finding probably reflected the impact of interrelated socio-economic and demographic differences on women's participation in labor market.

Education displayed a positive effect on the decision to participate in the labor market for two reasons. First, if education is considered as an investment in human capital, then the recipient has to work in order to recover the cost of education. Second, if education

is considered as a consumption activity, the recipient will be induced to work because of higher earning potential since the opportunity cost of not working is higher (Ackah et al., 2009; Tansel, 2002). The differences in the level of education among women also gave different effects on their participation in the labor force. Although the ticket to work could be more easily obtained, married women would depend on other factors, such as education and income of the husband, as well as the age of children (Diah, 1998).

Along with the extension of schooling, especially for women, and a new system of values and attitudes that are more conducive to women abandoning their traditional role, the economic developments have given a substantial boost to their integration into the labor market. Over the past 15 years, this phenomenon has accelerated in the face of the growing importance of families with more than one breadwinner to provide for their basic needs and to improve the quality of their life. This steadily gave rise to participation of women in the labor market (Abramo & Valenzuela, 2005).

However, the effect of education to women depended on several different factors (Spierings & Smits, 2007). For example, having a husband increased the effect of education. This could be so because women without a partner profit less from secondary and tertiary education because they are already forced economically to go out and work. In the same line of thought, women living in cities would already have more opportunities, leading to a larger effect of education on women's labor force participation compared to women not living in a city.

Moreover, Ribound (1985) had specified that since the late 1950s or early 1960s, the participation rate for French women grew mainly due to the increasing effect of education. In fact, researches conducted in Malaysia (Rahmah & Noorasiah, 2014;

Norehan et al., 2012; Nor'Aznin & Norehan, 2007; Aminah, 1998), Indonesia (Diah, 1998), Japan (Yamamura & Mano, 2010; Sasaki, 2002), Pakistan (Chaudhry & Jabeen, 2010; Faridi et al., 2009; Ejaz, 2007; Hafeez & Ahmad, 2002), South Africa (Ntuli, 2007), Australia (Linacre, 2007), Korea (Lee & Chung, 2010), and Turkey (Ince, 2010) also proved that high education displayed a strong impact on the probability of women entering the labor force. This is in line with the theoretical expectations and attests to the fact that schooling, in general, and higher levels, in particular, increased the opportunity cost of women's time in household production (Sackey, 2005). If education could increase her productivity at home, she would prefer to stay at home, but if the opportunity cost of staying at home is greater for an educated woman, then she would prefer to work in the market (Khan & Khan, 2009).

Compared to other variables, education level showcased a very large coverage. Almost all studies showed a positive relationship between the level of higher education and the rate of female participation in the labor market. However, the phenomenon of educated women in Malaysia (based on the statistics) who did not work indicated that such higher education did not ensure or determine a woman to participate in the labor market.

v. Residential location

Locality of household (either in urban or rural) has a significant effect on the labor force participation of women. Ali Khan & Khan (2009) stated that rural women in Pakistan were more likely to participate in economic activities than urban women did. The poor financial conditions, larger family size of rural households, and general environment to work on farms might be the main reasons.

Other than that, the results obtained by Ntuli (2007) unveiled that female participation in the South African labor market was positively associated with urban residence. He managed to state women who lived in urban areas had greater chances of participating in the labor force as compared to those in rural areas. Besides, women who resided in urban communities were more likely to participate in Ghanaian market work.

The higher increase in the participation rates in the rural areas, especially for females, had been largely attributed to the positive outlook of the economy (Chaudhry & Jabeen, 2010). In rural areas, education had little impact on labor force participation (except at the university level) since most women were unpaid family workers, while in urban areas, female participation had been found to be responsive to different levels of education (Tansel, 2002).

The empirical results for Malaysia suggested that urbanization rates showed positive and significant effects on female labor participation. Nor'Aznin & Norehan (2007) highlighted that the probability of participation was significantly higher for women who lived in urban areas where jobs opportunities are greater compared to rural areas.

3.5.3 Family factors

Parents with higher education backgrounds had the tendency to ensure that their children are educated as well. But sometimes, the awareness upon the importance of education is more important than parents' education background. Besides, family factors had been found to be associated with a woman's marital status. For women with single status, usually, there is no problem for them to work in the labor market, but instead, it may be necessary for single mothers or those with a spouse who is not

working. Problems or challenges are often faced by women who have been married. This is because; besides having a role in the workplace, women play the roles of wife and mother, which require such high commitment in implementing the household.

i. Father's education

Parents always want the best for their children. Thus, for parents who are educated, they will make sure that their children have better education that would represent a better future. With education, the child will be able to live independently and get a good job for their own lives. For that reason, father's education had given a positive and significant association with women who worked in labor force (Ahmad & Hafeez, 2007; Hafeez & Ahmad, 2002).

Besides, Chaudhry & Jabeen (2010) suggested that the level of father's education had a very significant effect on women participation. Based on their empirical results, the low level of father's education had a negative effect on women participation and as the level of father's education increased, the rate of women participation increased as well. However, Faridi et al.(2009) found that the education level of fathers of females was not necessary for employment decision.

ii. Mother's education

A child who is familiar with the working mother environment would normally tempt to work during their adult time. They recognize that knowledge which had learned over the years would be considered as an investment for the future. Besides, those who work will have their own money and better social life. Due to that, the daughters of educated

mothers were more likely to participate in the labor force (Ahmad & Hafeez, 2007; Hafeez & Ahmad, 2002).

However, for those who consider acquiring the knowledge for consumption, education is a must to get the knowledge and better life style. As a result, employment is not the main goal after graduation (McConnell et al., 2010a). In this situation, the level of maternal education does not affect the status of employment among daughters. Thus, it was found that the education level of mothers of females was not necessary for employment decision (Faridi et al., 2009).

iii. Husband's education

Husband's education is an indicator of the fixed income earned by the husband. Normally, if the husband has attained higher education, his income will be high. The likelihood of women who entering the labor force was negatively associated with both moderate and high levels of husband's education. The findings in Indonesia suggested that husband's potential earnings with higher levels of education might allow the wife the option of not participating in the labor market (Diah, 1998). Moreover, Euwals et al. (2007) also agreed that when the partner had undergone their tertiary education, the probability of participation decreased.

The work status of married women was found to be significantly related to their husband's attitudes towards women, which had been determined by education. Educated husbands are likely to earn more income, where the economic status of the household can be kept high, and female involvement in earning activities would remain low. Ali

Khan & Khan (2009) also found that the level of the husband's education significantly affected the probability of women working.

The husbands who usually act as the head of households are always steer the activities of the household members. For married women, the decision of labor force participation had been found to be affected by the characteristics of the head of the household (Khan & Khan, 2009). The empirical results stated that the husband's level of education had been inversely correlated with women's participation in labor force (Chaudhry & Jabeen, 2010).

However, education could bring a change in the attitude of husbands to be more accepting towards working women. Therefore, the second situation may be statistically insignificant because of these offsetting effects. According to Hafeez & Ahmad (2002), two types of effects were possible due to the education of husband, which could affect each other. Educated husbands are also likely to earn more as compared to uneducated husbands. As a result, they may want their wives to stay at home and performing their household responsibilities, particularly pertaining child care. This means; higher level of education of the partner could have a negative effect on females' participation rates.

Furthermore, the presence of husband's education showed a positive and significant impact on women's participation decision (Faridi et al., 2009). The major reason of such high female's labor force participation in economic and business activities of educated spouse is due to the rising prices and the increasing poverty in developing economies like Pakistan. The educated husbands are considered as status conscious and they do not want to decrease their standards of living. Furthermore, they desire to educate their children in a better way. Considering these facts, both life partners participate in the

active labor force to raise their family income in facing the emerging economic challenges.

iv. Husband's employment status

Unemployment among the head of the family whether caused by illness, economic fluctuation, or labor disputes are threats to family economic security. Thus, an inverse relationship between labor force participation of married women and family income, a greater likelihood of employment are associated with unemployment of the family head (Mahoney, 1961).

In fact, results obtained by B. Spencer (1973) supported the idea that a married woman is more likely to be in the labor force if her husband is not. The regression coefficient showed that labor underutilization of husbands, in general, was likely to induce wives to enter the labor market (Diah, 1998). The general perception was that women usually enter into the work force due to financial constraints faced by the household (Ejaz, 2007). Thus, it is reasonable to infer that owing to the lower income of other family members, a female would move towards the labor market because of financial needs.

Women's labor force participation is generally caused by the vulnerability of the household economic, where the male adults are responsible for household expenditures. Ali Khan & Khan (2009) found that women with unemployed husbands and a husband's low level of income were more likely to be involved in economic activity. This is because; the labor force participation among women had been negatively related to the income level of their husbands.

v. Presence of children

For young mothers, having their first child would change their way of life than ever before having children. This is because; the management of infants or young children is not easy and it requires extra attention, care and patience. Thus, in order to continue working, they need to get their child care centers that are trusted with reasonable cost of care. Therefore, a study highlighted that the presence of children in the household might affect the employment status of the mother.

Furthermore, Mahoney (1961) stated that birth of children placed a premium upon the wife's presence in the home and the mother who continued to work. To those who choose to work, they would have strong feelings that such employment contributes to personal and family welfare. These women joined in the earlier years of their marriages, but dropped out of the labor force to care for their children. Nonetheless, they would continue their employment in later years.

On top of that, Hotchkiss, Pitts, & Walker (2008) made a conclusion from their analysis that women seemed to be responding rationally to the costs and benefits associated with the decision to exit the labor market at the birth of a child. The results provided fairly consistent evidence that the higher the marginal utility of not working (higher reservation wage), the higher the probability of observing a woman exit the labor market. For example, health concerns of the child, such as low birth weight and premature birth, could increase the exit probability. Therefore, even though they are educated, women had become increasingly likely and potentially to exit from workforce upon the birth of a child (Hotchkiss et al., 2010).

vi. Number of children

The size of the family had been inversely related to participation in the younger age range and positively related to participation in the older age groups (Mahoney, 1961). In agreement to that, B. Spencer (1973) also proved that the presence of three to five children rather than two or less had reduced the probability for a wife to be in the labor force. However, with six or more children, she would be about equally likely to be in the labor force. Women with many or young children around, can gain less profit from their education, which one could attribute to the fact that these women would still have to take responsibility for their children, which could hamper the effect of education (Spierings & Smits, 2007).

Meanwhile, Ackah et al. (2009) highlighted that the larger the number of children a woman had, the less likely she would participate in paid work. Agreed by Chaudhry & Jabeen (2010), the empirical result portrayed that the number or children inversely correlated with women's participation in labor force.

However, there had been two competing effects of increase in number of children on the female labor force participation decision. On one hand, married women who are living in families with a large number of children and the other dependents have greater economic pressure which can push them into the labor market. In contrast, the increment in the number of children could result to higher level of activities at home, and women may be inclined to stay at home in order to fulfill the increased commitments at home (Ahmad & Hafeez, 2007).

For developed economies, a clear evidence of an inverse relationship between fertility and female labor force participation had been discovered. The presence of high-level

child care centers outside home may explain the likelihood of a positive relationship between fertility and female labor supply. However, in some conversional societies, the worth of a woman is attached to the number of children she bears, the number of children in the household, and certainly this will impact on the mother's labor force participation (Khan & Khan, 2009).

In Pakistan specifically, where women's fertility is higher and women have larger number of children, the concept of day-care center does not yet exist. Hence, the number of infants in the household is speculated to influence the mother's labor force participation negatively. However, the number of children could turn out to be positive and significant determinants of female labor force participation. The reason may be the larger number of children which could lead to higher financial burden and economic pressure on the family and compel the females to join the labor market (Faridi et al., 2009). Based on a study in Malaysia, Rahmah & Noorasiah (2014) found that the number of children was another important obstacle for married women to be in the workforce.

vi. Age of children

Many studies have linked the age of children with the participation of women in the labor market. Tienda & Glass (1985) emphasized that the presence of children under six years old had decreased the LFPR. Besides, children were found to deter mother's labor force participation; not only if the children had been four or younger, but also if they were between ages five and thirteen years old (Grossbard-Shechtman & Neuman, 1988).

Meanwhile, in Indonesia, Diah (1998) explained that the presence of children, particularly those under five years old, had a significant negative impact on married women's labor force participation. Other than that, in Japan, labor force participation among Japanese women was significantly and negatively associated with the presence of preschool-aged children. However, the impacts of having older children on labor force participation among married Japanese women had been all positive and significant (Sasaki, 2002).

Moreover, mothers with children aged under twelve years old were substantially less likely to participate in the labor market (Mumford & Parera-Nicolau, 2003) and the decline in female labor force participation had been concentrated more among highly educated married women with young children (Bradbury & Katz, 2005). In Malaysia, Nor'Aznin & Norehan (2007) identified that the negative impact of having children from newborn until the age of six years old had been significant towards the level of female labor force participation.

According to Ejaz (2007), greater number of people in a household would lead to higher workload for the female members as they would be involved in household activities, such as fetching water, doing the laundry, preparing food, and looking after the family members. Therefore, his finding suggested that for a small number of infants and children per female, the participation rate increased, but it increased at a decreasing rate. Besides, Ntuli (2007) found that the presence of children aged below 15 years old in the household was harmonized with the theoretical assertion which mentioned that the age of children had the tendency to increase the housewife's value of time at home. Thus, the valuable time spending as a housewife would negatively affect the prospects of participating in the labor market, where the need for child care or housework is high.

There are also studies that looked into the presence of children in different age groups. Females with children aged from 0 to 2 and 3 to 6 years old were less likely to participate in economic activities. The reason behind the participation would be due to the females who had to look after their young age of children very properly. Nevertheless, the probability of female participation roses with children from 7 to 11 years of age (Faridi et al., 2009). Meanwhile, Yamamura & Mano (2010) brought up the issues that raising a young child could take up a significant amount of a mother's time and discourage her from participating in the labor force.

In addition, with strong empirical evidence, Cebula & Christopher (2007) showed that the female LFPR was negatively impacted by having relatively young children on board of the household. Besides, for the relationship between labor force participation and mothers with young aged children, Euwals et al. (2007) found that participation hiked once the youngest child attended primary school, and rises once again when the child attended secondary school. Besides, the research results obtained by Ackah et al. (2009) suggested that the presence of children under sixteen years did have a significant negative effect on female labor force participation.

3.5.4 Access factor

The determinants of female labor force participation which discussed previously have been proven and established by previous researchers. Each had a significant or insignificant relationship with the participation of women in the labor market. For the significant relationship, some results were either positive or negatively related to labor supply decision made by married women. In addition to prove the extent of the factors from previous studies, either related or not to the situation in Malaysia, this study

examined the relevant factors that were closely related to the participation of educated women in labor force.

In addition to the use of the Theory of Allocation of Time (Becker, 1965) and the Theory of Investment in Human Capital (Becker, 1962), this study also adapted the Theory of Access (Ribot & Peluso, 2003). This theory typically looked at the relevance of access to technology, capital, markets, labor, knowledge, authority, identity, and social relations. Although the theory does not discuss on access to Information and Communications Technologies (ICT) in the explanation on access to technology, the researcher believes that the ICT is part of the technology, which has brought so many benefits to humans. Thus, the new aspect offered by this study is to look at the access to technology, specifically the *Internet access* as one of the main branches of ICT.

ICT accessibility is a term used to describe the degree to which ICT is accessible by as many people as possible. Accessibility can be viewed as the "ability to access" the functionality, and possible benefit, of some systems or entities. Accessibility is often used to focus on people with disabilities and their right of access to entities, while often applicable through the use of assistive technology (Tiresias.org, 2009). Therefore, accessibility barriers occur when the design of ICT fails to allow for the variation in users' abilities.

Moreover, ICT is an umbrella term that includes any communication devices or applications, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. Besides, Haddon (2004) defined ICTs as all kinds of electronic systems which are applicable for broadcasting, telecommunications and computer-mediated

communications, such as personal computers, video games, interactive TV, cell phones, the internet, and electronic payments systems.

As accessibility to the Internet is important for education and development, the growing digital division may be reduced by utilizing wireless broadband, so that most of the remote areas can be taken into the Internet coverage. Hence, an improvement of information infrastructure can reduce the digital divide (Rahman, 2007).

Malaysians are opening up to the idea of ICT like elsewhere in the world at present. In fact, Malaysian citizens have begun to experience the reality of the information age, whether they realize it or not. ICT enables worker to do their job more efficiently, time saving, and cost saving, as compared to the struggling which had been faced during the non-ICT era (Suhaida et al., 2014). Besides, for women who tend to participate in the job market, ICT may help them to find a job effectively, to get information for child care, and could also perform the job at home (Baker & Subaramaniam, 2011).

i. Access to the Internet

High-speed Internet access could increase the participation of women in the labor market (Dettling, 2012). Besides being a more productive worker at the workplace, high accessibility to the internet may allow women to work from home or any other location. With the high access to internet, time can be saved, costs and hassle of commuting for employees can be lessened, while helping employers control, and often reduce the cost of fixed office space (Talent Corporation Malaysia Berhad, 2013a).

ICT can enhance poor people's opportunities by improving their access to markets and creating new employment opportunities. They also will be able to get access to

education, healthcare, government, and financial services (Mehta & Kalra, 2006). In fact, internet accessibility helps to enhance the job search process. Using the internet for job search raises the job finding rate and recruitment process becomes more efficient. Without high accessibility to the internet, the recruitment process becomes inefficient for individuals and organizations because they are forced to use the traditional methods (Choi, 2011). However, sometimes, some women refuse to make themselves equipped with ICT-related skills. They do not take the advantage of ICT-based services that can promote economic opportunities (World Bank, 2006).

However, some circumstances do not give a positive impact to users, such as poor internet infrastructure, shortage of power supply and high cost of computer equipment and telecommunication connections, as well as increasing difficulty in improving the accessibility of the internet (Sylla, 2002). Conversely, the ability to take advantage of these opportunities in technologies is dependent on conducive government policies and environment that allow an increase in the level of education, access to financial assistance, and the availability of infrastructure support (P.N. Prasad & V. Sreedevi, 2007).

The low accessibility of ICT in rural areas makes it difficult to search for information using the internet, the use of CCTVs as monitoring tools of the organization, and exercising all online transactions (Melhem & Tandon, 2009). Thus, it is believed that a sufficient level of ICT infrastructure and high access to the internet expected are crucial factors that could influence women's participation in the labor force market (Suhaida et al., 2013).

3.6 FACTORS ASSOCIATED TO CHILD CARE

In every society, women tend to spend more hours on unpaid work than men do. Strong social norms that see women as being primarily responsible for the home and children, with men as a breadwinner, have made it difficult for women to combine employment with family responsibilities (Noraini & Nor Diana, 2015b). Although both husband and wife are working, management of the household, such as tidying, washing, and cooking, is usually associated with women's work. The same goes for child care that is more likely to be handed over to the mother than the father. Thus, responsibilities of women in the household are associated with their participation in the labor market. What bothering married women is related to *if they can participate in the labor market*, *how much time they could spend in the office* and *how they could get a work-life balance*.

For married women with a family, they have an additional burden of child care (Rohaiza, 2009). Women with children generally show lower participation rates than women without children. The presence of children at younger age has a negative and significant effect on the hours worked. Besides, households with children younger than three years of age are less likely to have working mothers than households with older children because the custodial needs of young children place a competitive demand on the use of the mother's time. Such households are less likely to use formal child care arrangements.

For those women who need to work, child care arrangement needs to be done. However, even in Mediterranean countries, limited number of research have in fact investigated on how child care arrangements could give an impact on mother's employment (Nicodemo & Waldmann, 2009). Their study found that the percentage of women with paid jobs was very high as they used professional child-minders services, while low

when parents used unpaid care. This opinion supported a previous study by Lokshin (2004), which stated that women with children were more likely to be in the labor force and to use formal care.

Based on numerous studies from previous researchers, the researcher believes that issues of women participation related to child care arrangement can be discussed in several aspects. The literature suggests that child care issues can be described under the following headings: child care location, cost of child care, cooperation of family members, and child's health. This study explored how these four factors affected the participation of educated married women in the labor market.

3.6.1 Child care location

The availability of child care has been identified as one of the most important preconditions for married women's participation in the labor market. Analysis carried out by Del Boca & Vuri (2007) highlighted that the child care system characteristics led to child care decisions among parents and affected women's labor supply, as well as female employment rate.

Besides, since different facilities are available in urban, suburban, and rural areas, the availability of child care is also related to residential location. The estimation results by Herbst & Barnow, (2007) suggested that female labor supply was sensitive to the geographic supply of child care. Specifically, this research highlighted that increase in the number of center-based child care had been associated with the rising rates of female labor supply. For child care centers that are established based on profit-oriented,

the location they choose for the establishment of a child care center must be in a populous area and for those who can afford to pay.

3.6.2 Cost of child care

From the aspect of care costs, small children have a strong positive effect on expenditure compared to older children and this cost is higher in urban resident. Estimation result indicated that the cost of paid care had a small negative effect on labor supply, but stronger negative effects on paid care utilization (Ribar, 1995). New mothers require more effort than experienced mothers to care for the first child. The considerably large negative estimates for infants of age zero suggested that nursing new-born had been costly and time consuming (Ueda, 2007).

Meanwhile, Connelly (1992) examined the utility maximizing framework and predicted that child care cost affected one's participation decision through its effect on the net benefit of parental time in child care. The lower rate of labor force participation among mothers of infants and preschoolers had shown to be entirely the result of the higher child care cost.

Moreover, as expected by Herbst & Barnow (2007), supply of female labor had been quite sensitive to the cost of providing child care services. This means that if the price of child care is higher, it will lead to a reduction in labor supply. In addition, child care demand is low among low-income households and increased competition from other related services reduce the existence of a child care center in an area.

Furthermore, Du & Dong (2013) and Kimmel & Connelly (2007) stated that the increase of the costs of hired caregivers would markedly decrease mothers' labor hour

supply. Given that the wages for babysitters and nannies were highly correlated with the cost of child care services in the local market, the worsening of child care affordability had evidently become an important obstacle to urban mothers' labor market participation.

On the other hand, the cost of care may not be an important barrier to labor market participation. Non-employed mothers did not cite child care as the barrier preventing them from working and many two-earner families appeared to be able to adjust their schedules so as to avoid paying child care costs at all. Instead, factors, such as the cost structures associated with formal, informal, and parental care, attitudes regarding work and child rearing, and the work arrangements of working couples, appeared to be more important in the labor-supply decision (Wetzels, 2005).

In addition, since women typically serve as primary care providers for their children, female labor force participation behavior is likely to be affected significantly by the costs associated with replacing maternal care with non-maternal care. However, a research conducted by Kimmel (1998) proved that child care prices significantly impeded married mothers' labor force participation behavior. In addition, child care elasticity had been found to be affected dramatically by the manner in which the price of care measure was constructed.

While non-working mothers are more likely to keep their children in home care than working mothers, close to half of the children attending formal care have mothers who do not work. High costs of formal child care discourage households from using this arrangement and increase the number of households relying on informal care. Besides, it proved that costs of child care can affect women's labor force participation and labor supply decisions, as well as choice of child care arrangement (Lokshin & Fong, 2006).

3.6.3 Co-operation of family members

A research carried out by the Malaysian Ministry of Women, Family, and Community Development Malaysia (Ministry of Women and Family Development Malaysia, 2014c) asserted that women's participation in domestic and care tasks remained minimal. While women simultaneously take on responsibilities in household life and in the labor market, women also tend to be overburdened with work and demands as they continue to perform their traditional role as caregivers, a role regarded as natural.

Furthermore, especially for working women who are married, culture in Malaysia portrayed that the role of women was not only in the office (Noraini & Nor Diana, 2015b, 2015a). Upon returning to their homes, women had to manage their households. For those with children, the care of children had often been focused as the task of motherhood. However, if this woman had help from husbands or family members, their responsibilities when at home could be alleviated.

For those who work, as well as for those who do not, difficulty in adequately meeting child care needs is felt to be the most serious family-related problem caused by or exacerbated by women working. As a result, a research carried out by Rita (1979) found that the most frequently given reasons by Malaysian women for not working were related to the home and family. Accordingly, Norehan et al. (2012) stated that decision to participate in the workforce also depended on the availability of the custody of their children, especially for children aged six years and below.

In addition, Grossbard (1993) emphasized that spousal help in conducting matters of the household affected women's participation in labor market. Besides, the help of informal arrangements, such as grandparents and relatives, had enabled women to participate in paid employment (Nicodemo & Waldmann, 2009), while Albuquerque & Passos (2010)

found that child care by grandparents affected the probability of working among mothers in Southern European countries.

3.6.4 Child's health

Since women are more responsible in matters related to child care than parents, a sick child or children who are always unhealthy have an impact on maternal employment. For those who work, child care problems could interrupt work because these children need to be cared for and given more attention, especially for those with young children. They would be less likely to work if concerned child health and fewer working hours, as well as women worried about their children's health (Gould, 2004).

For example, mothers who had a child with asthma were less likely to be employed full-time or part-time. Meanwhile, for single mothers, they had been more affected by employment behaviors because finding a source of income had become their duties (Baydar, Joesch, Kieckhefer, & Kim, 2007). However, a few child's health measures negatively affected the mother's employment and labor force participation (Ke Meng, 2012; G. Loman, 1990).

3.7 THEORETICAL FRAMEWORK

The Theory of Investment in Human Capital (Becker, 1962) explained that individuals with higher education have higher participation rates in the labor market. As the focus of this study had been related to educated women, they had been expected to join the labor market with relatively higher earnings expectations. However, the main theory that encapsulated in the study was the Theory of Allocation of Time (Becker, 1965),

which explained that labor led to the division of their time to working hour (consumption) and leisure hour.

Furthermore, this study proposed a new aspect of modification. It is argued that while the Theory of Allocation of Time asserted that labor supply takes into account the optimal distribution between consumption (via wages) and leisure, this study proposed that women (especially those married with children) followed a different model. Essentially, the proposition had been that women first allocate time to nurture her family and this comes into effect if they are married with children. However, if they have no children, the standard Theory of Allocation of Time still applied.

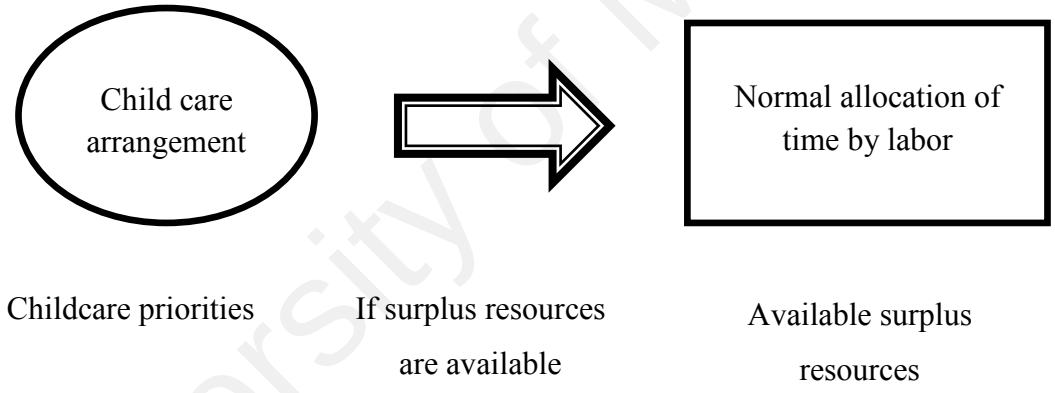


Figure 3.2 : Theoretical framework of the study

After the decision is taken on child care, and if, and only if family priorities can be met, then any good amount of time remaining, deemed sufficient for work, will only then, be subjected to the usual distribution between consumption and leisure. This circumstance can be explained by **Figure 3.2.**

Other than that, the Theory of Access (Ribot, & Peluso, 2003) offers a partial explanation in that access to technology delivers the capability for women to work from home and to perform day-to-day activities online; thus freeing time for childcare. In line with their education status, high access to technology allows individuals to achieve more benefits, as discussed in the Theory of Access. With higher education and access to technology, women tend to join the labor market. Besides, being highly educated may ensure that they receive a higher income and it can function as a stimulus to remain in the labor market.

High access to internet and ICT (as part of technology) also makes it easier for women to do their work (either in the office or at home) while not abandoning the responsibility related to household. These benefits, in fact, ensure women are able to distribute work time and leisure time more effectively. For those with children, these factors are expected to affect the likelihood of the mother, whether working or not, in the labor market. Therefore, the combination of the three theories had been employed to construct the conceptual framework of this study (as depicted in Section 4.3).

Furthermore, numerous researchers have attempted to classify reasons for women's participation in the labor market based on a group of factors. For example, Mahoney (1961), Diah (1998), Hafeez, and Ahmad (2002), Faridi, Chaudry, and Anwar (2009), as well as Hotchkiss, Pitts, and Walker (2010) categorized their variables into a few groups to analyze the relationships between each group of variable to the choice of women, either to work or not to work in the labor force. This is because; a single variable usually would not give a tremendous impact upon women's decision to work.

3.8 CONCLUSION

In reality, the allocation of one's time that depends on trade-offs is more complex than a simple choice between work and leisure. Besides, working women, including those who are highly educated, are often faced with the dilemma in dividing their responsibilities at the work place and managing the domestic task, while married and having children.

Moreover, variables, such as level of education, income, and demographic background had been proven to be correlated with the rate of female participation in the labor market. Recently, the accessibility of the internet is said could help to facilitate the work of women. Besides, most studies of women's labor force participation have included a set of variables, which indicated the presence of young children in the household.

The presence of young children could lower the probability of participation. This may be because; child care issues would be incurred if the mother participated in the labor market. However, in developed countries, previous studies found that the child care arrangement that met the needs of parents gave an opportunity for women to actively participate in economic activities.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 INTRODUCTION

In order to examine the labor supply decision of educated married women's participation in Malaysian labor force and to what extent it can be associated with child care arrangement, a sequential explanatory mixed method approach was adopted. For the quantitative part, an online survey was conducted on women who had completed their tertiary education in Malaysia. Besides, a binomial logistic regression was used to analyze the factors that influenced their decision to participate in the labor market. Thus, two models were designed to determine if the presence of children made differences.

In addition, the results of quantitative research had led to a qualitative study. Hence, in order to discover the challenges faced by educated mothers with presence of children, a semi structured interview was organized with some married women to explore the real problem related to child care issues. For validation purposes, data triangulation method was employed. Moreover, interviews with experts and individuals directly involved with the government policy for empowerment of women were conducted. For both categories of interview, content analysis was used to depict the issues faced by Malaysian educated married women. This chapter discusses in detail the research methods used to answer the research questions. The first part explains the design of the study that had been adopted. Afterwards, the first phase of the study involving quantitative section is detailed before the qualitative part is provided.

4.2 RESEARCH DESIGN

From the existing studies, it was observed that there is lack of studies in Malaysia that focused on educated married women. In addition, to what extent issues of child care affected women's decision to work also had not been highlighted. As an educated person, perceived women's participation in the labor market is indeed necessary to benefit themselves, their families, communities, and countries. However, due to the sense of responsibility, a mother usually gives priority to their children care over her own career. As this research focused on educated married women, mixed methodology with a form of explanatory study approach provided additional information on how educated women made their choices in relation to their career, especially when dealing with the issue of child care.

4.2.1 Mixed method research

Johnson, Onwuegbuzie & Turner (2007) stated that besides recognizing the importance of traditional quantitative and qualitative research, mixed method offers a powerful third paradigm choice that often will provide the most informative, complete, balanced, and useful research results. Hence, mixed method research is the third methodological or research paradigm (along with qualitative and quantitative researches).

Furthermore, Plano Clark & Creswell (2008) highlighted that with mixed method approach, researchers can give equal priority to both quantitative and qualitative researches, emphasize qualitative more, or emphasize quantitative more. This emphasis could be the result from practical constraints of data collection, the need to understand one form of data before proceeding to the next or the audience preference for either

quantitative or qualitative research. In most cases, the decision probably rests on the comfort level of the researcher with one approach as opposed to the other.

Moreover, most researchers agree that no single method can capture the whole and complex reality (Freshwater, 2007). As a result, the mixed method research is a type of research where a researcher or a team of researchers combines elements of qualitative and quantitative approaches for the purpose of breadth and depth of understanding and corroboration. Creswell (2012b) also added that the application of mixed approach in collecting and analyzing quantitative and qualitative data is a good design to build on the strengths of both quantitative and qualitative data, especially when one type of research is inadequate to address the research problem or answer the research questions.

The rationale for mixing both kinds of data for this study is grounded to the fact that neither quantitative nor qualitative method is sufficient by themselves, to capture the trends and the details of a situation (Creswell, 2012b; Leech & Onwuegbuzie, 2009; Teddlie & Tashakkori, 2009; Ivankova, Creswell, & Stick, 2006). When used in combination, both quantitative and qualitative methods complement each other and allow for a more robust analysis, taking advantage of the strengths of each method.

Besides, the quantitative and qualitative strategies may fulfill different purposes; they are not flawed for not fulfilling every need of the researchers. A questionnaire strategy requires a researcher to know the structure and the potential content of all the answers before the study begins, whereas the interview represents a population with the richness of new and unanticipated understandings that are achieved (Ridenour & Newman, 2008). In line with the opinions, this study, concerning the participation of educated married women in Malaysian labor market, began with the quantitative approach (online questionnaire) and followed by the qualitative approach (interview). A letter of

authorization from the university to carry out the collection of data is shown in **Appendix 3**.

4.2.2 The sequential explanatory design

Recognizing that any quantitative or qualitative study has advantages and disadvantages, both methods had been employed in this study to achieve the stated research objectives (as discussed in chapter 1.4). For the first two research objectives, this study applied the quantitative methods, while the third research objective was achieved via qualitative method. Moreover, previous studies that formed the basis for selecting this method are described in subsequent paragraphs.

In order to conduct a mixed method research in an effective manner, Johnson et al. (2007) insisted that at the beginning, the researcher needs to consider all relevant characteristics of quantitative and qualitative researches. Mixed method research also is an attempt to legitimate the use of multiple approaches in answering research questions, rather than restricting or constraining the researcher's choices. When undertaking a mixed method study, the researcher uses qualitative research methods for one phase or stage of a research study and quantitative research methods for the other phase or stage of the research study. Thus, qualitative and quantitative research studies are conducted either concurrently or sequentially (Leech & Onwuegbuzie, 2009).

On top of that, Creswell (2012b) described six somewhat overlapping mixed method research designs, referred to as strategies of inquiry, that guide the construction of specific features of a mixed method study. The designs vary in whether qualitative and quantitative data are collected sequentially or concurrently. Hence, the weight given to

one kind of data or another, when the mixing is done, and the extent to which a theoretical perspective (e.g., post-positivism, constructivism) is present, guides the research design. The most frequently used design in mixed methods approach is the sequential explanatory design.

Sequential mixed methods sampling used information from the first sample to draw the second (Creswell, 2012b; Teddlie & Tashakkori, 2009). The design is used to enhance, complement, and in some cases, follow up on unexpected quantitative findings. The focus is on interpreting and explaining relationships among variables, guided by a particular theory. Therefore, the supplemental data set is collected *before* or *after* a dominant data type in a particular study.

Based on the same idea, Harwell (2011) added that in ways to support rigorous examinations of promising educational ideas results, the separate phases of design, data collection, and reporting for both qualitative and quantitative data are considered as strengths, because this arrangement is relatively easy to implement. The rationale for this approach is that the quantitative data and their subsequent analysis provide a general understanding of the research problem. The qualitative data and their analysis refine and explain those statistical results by exploring participants' views in more depth (Creswell, 2012b; Teddlie & Tashakkori, 2009; Ivankova et al., 2006). However, Cameron (2009) had emphasized that the decision to employ this design depends on the study purpose and the research questions seeking for contextual field-based explanation of the statistical results.

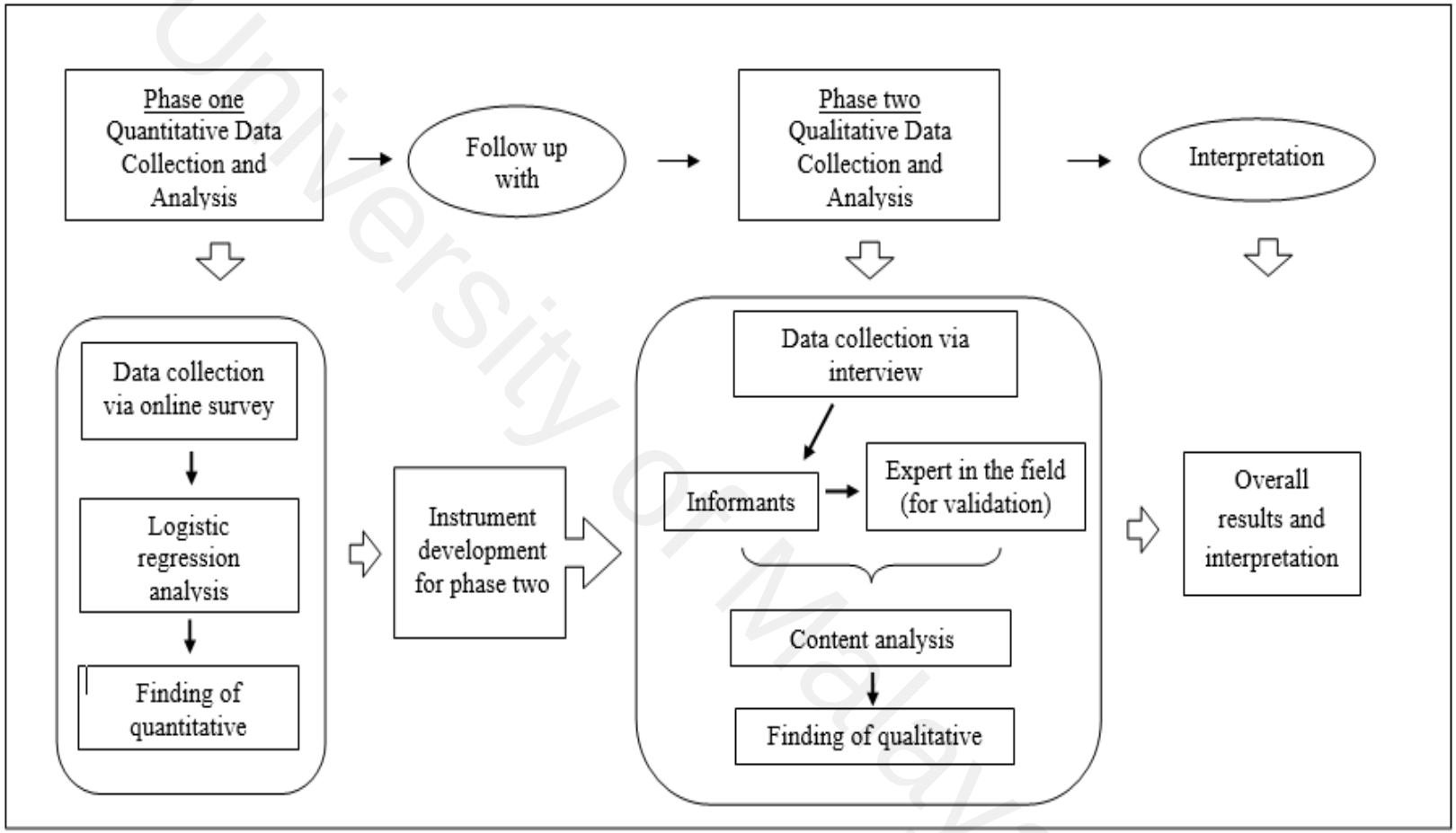


Figure 4-1 : Explanatory Sequential Mixed Method Design for the study

Figure 4.1 shows that this study adopted the Sequential Explanatory Design, which had two phases. The quantitative methods were used in the first phase, while the qualitative methods were applied in the second phase.

For the first phase, the data were collected via online survey. Meanwhile, Logistic regression was used to analyze if the independent variable influenced educated women's participation in labor market. Two models were developed to represent educated married women and educated married women with children. The proposed process assured that the regression model provided critical information about the overall efficacy of the variables of interest for predicting the criterion (Lebreton, Hargis, Griepentrog, Oswald, & Ployhart, 2007). Based on the findings of this regression analysis, instruments for qualitative data collection were constructed.

Other than that, a series of interviews with respondents from phase one was set to achieve the third research objective. As for validation for the information obtained from the informants, triangulation of data was done. Bryman (2011) and Guion (2002) stated that the use of data triangulation, a process of gathering data through several sampling strategies, is to investigate the research question in order to enhance confidence in the ensuing findings. These data are collected at different times and in different social situations. For that reason, the researcher also interviewed those who were experts in their fields and senior officers who were directly involved with the efforts of the Malaysian government to boost empowerment of women, in order to verify the information provided by the informants.

In addition, all responses obtained from the interviewees were analyzed via content analysis to identify the extent of issues related to child care arrangement that restricted educated married women with children from continuing or to remain in the labor force.

The findings from this qualitative part were analyzed first before they were concluded thoroughly with the findings obtained from the quantitative part.

4.3 CONCEPTUAL FRAMEWORK

Based on the Neoclassical model on individual labor supply and the three theories adapted, the conceptual framework built is shown in **Figure 4.2**. 17 independent variables had been associated with one dependent variable, namely, labor force participation of educated married women. This figure enlightens the key factors that had been tested and analyzed to determine participation among educated married women in labor force. Moreover, four variables were included in the set of economy factors, five variables were in socio-demographic groups, seven variables were associated with the family group, and one variable was in the category of access factor.

As shown in **Figure 4.1**, all the variables displayed in the research framework had been related to the Theory of Allocation of Time. Meanwhile, variables related to education and income had been associated with the Theory of Investment in Human Capital, whereas the access factor was associated with the Theory of Access.

In addition, for educated women with children, variables *number of children* and *children aged less than six years old* are detailed. This is because; these two variables had been related to child care arrangement issues. As stated in a previous study, the challenge in child care arrangement had become the main causes of labor supply decision among educated married women to participate in labor market.

4.4 RESEARCH HYPOTHESES

The construction of variables selected for the hypotheses testing was based on two main sources – the literature review and suggestions from a pilot test. Reviews of the relevant literature on determinants of women's participation in labor force provided an early indication of the possible variables to be used. Next, the pilot test played a big role in delating and adding variables, as per respondents' suggestions. The pilot test also ensured that the questionnaire was tailored to the Malaysian scenario.

Thus, in order to answer the research questions specified in chapter 1, specific research hypotheses had been developed. In order to examine the labor supply decision of educated married women (Model 1) and educated married women with children (Model 2) in the labor force, the hypotheses had been developed. Altogether, 17 hypotheses were tested for each model. As qualitative research is not really designed for hypothesis testing, no hypothesis was created for research objective 3.

For research objective 1, the hypothesis tested was H_1, while for research objective 2, the tested hypothesis was H_2.

H_1: There is a relationship between the influencing factors on educated married women's decision to participate in labor force

H_2: There is a relationship between the influencing factors on educated married women <u>with children</u> in their decision to participate in labor force

Detailed hypothesis for each variable in Model 1 and Model 2 is shown in **Appendix 2**.

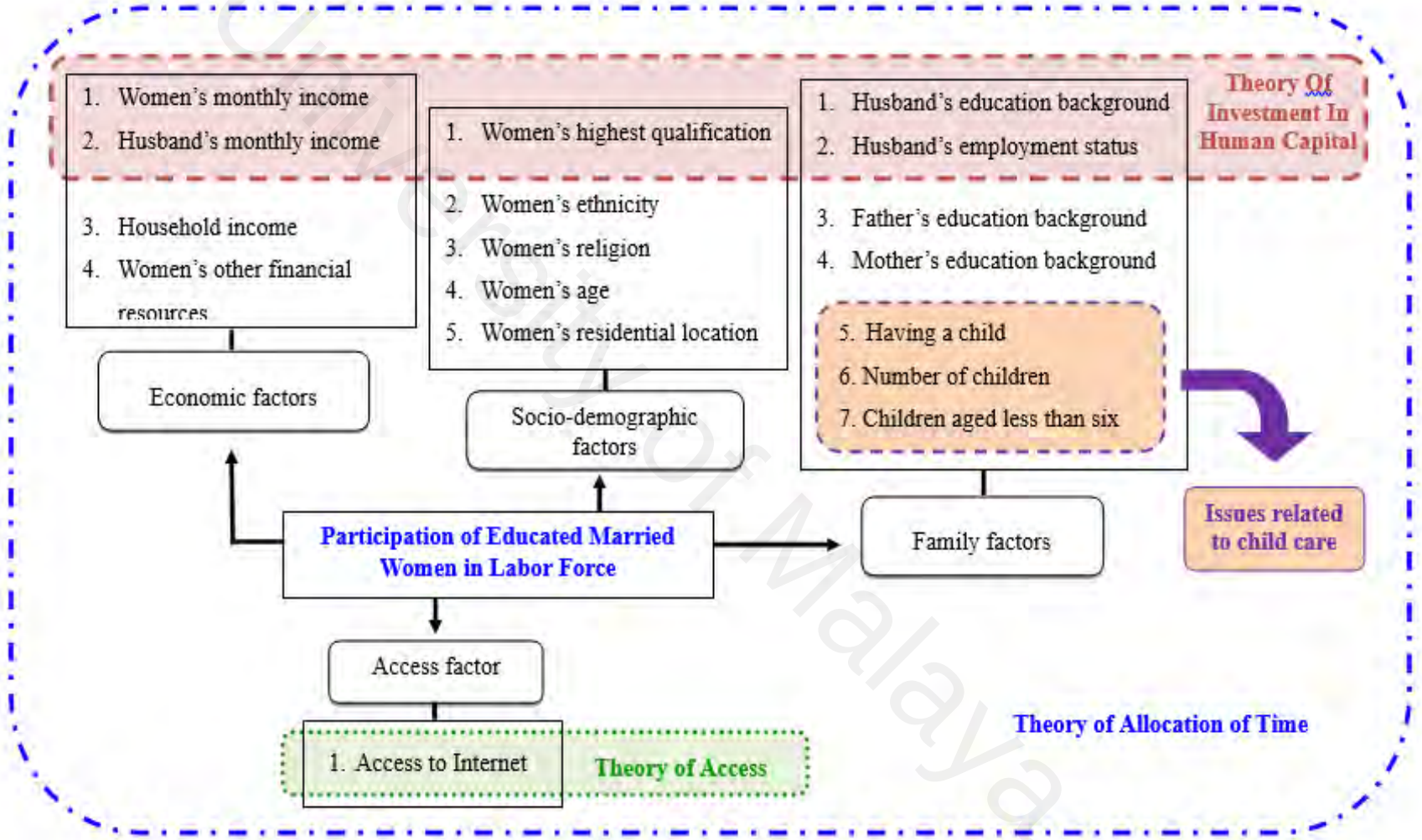


Figure 4-2: Research Framework

4.5 PHASE 1 - QUANTITATIVE APPROACH

The quantitative research attempts to maximize objectivity, replicability, and generalizability of findings and is typically interested in prediction (Harwell, 2011). According to Kothari (2004), quantitative research is based on the measurement of quantity or amount and applicable to phenomena that can be expressed in terms of quantity. Hence, the representative samples tend to be associated with larger surveys and with the use of quantitative data (Denscombe, 2010). The first phase of this study (via quantitative approach) focused on individual labor supply decision made by educated married women in Malaysia.

Although previous studies have shown the relevance of factors with the participation of women in the labor market, the focus of this study had been a group of married women with tertiary education. The research framework (explained in chapter 3.7) shows that participation of educated married women in the labor market were influenced by several variables in four categories; economic, socio-demographic, family, and access factors.

Gender gap in the ratio of employment-to-population cannot be explained by the level of economic development of a country. This is because; the phenomenon of lower LFPRs among women may occur even in high-income countries. Besides Jordan, Saudi Arabia, Pakistan, Egypt, and India, as well as developed countries like Japan and Italy, also faced similar issues concerning female participation rate in the labor force, which did not exceed 50 percent in 2012 (International Labor Organization, 2012a).

Hotchkiss et al., (2010), Mahoney (1961), and Becker (1960) stated that the presence of children made women less likely to work. In fact, various studies found that the number of children exhibited a significant correlation with female participation rate in the labor

force (Chaudhry & Jabeen, 2010; Ackah et al., 2009; Faridi et al., 2009; Ahmad & Hafeez, 2007; B. Spencer, 1973). Besides, many researches indicated that age of the children contributed to the woman's choice to either work or not (Yamamura & Mano, 2010; Faridi et al., 2009; Nor'Aznin & Norehan, 2007; Mumford & Parera-Nicolau, 2003; Sasaki, 2002; Diah, 1998; Grossbard-Shechtman & Neuman, 1988; Tienda & Glass, 1985).

As a result, this study also examined if there was any difference between the factors that affected participation among women without children compared to those with a child. Consequently, two models were developed; Model 1 is the labor supply model for educated married women (overall) and Model 2 is the labor supply model for educated married women with children. Furthermore, the empirical framework for this research is presented lastly since a few variables were dropped while running the logistic regression.

4.5.1 Population

A population is a group of individuals with similar characteristics. In practice, quantitative researchers have to get their sample from lists and related people available. A target population (or the *sampling frame*) is a group of individuals (or a group of organizations) with some common defining characteristics that the researcher can identify and study. Within this target population, researchers then select a sample for the study. This means; a sample is a subgroup of the target population to study for generalizing about the target population (Creswell, 2012a; Sekaran & Bougie, 2009). Consequently, the first step in the process of collecting quantitative data is to identify the people and places one plan to study (Creswell, 2012a).

Based on the statistics from the Labor Force Survey Report for Malaysia in 2012, there were 9.65 million women at working age group in Malaysia. **Table 4.1** shows the data of women in working age group in Malaysia according to those employed, unemployed, and outside the labor force.

It is shown that 4.63 million (48.0 percent) were employed, 151 thousand (1.6 percent) were unemployed, and 4.88 million (50.5 percent) were outside the labor force (DOSM, 2013a). Meanwhile, the total population for all educated women was about 1.5 million. Furthermore, specific to those women in labor force with tertiary education attainment, a total of 1.46 million were in the category of employed, while 61.76 thousand were unemployed. This means; for the composition of educated women, about 95.9 percent of educated women were employed, whereas 4.1 percent were unemployed.

As this study described the decision to work or not to work by educated married women, the population used was married women with education up to tertiary level. However, no such data had been available. Tracer Study (Subsequent) 2008/2009 conducted by the Malaysian Ministry of Education (Ministry of Education Malaysia, 2010) stated that the number of graduates who were married had been 19.8 percent of the total women respondents in their study.

4.5.2 Sampling

In order to address the research objectives of this study, phase one of this mixed method research began with data collection by using questionnaire. Therefore, sampling for the questionnaires is discussed prior to sampling for interviews.

Table 4.1: Statistics of women at working age population, 2012

Items			Number	percent	Number	percent
Population of women at working age					9,654,900	100.0
1.	In labor force					
	a.	Employed			4,629,700	48.0
		No formal education	171,299	3.7		
		Primary	666,677	14.4		
		Secondary	2,328,739	50.3		
		Tertiary	1,462,985	31.6		
		Total	4,629,700	100.0		
	b.	Unemployed			151,000	1.6
		No formal education	4,832	3.2		
		Primary	9,362	6.2		
		Secondary	75,047	49.7		
		Tertiary	61,759	40.9		
		Total	151,000	100.0		
2.	Outside labor force				4,874,200	50.5
		No formal education	258,333	5.3		
		Primary	887,104	18.2		
		Secondary	2,690,558	55.2		
		Tertiary	1,038,205	21.3		
		Total	4,874,200	100.0		

Note: These figures were recalculated by the author based on the data obtained from several different sheets of the report. Figures from the percentage had been more accurate than the figures of numbers because the data from DOSM were in ('000) and it may be rounded to the nearest decimal.

Source: Labor Force Survey Report, Malaysia (DOSM, 2013)

For the questionnaire, this study selected respondents from the Tracer Study (Subsequent) 2008/2009 conducted by the Malaysian Ministry of Education. In addition, the Tracer Study (Subsequent) 2008/2009 was the second phase of the survey conducted online in order to ascertain the availability of jobs for graduates in the country (Malaysian Ministry of Education, 2010). With cooperation from the ministry, approximately 7,000 women with tertiary education were identified.

As a matter of fact, it had been rather challenging to attain a huge number of respondents who might best represent the millions of educated married women across Malaysia. With various limitations that existed, the method of selecting respondents based on Tracer Study, which was conducted by the Malaysian Ministry of Higher Education, had been the best choice. This is because; the ministry had a database of graduates from the higher education institutions (public and private), including their email addresses. However, in order to protect the confidentiality of the information provided by the respondents, only email addresses were supplied to the researcher for the purpose of this study.

Tracer Study (subsequent) for year 2008/2009 was selected because the distribution of the respondents within this period involved a wider range of locality, ages, and education levels. In addition, after several years, it had been expected that many respondents would have been married and had children.

The formula employed to obtain the sample size used by the Ministry is given in the following;

$$\text{Sample size} = \frac{z^2 p (1 - p)}{c^2}$$

Where;

z - z value (e.g. 1.96 for 95 percent confidence level)

p - percentage picking a choice, expressed as decimal (0.5 used for sample size needed)

c - confidence interval, expressed as decimal (e.g., 0.04 = ± 4)

The total number of graduates for year 2007 was 158,977 (Malaysian Ministry of Education, 2010). Using this value as the population and confidence interval of 0.95, stratified sampling was computed by level of education. Based on student records kept by the ministry, methods of email and short messaging system (SMS) were used to distribute information about the questionnaire. In addition, announcements were made through the print media (Utusan Malaysia, The Star, and New Straits Times) and brochure distribution.

Promotion of the survey was also made widely through websites, radio, and television. Furthermore, in order to encourage participation of graduates in this study, several gift incentives were provided to respondents based on those randomly selected. As a result, 13,810 graduate responses had been found adequate to represent the population of graduates in Malaysia (Malaysian Ministry of Education, 2010). Of these, 7,716 people or 55.9 percent were women and of women, only 19.8 percent (1,513 women) were married.

According to Krejcie & Morgan (1970), the required sample for a population between 7,000 and 8,000 people is approximately 366 to 367 of people. Besides, using the sample size calculator, 366 sample had been required for 7,716 women population

(Creative Research Systems, 2013). However, in order to represent the real number of educated married women in Malaysia with more than 1,000,000 people, the number of respondents should about 384 (Krejcie & Morgan, 1970). Therefore, at least 384 educated married women as respondents must be obtained as sample survey.

As shown in **Table 4.1**, only 4 percent of women with tertiary education were unemployed. Based on stratified sampling from the total of female population in the Malaysian labor force, only 15 or 16 women who did not work had been needed. On the other hand, according to Isaac & Michael (1995), large samples are essential when the total sample is to be sub-divided into several sub-samples and to be compared with one another. Even V. Lenth (2001) added;

> *"An under-sized study can be a waste of resources for not having the capability to produce useful results, while an over-sized one uses more resources than necessary".*

Besides, taking into account that the Tracer Study, which was carried out in 2009, thus it was possible that the emails of the respondents were already inactive, while marital status and other information could be changed. Moreover, in case of less likelihood to provide response, questionnaires for this study were distributed to all 7,716 female respondents from the Tracer Study (Subsequent) 2008/2009, which is initiated by the Malaysian Ministry of Education. Furthermore, in order to obtain the updated status of their marriage and employment, the answers from the respondents retrieved from the questionnaire itself had been used. Moreover, the number of educated married women who were employed or unemployed should at least meet the sufficient values to analyze the data.

4.5.3 Setting the alpha value

Statistical significance testing for the estimated coefficient in regression is necessary when the analysis is based on a sample of the population rather than census. Establishing the significance level (alpha) denotes the chance of the researcher, who is willing to take of being wrong about whether the estimated coefficient is different from zero (Hair, Black, Babin, & Anderson, 2010).

In social research, the most widely used level of significance is 0.05 (Hair et al., 2010; Ho, 2006; Tabachnick & Fidell, 2001). If the researcher desires a small chance of being wrong, lower value of significance level (e.g.:.01 or .001) can be set, but it is hard to find the significance level. Increasing the significance level to a higher value (e.g.: .1) allows for a large chance of being wrong because the researchers are willing to accept smaller group differences as significant (Hair et al., 2010). For this study, the level of significance or the alpha that had been set was .05. Accordingly, any variable for this study was statistically significant when the *p-value* was less than the significance level.

4.5.4 Specification of the Models

In order to test the hypotheses, two models for discrete choice are described in this section, which are (i) the two-way choice model or binary logit model for educated married women, and (ii) the two-way choice model or binary logit model for educated married women with children. **Table 4.2** provides the list of the independent variables used in this study.

From **Table 4.2**, both models employed the similar 14 independent variables (as listed from number 1 to 14 in Table 4-2). Since two different models were presented, one

specific independent variable (no. 15 - having children) was used for model 1, while two specific independent variables (no. 16 - number of children and no.17 - having child less than six years old) were used in model 2. Besides, since both models shared 14 independent variables, the signs for testing hypotheses for both models had been expected to be in the same direction.

Table 4.2: The measures and the relationship of independent variables with participation in labor force

	Variable	Expected Relationship
Model 1 (Educated married women)		
1	Monthly income	Positive
2	Other financial resources	Negative
3	Husband's monthly income	Negative
4	Household monthly income	Negative
5	Ethnic	-
6	Religion	-
7	Age	Negative
8	Women's education	Positive
9	Residential location	Negative
10	Father's education background	Positive
11	Mother's education background	Positive
12	Husband's education background	Positive
13	Husband's employment status	Negative
14	Access to internet	Positive
15	Having children	Negative
Model 2 (Educated married women with children)		
16	Number of children	Negative
17	Having children less than six years old	Negative

Based on the literature review, six variables had been expected to have positive coefficient, while nine variables had negative impact on women's participation in labor market. As many previous studies stated that the local background, such as ethnicity and religion, affected the way of life, no estimates had been made (no prior expectation) for variables ethnicity and religion.

From the aspect of collecting data from the respondents, this study would be more appropriately called as *internet research* because it combined the use of email and web-based study. Email is used as an initial contact with the respondents. The web survey was employed because a web page questionnaire can include a wide variety of question types and can be programmed to skip questions when necessary (Sue & Ritter, 2007). Consequently, in order to conduct a Web-based survey for this research, SurveyMonkey.com was used as the Web-based survey host.

The respondents were approached by using the email addresses supplied by the ministry. In the emails, information related to the researcher and the purpose of the study had been stated. In fact, the researcher had detailed that this study was for academic purposes and confidentiality for all the responses was guaranteed. Together with the email, a link to the web-based survey was included (www.surveymonkey.com/s/Participation_of_Educated_Women_in_Labor_Force) for respondents to answer the questionnaire.

Questionnaires in both English and Malay languages were used to provide an alternative for which language they preferred and understood the most. If the respondents failed to respond, a similar email was sent again every two weeks, making six emails being sent to the same person within the period of data collection. On top of that, a reminder email was sent to respondents who did not complete the questionnaire.

4.5.5 Addressing the challenges of specifying the location of residence

The definitions of urban vary between countries. Weeks (2011) defined urban as a place-based characteristic that describes the degree to which the lives of a spatial concentration of people are organized around non-agricultural activities. The urban status of a place is determined based on a range of elements encompassing population size and density, social and economic organization, as well as the transformation of the natural and agricultural environments into a built environment. Moreover, due to spatial and temporal variability of such elements, the degree of urban status differs across country.

Indeed, many studies and statistics in Malaysia have divided the areas into urban, suburban, and rural or urban and rural areas. However, such studies made by institutions or organizations have information pertaining to locations the respondents. However, this study used the online questionnaire answered by the respondents. Therefore, knowledge about the location of residence, whether in urban, suburban or rural areas, had been difficult to ascertain by the respondent (as occurred during pilot study).

Therefore, the **proxy variables** approach had been utilized. Proxy variables are extremely important and frequently used in the social sciences because of the difficulty or impossibility of obtaining measures of the quantities of interest (Michael S., Bryman, & Liao, 2004). Hence, to avoid any doubt and wrong answers related to the location of residence among the respondents, the question asked in the survey had been "Which local authority is responsible for the location of your residence?" Three answer choices provided were *City council, Municipal council*, and *District council.* Information related to the local authority, usually known by the respondents and for that reason, had been used as a proxy for the distribution of the residential location.

According to Local Government Department, Malaysian Ministry of Urban Wellbeing, Housing, and Local Government (Local Government Department, 2013), city council is a local authority that should include administrative center in the state with population not less than 500,000 peoples. Besides, each city council should be able to prepare services at a high level, give attention to rapidity of the service sector, and have complete infrastructural facility. By definition, therefore, respondents who claimed that the local authorities in their residence were the "city council", it could be assumed that they proxy as living in urban areas.

Meanwhile, areas under the administration of municipalities proxy as the suburban area where the total population is at least 150,000 people. The provision of services by local authorities is still ongoing for further enhancement in order to increase economic growth, as well as business and commercial sectors. Those who stated their local authorities as "municipal council" are proxy as living in sub-urban areas.

Other than that, respondents who claimed that their place of residence was administered by the "district council" were proxy living in rural areas. In terms of services, the district council as local authorities focused on providing infrastructure and public facilities for a population less than 150,000 people. Moreover, at the time the study was conducted, there were 12 city councils, 39 municipalities, and 98 district councils in 12 states and two federal territories in Malaysia (Local Government Department, 2013).

4.5.6 The instrument

The online questionnaire began by stating the purpose of the questionnaire and the characteristics of respondents required. Besides, in order to ensure that only those who

met the criteria answered the questionnaire, two preliminary questions disqualified male respondents and those who were no longer living in Malaysia.

Table 4.3: Summary information related to the questionnaire

	Questionnaire	Variable / topic related	No. of question
1	Economic factors	Monthly income	6
		Husband's income	
		Other financial resources	
		Household income	
2	Socio-demographic factors	Ethnic	8
		Religion	
		Age	
		Highest qualification	
		Residential location	
3	Family factors	Father's education	6
		Mother's education	
		Husband's education	
		Husband's employment status	
		Number of children	
		Age of children	
4	Access factor	Access to internet	15
5	Other related questions	Validation question	5
		Employment status	15
		Child care	2
		Others	11
	Total number of questions		68

The question about marital status was asked as their background and to sort them by marital status, whereas question about employment status divided the respondents into categories of women who worked and unemployed when they answered the questionnaire.

When the questions were printed, they did not seem structured in accordance with the variables. This was because; the questions were arranged based on the practice of obtaining a person's background and the related questions were presented consecutively.

As shown in **Table 4.3**, a total of 68 questions were posed to the respondents. Of these, six questions were related to economic factors, 8 were related to socio-demographic factors, 6 questions were related to family factors, and 15 questions were linked to access factor. Meanwhile, the remaining 33 questions were asked for verification and to get additional information.

4.5.7 Pre-data collection

In carrying out the data collection via internet survey, five phases were undertaken. In the first phase, the questions were formed to verify the extent of variables from previous studies. Thus, questionnaires examples from previous studies became a source of references (Norehan et al., 2012; Nor'Aznin & Norehan, 2007; Anaman & Kassim, 2006). Besides, in order to ensure that they were relevant to the context of Malaysia, the questions were reorganized, processed, and reconstituted based on the needs of the study. At this stage, the questionnaire set consisted of 5 parts and covered 57 questions to be completed by the respondents.

The next phase was to upload the questions into the web survey system. This system was organized and managed to select some technical aspects for it to be tested repeatedly in order to avoid technical errors. This was because; the correct form of the question-and-answer format created in this web system could be directly transferred to Excel or SPSS format.

For example, if the respondents were uninterested in answering, they could directly exit the system (opted out). However, if they were willing to answer the questionnaire, they had to click on the web link provided in the email. Besides, for questions that were not related to them, this system was designed to skip to the next question or to the next section. Furthermore, in order to alleviate boredom or time constraints, the respondents were allowed to return to the questionnaire at another time (but must be from the same email). When completed, the system would automatically express gratitude for the assistance given by the respondents.

Once the system was ready to be used as web survey, the first pilot study was conducted. At this phase, the sentence structure and the arrangement, as well as the technical aspects of using a web survey, had been tested. A total of 167 people from friends of the researcher, who met the characteristics of the sample, cooperated to answer the questionnaire. At this stage, the researcher realized the need for screening to avoid non-respondents (for example, men and those who no longer lived in Malaysia) from answering the questionnaire. In addition, many sentences structured had to be improved for better clarity. Some technical aspects were also corrected because some respondents did not answer all the required questions.

As the questionnaire need to have the feasibility and the adequacy of the instrumentation (Hertzog, 2008), the updated questionnaire was sent to six experts in the fields of research (the list of experts is presented in **Appendix 4**). Based on their comments and suggestions, once again the researcher returned to the web survey providers to improve the questionnaires. In this phase, some questions were improved, added, and even removed.

Before the actual data collection process was carried out, a second pilot study was conducted. A total of 108 people who met the characteristics of the samples helped to answer the questionnaire. In this phase, the technical problems using the web survey were resolved, and no respondents commented on any vague and unclear questions. The results from the analysis conducted on this pilot study showed a relatively good model even if the number of respondents with the status of employment as "do not work" had been few. Thus, the final questionnaire that had been used for this study is shown in **Appendix 5**.

4.5.8 Logistic regression analysis

For quantitative results, Logistic Regression was used to test the hypotheses and the model as it had been the appropriate technique to examine the differences in the ability of the independent variables. According to Allison (1999), logit analysis (a.k.a. logistic regression analysis) is an optimal method for the regression analysis of dichotomous (binary) dependent variables. Besides, Hosmer & Lemeshow (2000) distinguished a logistic regression model from the linear regression model, where the outcome variable in logistic regression is *binary* or *dichotomous.* Consequently, in order to identify the best fitting and the most parsimonious model to describe the relationship between an outcome (dependent or response) variable and a set of independent (predictor or explanatory) variables, Logistic Regression was employed this study.

Logistic regression is multiple regressions, but with categorical variable outcome and the predictor, the variables could be continuous or categorical. Besides, logistic regression analysis is often used to investigate the relationship between discrete responses and a set of explanatory variables. Also known as Logit analysis, Logistic

regression analysis is an optimal method for the regression analysis of dichotomous (binary) dependent variables (Kleinbaum & Mitchel, 2010; Field, 2009; Pallant, 2005; Hosmer & Lemeshow, 2000; Allison, 1999). Therefore, it requires fewer assumptions.

Logistic regression does not assume a linear relationship between the dependent and independent variables. Logistic regression also does not require many of the principle assumptions of linear regression models that are based on ordinary least squares method–particularly regarding linearity of relationship between the dependent and independent variables, normality of the error distribution, homoscedasticity of the errors, and measurement level of the independent variables (Park, 2013).

The dependent variable must be a dichotomy (2 categories); '1' or '0'. As this study wanted to determine educated married women's participation in labor force; either working or not working; '1' is for educated married women who participated in labor force, while '0' reflected those who did not work in the labor force.

Logistic regression also assumes that the independent variables need not be interval, nor normally distributed, nor linearly related, nor of equal variance within each group. The categories (groups) must be mutually exclusive and exhaustive; a case can only be in one group and every case must be a member of one of the groups. According to Hosmer & Lemeshow (2000) and Allison (1999), larger samples are needed for linear regression because the maximum likelihood coefficients are large sample estimates.

i. Missing Data

Several steps had to be adhered to before logistic regression can be done. Missing data is a common occurrence and it could have a significant effect on the conclusions that

can be drawn from the data. It can occur due to non-response; such has no information given by the respondents for several items. As specified by Sekaran & Bougie (2009), not all respondents would answer every item in the questionnaire. The respondents may not answer because they do not understand the question, do not know the answer, unwilling to answer, or simply indifferent to the need to respond to the entire questionnaire. Based on the results of the second pilot study, the researcher took cautious steps to prevent the respondents from not answering all the questions posed.

An incomplete sentence structure or misleading questions in the pilot study had been rebuilt. For standard questions, answer choices were given. Furthermore, for questions that might be answered in a varied manner by individuals, open-ended questions were applied.

Furthermore, in order to prevent the respondents from not answering the compulsory questions for this study, the questionnaire settings were made through the applications provided by SurveyMonkey.com. This setting had been very helpful because it informed the respondents that they cannot go to the next question if the current question is not answered and if the respondents did not answer according to the required format (e.g. format of monthly income and age). This technique ensured that the questionnaire was completely answered and avoided the occurrence of missing data. However, maybe due to this setting, 172 respondents did not complete the questionnaires until the end.

ii. Transformation Data

In addition, in order to obtain accurate answers about age and salary, open questions were provided instead of range-based. Therefore, data transformation was done by re-

encoding the answers given by the respondents based on standard range provided by DOSM. For example, the age groups were classified into 15-24 years old, 25-34 years old, and beyond.

Similarly, some groups of the respondents were small in number, and therefore, they were combined with other groups. Items that were transformed and combined for this study had been those related to ethnicity, age, education background, income, and number of children.

iii. Separation problem

Due to data pattern, as women who did not work had no income, and husband employment status (as all husbands of the respondents were working), separation problem occurred. According to Allison (1999), separation or convergence failure is a frequent problem in estimating logistic regression models. It is a failure of the likelihood maximization algorithm to converge. Therefore, the maximum likelihood estimates simply did not exist.

Due to this complete separation problem, there was no way to obtain estimates for the coefficient. Thus, one way to solve this issue was by excluding the problem variable from the model (Allison, 1999). Therefore, the variable “women’s income" and “husband’s employment status” were removed from the model.

iv. Multicollinearity

In logistic regression, no assumption was made about the distributions of the independent variables. However, the independent variables should not be highly correlated with one another because this could cause problems with estimation (Park, 2013; Kleinbaum & Mitchel, 2010; Hosmer & Lemeshow, 2000; Allison, 1999).

Multicollinearity could occur when strong linear dependencies occur among the explanatory variables. If two or more variables are highly correlated with one another, it is difficult to get good estimates of their distinct effects on some dependent variable. According to Allison (1999), although multicollinearity is not bias towards the coefficients, it does make them more unstable. Moreover, standard errors may get large and variables that appear could have weak effects individually and may have quite strong effects as a group.

To pick up on problems concerning multicollinearity, collinearity diagnostics presented Tolerance and Variance Inflation Factor (VIF) value. According to Pallant (2005);

> *"Tolerance is an indicator of how much of the variability of the specified independent is not explained by other independent variables in the model. If this value is very small (less than .10), it indicates that the multiple correlation with other variables is high, suggesting the possibility of multicollinearity. Besides, VIF is just the inverse of the Tolerance value (1 is divided by Tolerance). VIF values above 10 would be a concern here, indicating multicollinearity".*

From **Table 4.4**, variables *Ethnic* and *religion* showed a low value of tolerance, but high value of VIF, similarly to variables *husband's monthly income* and *household monthly income*.

Table 4.4: Tolerance and VIF values

Variable	Collinearity Statistics			
	Model 1		Model 2	
	Tolerance	VIF	Tolerance	VIF
1. Ethnic	.298	3.353	.342	2.927
2. Religion	.296	3.383	.347	2.882
3. Residential location	.957	1.045	942	1.062
4. Women age group	.908	1.101	.611	1.636
5. Father's education background	.762	1.312	.717	1.394
6. Mother's education background	.760	1.316	.713	1.403
7. Women's highest qualification	.832	1.202	.807	1.239
8. Access to Internet	.957	1.044	.921	1.086
9. Other financial resources	.973	1.028	.960	1.042
10. Husband's education	.837	1.195	.849	1.178
11. Husband's monthly income (RM)	.524	1.909	.530	1.888
12. Household monthly Income (RM)	.562	1.780	.541	1.848
13. With / without children	.925	1.081	-	-
14. Number of children	-	-	.765	1.307
15. Number of children aged below 6 years old	-	-	.759	1.317

Besides, based on almost all literature review, which highlighted that *ethnic* had a significant influence on participation on women in labor force, variable *religion* was removed from the model. As for those who were not working, generally, they would not have an income, and thus, their household income would be relatively less compared to

those who work. Therefore, *household monthly income* was excluded from the model (The final variables selected are shown in Table 4-5).

Table 4.5: Tolerance and VIF excluded 2 variables

Variable	Collinearity Statistics			
	Model 1		Model 2	
	Tolerance	VIF	Tolerance	VIF
1. Ethnic	.939	1.065	.934	1.071
2. Residential location	.987	1.014	.968	1.033
3. Women age group	.910	1.099	.615	1.626
4. Father's education background	.764	1.309	.719	1.392
5. Mother's education background	.762	1.312	.719	1.391
6. Women's highest qualification	.858	1.165	.837	1.194
7. Access to Internet	.966	1.036	.943	1.060
8. Other financial resources	.979	1.022	.962	1.039
9. Husband's education	.839	1.192	.853	1.172
10. Husband's monthly income (RM)	.773	1.293	.764	1.309
11. With / without children	.931	1.074	-	-
12. Number of children	-	-	.767	1.304
13. Number of children aged below 6 years old	-	-	.764	1.309

v. Outliers

The presence of outliers is an unavoidable phenomenon in any data analysis. According to Field (2009), Kleinbaum & Mitchel (2010), and Sarkar, Midi, & Rana (2011), an outlier in one or more of the independent variables may greatly affect the results. Thus, the estimated regression coefficients may greatly change from the coefficients obtained

when that person is retained in the data. Thus, the outliers have to be identified and excluded from the analysis.

Before using statistical methods to drop the outliers, the researcher manually examined the answers from all respondents. It was found that 17 respondents had to be dropped for the analysis due to misleading information. For example, some claimed unemployed status, but provided reason of continuing their studies for not working (in fact, they were outside labor force), while some respondents entered the value '0' to indicate their husband's income (probably intended to conceal income, but had to answer the question due to the format specified in the system), and those who stated that their husbands did not have a permanent job (that means the husband still had an income, though not on a regular basis). Regardless of them, the number of respondents was 609 married women.

In logistic regression, a case is identified as influential if its Cook's distance is greater than 1.0. This is based on a statement in *Applied Logistic Regression* (Hosmer & Lemeshow, 2000) :

> *"In our experience, the influence diagnostic must be larger than 1.0 for an individual covariate pattern to have an effect on the estimated coefficients. If the model excludes outliers and influential cases has a classification accuracy rate that is better than the baseline model, the revised model will be interpreted. If the accuracy rate of the revised model without outliers and influential cases is less than two percent more accurate, the baseline model will be interpreted".*

The overall percentage for the baseline model of logistic regression analysis was 84.6 percent. Based on the Cook's distance, which was less than 1.0, only 593 respondents

had been selected and 16 respondents were classified as outliers. Overall, the percentage for the revised model was 87.4 percent. With the difference in accuracy rate at 2.8 percent, the revised model was used to explain the relationship of several variables to the dependent variable.

vi. Dummy Coding

Dummy coding refers to the process of coding a categorical variable into dichotomous variables. The name of dummy coding seems appropriate in the sense that, it is the simplest method of coding a categorical variable (Park, 2013). Dummy coding is used when a researcher wants to compare other groups of the predictor variable with one specific group of the predictor variable. Often, the specific group is called the reference group or reference category. Each of the coefficient is a comparison between a particular category and the reference category.

The choice of reference category can be arbitrary and is at the discretion of the researcher (Kleinbaum & Mitchel, 2010; Hosmer & Lemeshow, 2000). Besides, regardless of which category is chosen as the reference, the absolute value on the difference will be the same to make it easier to discuss and to compare (Kleinbaum & Mitchel, 2010; Hardy, 1993).

For this study, the first category for every variable was coded as "0" for every parameter coding signified that it was in the reference category. Details pertaining to the coding are shown in **Table 4.6**. Besides, the researcher chose to present the data in the form of categorical because it can distinguish between different groups.

Table 4.6: Categorical Variables Coding

		Fre-quency	Parameter coding		
			-1	-2	-3
Husband's monthly income (in RM)	RM2,000 / month and less	156	0.000	0.000	0.000
	RM2,001 - RM4,000/month	263	1.000	0.000	0.000
	RM4,001 - RM6,000/month	102	0.000	1.000	0.000
	RM6,001/month and above	72	0.000	0.000	1.000
Women's highest qualification	Master & PhD	150	0.000	0.000	
	Bachelor Degree	363	1.000	0.000	
	Certificate & Diploma	80	0.000	1.000	
Residential location	City Council	157	0.000	0.000	
	Municipal Council	324	1.000	0.000	
	District Council	112	0.000	1.000	
Women age group	25 - 34 years old	505	0.000		
	More than 34 years old	88	1.000		
Father's education background	Tertiary	189	0.000		
	Others	404	1.000		
Mother's education background	Tertiary	112	0.000		
	Others	481	1.000		
With / without children	No children	174	0.000		
	Have children	419	1.000		
Husband's education	Tertiary	482	0.000		
	Others	111	1.000		
Other financial resources	No	270	0.000		
	Yes	323	1.000		

Table 4.6: Categorical Variable Coding (continue)

		Fre-quency	Parameter coding		
Access to Internet	No		-1	-2	-3
	Yes	566	1.000		
Ethnic	Malay	525	0.000		
	Not Malay	68	1.000		
Number of children	1 & 2 children	331	0.000		
	3 children and more	88	1.000		
Have children less than 6 years old	No	36	0.000		
	Yes	383	1.000		

For Model 1, those husbands with monthly income less than RM2,000 per month, women with master & PhD as highest qualification, residential at city council, those age group between 25 and 34 years, those fathers, mothers, and husbands with tertiary education, those with no other financial resource, with no access to the internet, Malays, and those with no children were selected as reference category. This category was selected to determine its variation from the other categories.

On the other hand, Model 2 was maintained with the selection of reference category for all variables found in Model 1. Adding to that was women with 1 & 2 children and those who did not have children below 6 years of age were selected as reference category.

4.5.9 Empirical framework

In the logit model, it was hypothesized that the probability of the occurrence of the event was determined by the (cumulative) logistic distribution function. The dependent variable, Y, is the probability of the event of interest (Hair et al., 2010). The dependent variable in this research, which is *educated married women in the labor market* with used categorical value; 1 denotes if educated married women is working and 0 denotes if educated married women is not working. Therefore, the model is estimated in logistic binomial form. The model used is as follows:

$$P_i = 1\ (1+ e^{-z}) \qquad (1)$$

Where P_i is the probability of women to work (Y=1), while the probability to choose the other (Y=0) is written as:

$$1 - P_i = \frac{1}{(1+ e^{-z})} \qquad (2)$$

Therefore, the probability of a worker changing jobs is:

$$e^z = \frac{P_i}{(1+ P_i)} \qquad (3)$$

Where, for model 1 and Model 2, Z_i are:

$$p_i = f(Z_i) = \frac{1}{1 + e^{-z_i}} \qquad (4)$$

$$p_i = \frac{e^{z_i}}{1 + e^{z_i}} \qquad (5)$$

Where, p_i is the probability that educated married woman (Z_1 or Model 1) or educated married woman with children (Z_2 or Model 2) participated in the labor force, *e* is the exponential value, $X_{1\text{-}13}$ is the set of explanatory variables, and $\beta_{1\text{-}13}$ is the corresponding set of regression parameters.

If p_i, the probability of participating labor force, as given by equation (5), then $(1- p_i)$, the probability of not participating is:

$$1 - p_i = \frac{e^{z_i}}{1 + e^{z_i}} \qquad (6)$$

Therefore, one can write:

$$\frac{p_i}{1 - p_i} = \frac{1 + e^{z_i}}{1 + e^{-z_i}} = e^{z_i} \qquad (7)$$

The model is then transformed to a logarithm model to produce the equation:

$$Z_i = \ln \frac{P_i}{(1- P_i)}$$

$$= \ln e\, Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots \beta_n X_n + \varepsilon \qquad (8)$$

Equation (7) is simply the *odds ratios* in favor of participation and for estimation purpose, namely the Logit Model. Therefore, labor force participation among educated married women or educated married women with children had been considered as a dependent variable with binary choice characteristics and its constraints or determinants were considered as a set of several independent or explanatory variables in the logit model for empirical analysis.

For this research, a set of independent variables was gathered to explain the decision of dependent variable. Taking into account variables that had been dropped, only 11 variables in model 1 had been analyzed. Therefore, based on equation (8), the mathematical relation between the dependent and the independent variables for model 1 of this study is given as:

$$EMWP = \beta_0 + \beta_1 HuInc + \beta_2 NLI + \beta_3 Eth + \beta_4 Age + \beta_5 Edu + \beta_6 Re\_Loc + \beta_7 Fa\_Edu + \beta_8 Mo\_Edu + \beta_9 Hu\_Edu + \beta_{10} H\_Chil + \beta_{11} Ac\_Int + \varepsilon$$

Where:

β_0	:	Coefficient of the intercept
β_{1-11}	:	Coefficient of independent variable
ε	:	error

Dependent variable

EMWP	:	Educated Married Women's participation in Labor Force

Independent variable

Hu_Inc	:	Husband's Income
NLI	:	Non-Labor Income
Eth	:	Ethnic

Age	:	Age
Edu	:	Education
Re_Loc	:	Residential Location
Fa_Edu	:	Father's Education
Mo_Edu	:	Mother's Education
Hu_Edu	:	Husband's Education
H_Chil	:	Having Children
Ac_Int	:	Access to the Internet

Compared to model 1, model 2 had been specific for married women with children. Therefore, the variable *having children* (H_Chi) was dropped and two other variables were included in the model. Thus, in order to obtain a better representation of married women with children, *number of children* (N_Chil) and *having children aged less than six years old* (HC_B6Y) were included in model 2.

Thus, the mathematical relation between the dependent (EMW_CP) and the independent variables in model 2 is shown below;

$$\begin{aligned} EMW\_CP = {} & \beta_0 + \beta_1 HuIc + \beta_2 NLI + \beta_3 Eth + \beta_4 Age + \beta_5 Edu + \beta_6 Re\_Loc + \\ & \beta_7 Fa\_Edu + \beta_8 Mo\_Edu + \beta_9 Hu\_Edu + \beta_{11} N\_Chil\ \beta_{12} HC\_B6Y + \\ & \beta_{13} Ac\_Int + \varepsilon \end{aligned}$$

Where

N_Chil	:	number of children
HC_B6Y	:	Having children aged less than six years' old

(Other symbols are similar to Model 1)

4.6 PHASE 2 - QUALITATIVE APPROACH

In sequential explanatory design, qualitative data are used to enhance, complement, and as follow up to quantitative findings. The quantitative part of this study confirmed the relationship between independent variables and the dependent variable. Therefore, the form of qualitative research is to provide more enlightenment. This section describes the method of this qualitative part and how the analysis is carried out.

Furthermore, according to experts, research findings are more rigorous when the qualitative part is included. Besides, according to Kothari (2004), qualitative research is usually concerned with quantitative phenomenon. This type of research is especially important in behavioral sciences where the aim is to discover the underlying motives of human behavior. Through such research, the various factors that motivate people to behave in a particular manner or which make people like or dislike a particular thing can be analyzed.

Furthermore, the qualitative research methods were in accordance as the research focused on discovering and understanding the experiences, perspectives, and thoughts of the participants (Harwell, 2011). A qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive material practices that make the world visible. This type of research involves an interpretive and naturalistic approach to the world. This means; qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them.

According to Creswell (2012b), there are five steps in conducting a qualitative research. The first step is to identify participants and sites to be studied, as well as to engage in a

sampling strategy that will best help to understand the central phenomenon and the research question asking. Second, is to gain access to these individuals and sites by obtaining permissions. Third, once permissions are in place, one needs to consider what types of information will best answer the research questions. Fourth, protocols or instruments for collecting and recording information need to be designed. Finally, one needs to administer the data collection with special attention given to potential ethical issues that may arise. With this guidance, the interviews expected could explain and interpret better findings.

Based on these benefits, a qualitative study was carried out for this research to support the findings of the quantitative study. More emphasis was given to the issue of child care arrangement because the presence of children in the household was identified to affect the participation of educated women who were married in the labor force. The qualitative parts unlocked the question of how child care arrangement led to labor supply decision among educated married women with children.

In line with the objectives outlined in this research, the case study method was used based on the definition given by Yin (2009), Dul & Hak (2008), and Hancock & Algozzine (2006) as an empirical inquiry that investigates a contemporary phenomenon within its real-life context. It becomes an appropriate method especially when the boundaries between the object of study and the context are not clearly evident. Case study approach copes with the technically distinctive situation in which there will be many more variables of interest than data points and as one result relies on multiple sources of evidence.

Furthermore, case studies possess their own merits where great details are exposed and debated, which is not possible with macro level data. According to Yin (2003), a case

study design should be considered when: (a) the focus of the study is to answer “how” and “why” questions; (b) the behavior of those involved in the study cannot be manipulated; (c) the need to cover contextual conditions as they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and the context.

Moreover, based on a study conducted by the Malaysian Ministry Of Women, Family, And Community Development, as well as United Nation Development Program (Ministry of Women and Family Development Malaysia, 2014b), 66.9 percent of married women did not work because they had *to look after children.*

From the sample of this research, **Table 4.7** shows that from the 70 educated mothers who did not work, 61.4 percent claimed that the main reason for not working was related to child care.

Table 4.7 : Reasons for not working found among educated mothers

Reason	Frequency	Percent
Related to child care	43	61.4
Other reasons	27	38.6
Total	70	100.0

From 349 of educated mothers who were employed during this survey was conducted, only 227 responded to the open-ended question about the "conditions that may cause you to stop working". Of this amount, **Table 4.8** shows that 46.7 percent of educated working mothers said that they might stop working if they faced problems related to the care of their children, while 53.3 percent mentioned other problems.

Table 4.8: Conditions that may cause working mothers to withdraw from the labor force

Reason	Frequency	Percent
Related to child care	106	46.7
Other reasons	121	53.3
Total answer	227	100.0

Based on the findings from previous studies and the background of the respondents, qualitative research with case study method had been believed to be able to answer the third research question, namely: What are the problems faced by educated mothers in relation to child care arrangement?

The first phase of this qualitative part was interviews with women who dealt with the issue of child care arrangement. In the second part, experts who were directly involved with this issue were interviewed. With two data sources, this method is called data triangulation. Data triangulation uses dissimilar sources of data or different data from the same source to examine the same object (Bryman, 2011; Denzin, 1970). It aims at increasing validity to what extent a variable that have been measured is actually measured. By systematically combining different settings (dissimilar time, spaces, and persons), researchers may identify common traits of their concepts across settings and features, which only apply to certain contexts.

4.6.1 Sampling for qualitative study

With the aim of explaining what cannot be described properly in the quantitative study, this research used the interview to answer the third research question. According to Mason (2010), samples for qualitative study are smaller than that used in quantitative

research. However, it should be large enough to ensure that most or all of which may be important perceptions is uncovered. However, if the sample is too large, it may be repetitive and ultimately make it difficult for the analysis. This is because; if the sample is too large, data becomes repetitive and, eventually, superfluous (Mason, 2010).

Generally, researchers use saturation as a guiding principle during data collection. In qualitative research, saturation is the point in data collection when no new or relevant information emerges with respect to the newly constructed theory. Hence, a researcher looks at this as the point at which no more data need to be collected. When the theory appears to be robust, with no gap or unexplained phenomenon, saturation can be achieved and the resulting theory can be more easily constructed (Mason, 2010; Given, 2008). With that explanation, it is suggested that the concept of saturation data depends on the type of data source and synthesis of questions. If the purpose of collecting data has been devoted, the likelihood of achieving data saturation is higher. With more precise questions posed to the respondents, the faster it tends to reach the saturation point (Suri, 2011).

As the third objective of this study was to identify the problems faced by women related to child care, the sample must consist of married women with children. Besides, this study found that variable *children aged less than six years old* had been significant with educated married women's participation in labor force, while the interview was focused only to those who met these characteristics. For that reason, the use of convenience sampling had been the most appropriate. According to Patton (1990), stratified samples are samples within samples' where each stratum is 'fairly homogenous' and the purpose of a stratified purposeful sample is to capture major variations rather than to identify a common core.

Of the 868 respondents who answered the questionnaires, 259 respondents were unmarried, while the rest, 609, were married. After dropping the outlier, 593 respondents were analyzed and among them, 419 women had children. Since this was still a large number to choose for the interview session, some requisites were fixed.

Based on Malaysian female fertility rate, which was at 2.6 in 2014, this study interviewed married women with at least three children (the first requisite). This had been consistent with findings obtained from the literature that women with more number of children reduced the tendency to work. As for the second requisite, this research stipulated that those who were interviewed must have at least one child under 6 years old. This is because; the variable *having children aged less than six years old* was found significant with participation of women in the labor market, as shown in Model 2 of this study.

With these two prerequisites, only 73 women with at least 3 children and among them there was a child aged less than 6 years old were selected for interviews. However, the priority for the interview session was made only to the respondents who agreed or volunteered for the interview, which were 19 educated married women with children. Their willingness had been identified from the online questionnaire that they filled for the quantitative part of this research.

Since variable 'residential location' was found significant with women's participation in labor force, this study interviewed women in each division of residential location; urban, suburban, and rural areas in Malaysia. Therefore, at least six educated mothers who were employed and unemployed in each residential location had been interviewed to obtain saturation of data. According to Suter (2012), qualitative data analysis is not intended to generalize to a larger population in the same sense that a statistically

analyzed large-scale survey would. The generalization often sought is the generalization of ideas so that they can be applied in many contexts. In this sense, ideas generated by a single-person or single-institution case study may be broadly applicable.

In addition, three experts in the field were also interviewed. The purpose of the interview was to verify the findings or to confirm the emerging theme of the first phase of interview with educated women with children (the informant). Thus, selection of the experts was made based on their field of specialization. This was done to establish validity of the findings, which would help evaluation to be more credible, as well as to provide information that one can stand behind with confidence (Guion, 2002).

4.6.2 Semi-Structured Interview as the medium for data collection

With only questionnaire results obtained from the quantitative research had not been feasible to test some dimensions. According to Sekaran & Bougie (2009), data collection on the qualitative research refers to information gathered in a narrative form, such as interviews. The broad problem area would be narrowed down to specific issues for investigation after some preliminary data are gathered.

For both categories of interview, semi-structured interviews were employed because they suited the research that needed further in-depth investigation on child care arrangement. Using this approach, Hancock & Algozzine (2006) highlighted that the researchers asked predetermined, but flexibly worded questions, the answers to which provided tentative answers to the researcher's questions. In addition to posing predetermined questions, the researcher employed semi-structured interview to ask follow-up questions designed to probe more deeply issues of interest to the informants.

In this manner, semi-structured interviews invited informants to express themselves openly and freely, as well as to define the world from their own perspectives, not solely from the perspective of the researcher.

In an explanatory study, semi-structured interviews usually consist of a combination of open-ended and closed questions (Saunders, Lewis, & Thornhill, 2009). Open-ended questions are asked so that the informants can shared their experiences unconstrained by any perspective of the researcher or past research findings. This is because; an open-ended response to a question allows the participant to create the options for responding (Creswell, 2012a).

Moreover, the method to interviews could be either face-to-face or through the medium of the telephone, depending on the level of complexity of the issues involved, the likely duration of the interview, the convenience of both parties, and the geographical area covered by the survey. Priority is given to the interview via face-to-face because there is greater flexibility to restructure the question by the appropriateness and observation. Observation method can as well be applied to record verbal answers to various questions. However, telephone interviews are best suited when information from a large number of respondents spread over a wide geographic area is to be obtained quickly (Sekaran & Bougie, 2009). For this study, the researcher had interviewed the informants face-to-face and via telephone.

All respondents who answered the online questionnaire in quantitative approach were asked if they were willing to be interviewed. For those who were willing to be interviewed, more information, such as address and telephone number, had been required. Before the interviews were conducted, once again, they were asked if they were willing to have the interview session. Before the interviews were conducted, the

researcher asked for the respondents' approval and offered them an opportunity to arrange a suitable date and place for the interview.

The interviews were conducted in a semi-formal setting to create a comfortable effect for informants. Both languages (Bahasa Malaysia and English) were used in the conversations, to giving participants' the freedom to voice their opinions without language constraints. This study complied with the ethical requirements, including actions of voluntary participation, where informants were free to withdraw from the study.

The four main issues formulated by taking into account the related literature were; child care location, cost of child care, co-operation of family members, and child's health. Providing participants with questions before the event should also promote validity and reliability by enabling the interviewees to consider the information being requested (Saunders et al., 2009). This could help them to prepare before the actual interview and to give them enough time to think before sharing their experience and giving opinion. For that reason, the informants (the first session of interview) received the theme of questions sent via e-mail, SMS or *WhatsApp Messenger.* This had been similar with the second part of interview with the experts. The experts were contacted via email for approval to be interviewed and the theme of the interview attached in the email. The questions that were constructed based on these themes are shown in **Appendix 6**.

4.6.3 Informants

The first part of the interview involved educated married women with children, while the second part involved experts in the field of empowering women. The list of the informants is shown in **Appendix 7**.

a) Interview with informants

Selection of informants was based on those who met the two requirements and their willingness to provide information via interviews. From this requisite (women to be interviewed must have at least three children and at least one less than six years old), 19 women fulfilled the requirements.

At first, six respondents from online survey who were working and not working had been contacted via email and messages were sent to their mobile phones. Five of the six informants gave positive cooperation, but one of them was not interested in being interviewed. Three more respondents were contacted to confirm and to achieve saturation of data on the effect of child care upon women's choice to work.

Seven interviews were conducted face–to-face; six participants were interviewed at their homes, while one participant was interviewed at a place the respondent suggested. The other two participants were interviewed via telephone calls. An appointment was made based on the free time of the interviewees. This interview was conducted within a month and the time used to interview each participant ranged from 25 to 40 minutes.

b) Interview with experts in the field

Three institutions were involved directly with the issue of child care arrangements in Malaysia. There were Ministry of Women, Family, and Community (MWFC), Social Welfare Department, and United Nations Development Programme (UNDP). MWFC had set their objectives to increase the participation and active role among women, families, and communities as contributors and beneficiaries for the development of the country. Child care services that were administered by the Social Welfare Department had been under the control of MWFC. Meanwhile, UNDP Malaysia had been one of the most relevant agencies that involved in researches related to women in the labor market. Besides, in order to verify the findings or theme that emerged from the interviews with educated married women with children, three experts from the three institutions were identified.

Each interview was conducted in their offices and it took about 35-45 minutes. The main question that was submitted to them in advance was intended to confirm the findings of interviews with educated married women with children regarding the problem of child care arrangement. However, some other matters that had been related to the issues of child care arrangement, especially among working women, were also discussed.

4.6.4 Interview protocol

An ethical approval for the interview session was obtained before the study commenced**.** Generally, the main issues in relation to ethical consideration, which should be observed carefully, are consent, confidentiality, and anonymity (Saunders et

al., 2009). Consent is best obtained by informing the respondents clearly about the aim and objectives of study. Prior to carrying out the study, the researcher used the authorization letter from the University to confirm that the researcher had been gathering data for this study (As shown in **Appendix 3**).

Before the interview started, the researcher introduced herself and stated the purpose of the study. As ice-breakers, those interviewed were given a brief introduction to the study. This was actually done twice; initially by email or during the phone conversation and later at the start of the interview sessions, enabling them to digest the real need for the interview and to increase the value of the input gained.

The informants were also told that their answers would be used for the purposes of scientific research and their identities would not be disclosed. Anonymity was further guaranteed as the informants' names were not mentioned anywhere in the report and as such, one cannot identify a given response with a given respondent. In addition, permission to record the conversation had been requested. By listening carefully and organizing the data, the analysis could be organized thematically to highlight the issues and the concerns of the research (Creswell, 2009), for this research had been about child care arrangement.

Each informant for the first phase (educated married women with children) was asked to provide information about the child's age, gender, schooling status, and if any of their children had health problems. These questions were posed to confirm some information that actually had been provided through online questionnaire when conducting quantitative data collection.

As the experiences of women who worked and did not work might vary in the aspect of child care, the interview questions were tailored to obtain the same information. The order of questions varied depending on the flow of the conversation. This was also expressed by Saunders et al. (2009) that the list of questions to be covered could be varied from interview to interview.

4.6.5 Data Analysis

According to Dul & Hak (2008), "Text analysis", "document analysis", and "content analysis" are the terms used for generating scores from texts. The scores generated from interviews take less effort if only standardized answer categories are allowed. To generate a score from the interview data, voice of the informants during the interview sessions had been recorded, transcribed, and summarized in written form.

Krippendorff (2004) highlighted that content analysis is a research technique for making replicable and valid inferences from texts or other meaningful matter to the contexts of their use. The contexts provide new insights, increase a researcher's understanding of particular phenomena or inform practical actions (Krippendorff, 2004). Each has its own approach in analyzing data that stems largely from the object of analysis. Besides, Sekaran & Bougie (2009) also believe that this type of analysis involves the quantification of the qualitative information obtained through a systematic analysis of the relevant information, thus providing a means for submitting it to statistical analysis.

Instead of reporting all details, content analysis summarizes a message set (Neuendorf, 2002). It is a method for summarizing any form of content by counting various aspects of the content. This enables a more objective evaluation than comparing content based

on the impressions of a listener. According to Kothari (2004), the analysis may be at a relatively simple level or may be a subtle one. It is at a simple level when one pursues it on the basis of certain characteristics of the document or verbal materials that can be identified and counted.

On the other hand, if a study contains more than a single case, then a multiple-case study is required. A multiple or collective case study will allow the researcher to analyze within each setting and across settings. In a multiple case study, cases are examined to understand the similarities and the differences between the cases (Yin, 2009).

The recorded interviews with the informants on child care arrangement in relation to participation in labor market were transcribed. Every word recorded from the interviews is transferred manually without using any software. Even so, the findings were believed to be accurate and could answer the research questions because according to Krippendorff (2004) ;

> *"Use computers to do the content analysis is only as aids, not as replacements for the highly developed human capabilities of reading, transcribing, and translating written matter".*

For all interviews conducted, four concepts had been utilized to establish the quality of empirical social research; trustworthiness, credibility, conformability, and data dependability (Yin, 2009). During the data collection process, the original objectives of the study were informed to the informants as to *construct validity.* They were informed with the previous study findings, but given the space to express their experiences.

While conducting the data analysis, *internal validity* that explained the themes had been mainly a concern for explanatory case studies. Besides, using case study protocol and dealing with the documentation problem in detail are some specific tactics to overcome the problem of *reliability* (Yin, 2009). These four tactics were used in this research to ensure the quality of case studies.

4.6.6 Data saturation

Using Sequential Explanatory Mixed-Methods Design, there is no established guidelines for researchers to proceed with the selected cases for the follow-up qualitative analysis or the steps to follow (Ivankova et al., 2006). Thus, for the qualitative study, saturation was used as a guiding principle during the data collection (Mason, 2010).

Theoretical saturation and later termed as *data saturation* or *thematic saturation* is originally developed within grounded theory (O'Reilly & Parker, 2012). Theoretical saturation is the point at which no new insight is obtained, no new theme is identified, and no issue arises regarding a category of data. This study applied the method used by Bowen (2008), who asserted that;

> *"A data category is considered saturated if it is reflected in more than 70 percent of the interviews".*

Synthesizing information from the case study means combining, integrating, and summarizing findings (Hancock & Algozzine, 2006). In terms of how qualitative data are analyzed, Creswell (2009) claimed that;

> *"A final step in data analysis involves making an interpretation or meaning of the data. These lessons could be the researcher's personal interpretation, couched in the understanding that the inquirer brings to the study from her or his own culture, history, and experiences. It could also be a meaning derived from a comparison of the findings with information gleamed from the literature or theories. In this way, authors suggest that the findings confirm past information or diverge from it. It can also suggest new questions that need to be asked, questions raised by the data, and analysis that the inquirer had not foreseen earlier in the study".*

In addition, data triangulation adapted in this study served as validation of the findings. Individuals who were outside the study could increase the credibility of the study. Besides, opinion of individuals involved in implementing government policies and experts in the field of study, could help to establish the validity of the findings (Creswell & Miller, 2000).

4.7 CONCLUSION

This chapter discusses the two phases employed in conducting the study. Employing the quantitative method in the first phase, online questionnaire that was implemented in this research had been intended to determine the participation of educated married women and educated married women with children in labor force.

Meanwhile, in the second phase, a qualitative method via interview had been employed to determine the hidden reasons on why mothers with children were less likely to

participate in labor force. It is believed that the discovery made by using explanatory sequential mixed method design provided better understanding for the low participation rate in labor force among educated married women in Malaysia.

CHAPTER 5

THE DETERMINANTS OF EDUCATED MARRIED WOMEN LABOR PARTICIPATION

5.1 INTRODUCTION

This chapter presents the results of the first and the second research objectives; to identify the factors that determined the participation of educated married women (model 1) and married women with children (model 2) in labor force. The empirical framework of this study determined if the existing variables had been related to their decision to work or not to work.

In Model 1, the extent for variables of *women income, non-labor income, ethnic, religion, age, education, residential location, husband's income, father's education, mother's education, husband's education, husband's employment status, having children*, and *access to the internet* had been looked into in relation to women's decision to work or not to work. Meanwhile, the two variables added to Model 2 were *number of children* and having a *child aged less than six years old*.

The findings from the analysis of the first model, which was educated married women, led to the second model analysis, which was educated married women with children. Basically, this chapter focuses on the findings based on the use of quantitative methods. As the dependent variable could only take two values, namely "working" or "not working", binary logistic regression was used. Besides, each model covered respondents' background, interpretation of the results, and followed by discussion. The conclusions for both models are discussed at the end of this chapter.

5.2 EDUCATED MARRIED WOMEN IN THE LABOR FORCE (MODEL 1)

As stated in the previous studies, married women had been faced with the issue of low participation in the labor market. Hence, besides expanding the attention on married women, this study also focused on those with tertiary level of education. Since this research selected respondents from the Tracer Study 2008/2009 carried out by the Malaysian Ministry of Education, information about marital status of the respondents had been collected when the questionnaires were answered. For model 1, eleven independent variables were analyzed to determine if they affected the dependent variable.

The study linked the determinants of educated married women to the probability of participation in labor force underpinned mainly by the Theory of Allocation of Time. In the conceptual framework (**Figure 4.2**), seventeen categorical variables had been presented. However, *women's income* and *husband's employment status* were dropped due separation problem, while *religion* and *household income* were dropped due to multicollinearity. Thus, only eleven variables in Model 1 and twelve variables in Model 2 were analyzed (10 variables were used in both models, but only one variable was used once: *having children* in Model 1, while *number of children*, and *having children aged less than six years* in Model 2). All items in each group had been dummy variables.

In the final model, women with other financial resources (NLI) and husband's monthly income (HuIc) were two predictor variables under the economic factors. Ethnic (Eth), age (Age), women's highest qualification (Edu), and residential location (Re_Loc) were related to socio-demographic factors. Father (Fa_Edu), mother (Mo_Edu), and husband's education (Hu_Edu), together with presence of children (H_Chil), were four predictive variables under family factors. As for the access factor determinant, one construct was developed, namely access to the internet (Ac_Int).

5.2.1 Descriptive statistical analysis

Out of the 7,716 emails sent, 11 email addresses were invalid and 1,171 (15.2 percent) email addressed were bounced most likely due to errors when transferring the email addresses from the ministry data systems or inactive e-mail addresses.

Based on the total number of female respondents from the Tracer Study, only 6,534 respondents received the email and were linked to answer the online survey. Among them, 30 were disqualified (7 were males and 23 females had moved out of the country) and another 45 chose to opt out. Therefore, the final number of respondents who received the questionnaire was about 6,459 educated women.

Within three and a half months in the process of data collection, a total of 1,187 had responded. However, only 1,015 educated women (85.5 percent) completed the questionnaire. Of this, only 626 women (61.7 percent) were married.

Since this research had been related to the participation of educated married women in the labor market, the respondents should be made up of those who were both working and not working in labor market. As emphasized in Chapter 4, the composition of educated women in Malaysia was 95.9 percent employed and 4.1 percent unemployed. Based on Krejcie & Morgan's (1970) table that suggested 384 respondents as a minimum number for sampling, the respondents for this study for those who were not working could be very small, only 15 or 16 people (based on the ratio of 4.1 percent unemployed).

Furthermore, to utilize the wealth of data obtained via online survey, all completed questionnaires were analyzed. This decision was made in accordance with the opinion that more data are better than less data (Hart & Clark, 1999), as well as bigger samples

and more events are almost always preferable (Vittinghoff & McCulloch, 2007), and as the sample size gets larger, the probability that the estimate is within some small distance of the true value also gets larger (Allison, 1999).

A total of 626 married women completed the online questionnaire. However, early screening dropped 33 respondents due to doubtful answers and identification of outliers, as described in section 4.3.6. Consequently, the number of responses that were analyzed with logistic regression was 593 educated married women.

The online survey attracted the attention of educated married women from all over Malaysia, showing that the distribution had been extensive to represent Malaysia. **Table 5.1** highlights the distribution of respondents from 12 states and three territories in Malaysia and most respondents were from Selangor (37.4 percent). The distribution of respondents from various states and locations had been important because the study took into account the extent of residential location (urban, sub-urban, and rural) that could affect the participation of women in the labor market.

Table 5.2 shows that out of the 593 respondents, 514 women (86.7 percent) were employed and 79 women (13.3 percent) were unemployed. According to Allison (1999), disproportionate stratified random sampling will not bias the coefficient estimates although there is a different ratio between the group of sample.

i. Distribution of respondents by economic characteristics

From **Table 5.3**, the cross tabulation information can be viewed either on the basis of the percentage within husband's monthly income (total percentage based on column) or by percentage within EMW working status (total percentage based on row).

Table 5.1: Distribution of respondents by state

	Frequency	Percent
Johor	50	8.4
Kedah	33	5.6
Kelantan	17	2.9
Melaka	26	4.4
Negeri Sembilan	32	5.4
Pahang	27	4.6
Pulau Pinang	23	3.9
Perak	22	3.7
Perlis	12	2.0
Selangor	222	37.4
Terengganu	19	3.2
Sabah	14	2.4
Sarawak	15	2.5
WP Kuala Lumpur	65	11.0
WP Labuan	1	.2
WP Putrajaya	15	2.5
Total	**593**	**100.0**

Table 5.2: Distribution of respondents by employment status

	Frequency	Percent
Not working	79	13.3
Working	514	86.7
Total	**593**	**100.0**

Table 5.3: Cross tabulation of the respondents by economic characteristics

		Educated married women working status		
		Not working	Working	Total
Husband's monthly income (in RM)	RM2,000 / month and less	10	146	156
	% within EMW working status	12.7%	28.4%	26.3%
	% within husband monthly income	6.4%	93.6%	100.0%
	RM2,001 - RM4,000 / month	32	231	263
	% within EMW working status	40.5%	44.9%	44.4%
	% within husband monthly income	12.2%	87.8%	100.0%
	RM4,001 - RM6,000 / month	18	84	102
	% within EMW working status	22.8%	16.3%	17.2%
	% within husband monthly income	17.6%	82.4%	100.%
	RM6,001 / month and above	19	53	72
	% within EMW working status	24.1%	10.3%	12.1%
	% within husband monthly income	26.4%	73.6%	100.0%
Total		79	514	593
% within EMW working status		100.0%	100.0%	100.0%
% within husband monthly income		13.3%	86.7%	100.0%
Other financial resources	No	44	226	270
	% within EMW working status	55.7%	44.0%	45.5%
	% within other financial resources	16.3%	83.7%	100.0%
	Yes	35	288	323
	% within EMW working status	44.3%	56.0%	54.5%
	% within other financial resources	10.8%	89.2%	100.0%
Total		79	514	593
% within EMW working status		100.0%	100.0%	100.0%
% within other financial resources		13.3%	86.7%	100.0%

Based on the percentage within EMW working status, a total of 263 respondents (44.4 percent) claimed that their husbands' monthly income had been at the range of RM2, 001 to RM4, 000 per month. In fact, for both employed and unemployed women, the majority of their husbands' monthly income was found in this range. Other than that, more than a quarter (26.3 percent) of the total respondents had their husbands' monthly income at RM2, 000 or less. Hence, based on the percentage of husband's monthly income, the significant conclusion that can be made is that the percentage of women working had been less when they had a spouse who earned higher.

On the other hand, based on the percentage of EMW working status, the distribution of educated married women with other sources of income (non-labor income) differed by 9.0 percent. From the total respondents, 54.5 percent had other sources, while 45.5 percent did not have any other resource. In detail, 56.0 percent of working women had non-labor income (44.0 percent did not have), while among those married women who were not working, 44.3 percent had non-labor income (55.7 percent did not have other income, but salary alone). Based on the percentage for other financial resources, more women had been found to work even though they earned non-labor income.

ii. Distribution of respondents by socio-demographic characteristics

Within the research framework, five factors were listed as the socio-demographic factors that affected the participation of educated married women in the labor market. However, information concerning women's religion was dropped due to multicollinearity issue. Therefore, only four variables were analyzed. **Table 5.4** shows the cross tabulation analysis between the four socio-demographic factors that were compared between employed women and those unemployed.

Meanwhile, based on the percentage of EMW working status, in terms of ethnic group, of the 593 respondents who answered the online questionnaire, 525 (88.5 percent) were Malays and only 68 (11.5 percent) were non-Malays. Nonetheless, this imbalance in the racial composition had been parallel with the respondents who participated in the Tracer studies as it comprised of 86.1 percent of Malay women (Malaysian Ministry of Education, 2010). However, based on the percentage within ethnic groups, the percentage of Malay women who were unemployed was higher when compared to non-Malays.

As for percentage within age groups of women, **Table 5.4** shows that 85.2 percent of these respondents were among women aged between 25 and 34 years, while the rest were over the age of 34 years. No respondent was aged less than 25 years old because generally, they had graduated from their respective educational institutions in 2009. For working women, 88.5% of them were between 25 and 34 years old. This percentage decreased when compared to those from the age group of over 34 years old.

Despite the fact that all respondents had tertiary education, they still varied based on the highest level of education obtained. To identify the difference, information pertaining to the highest academic qualifications was gathered from the respondents. As a result, based on the percentage of EMW working status, out of the 593 educated women, 363 (61.2 percent) possessed degrees from various disciplines. Those who pursued masters and doctorate levels involved 150 people (25.3 percent), whereas women who studied at both certificate and diploma levels were comprised of 80 of them (13.5 percent).

In terms of the percentage within the highest qualifications that women acquired, the percentages of educated married women who were employed and unemployed in this study did not exert a huge difference for each category of education specified.

Table 5.4: Cross tabulation of the respondents by socio-demographic characteristics

		EMW working status		Total
		Not working	Working	
Ethnic	Malay	76	449	525
	% within EMW work status	96.2%	87.4%	88.5%
	% within ethnic	14.5%	85.5%	100.0%
	Non Malay	3	65	68
	% within EMW work status	3.8%	12.6%	11.5%
	% within ethnic	4.4%	95.6%	100.0%
Total		79	514	593
% within EMW working status		100.0%	100.0%	100.0%
% within ethnic		13.3%	86.7%	100.0%
Women age group	25 - 34 years	58	447	505
	% within EMW work status	73.4%	87.0%	85.2%
	% within age group	11.5%	88.5%	100.0%
	More than 34 years	21	67	88
	% within EMW work status	26.6%	13.0%	14.8%
	% within age group	23.9%	76.1%	100.0%
Total		79	514	593
% within EMW working status		100.0%	100.0%	100.0%
% within age group		13.3%	86.7%	100.0%
Women's highest qualification	Master & PhD	17	133	150
	% within EMW work status	21.5%	25.9%	25.3%
	% within qualification	11.3%	88.7%	100.0%
	Bachelor Degree	50	313	363
	% within EMW work status	63.3%	60.9%	61.2%
	% within qualification	13.8%	86.2%	100.0%
	Certificate & Diploma	12	68	80
	% within EMW work status	15.2%	13.2%	13.5%
	% within qualification	15.0%	85.0%	100.0%
Total		79	514	593
% within EMW working status		100.0%	100.0%	100.0%
% within qualification		13.3%	86.7%	100.0%

Continue in the next page

Table 5.4: Cross tabulation of the respondents by socio-demographic characteristics (continued)

		EMW working status		Total
		Not working	Working	
Residen-tial location	City Council (urban)	11	146	157
	% within EMW work status	13.9%	28.4%	26.5%
	% within location	7.0%	93.0%	100.0%
	Munic.Council (sub-urban)	49	275	324
	% within EMW work status	62.0%	53.5%	54.6%
	% within location	15.1%	84.9%	100.0%
	District Council (rural)	19	93	112
	% within EMW work status	24.1%	18.1%	18.9%
	% within location	17.0%	83.0%	100.0%
Total		79	514	593
% within EMW work status		100.0%	100.0%	100.0%
% within location		13.3%	86.7%	100.0%

From the pilot study, many respondents were unsure of their residential location, whether in urban or rural area. Therefore, the status of local authority was used as a proxy for the status of urban, suburban, and rural areas. Based on the percentage of EMW working status, more than half of the respondents (324 people or 54.6 percent) lived in the suburban area.

Those who lived in urban and rural areas respectively were 26.5 percent and 18.9 percent of the respondents. Furthermore, based on the percentage of their location of the residence, more than 80 percent of those employed were concentrated in urban areas compared to rural areas.

iii. Distribution of respondents by family characteristics

From **Table 5.5**, based on the percentage of EMW working status, it was found that despite the employment status, some parents did not receive education up to tertiary level. This means; the education background for most of the respondents' parents had been at the secondary level and below. Nonetheless, only 31.9 percent of the respondents' fathers received education up to tertiary level, while only 18.9 percent of respondents' mothers were in the category of educated people. Besides, based on the percentage of parents' education background, **Table 5.5** shows that the percentage was even higher for women who worked to have parents with non-tertiary education. Nevertheless, women who were unemployed displayed the opposite scenario.

In contrast, based on the percentage of EMW working status, 81.3 percent of the respondents had husbands with tertiary level education. In percentages, more unemployed women (94.9 percent) had husbands who had received education up to the tertiary level than women who were employed (79.2 percent). Moreover, based on the percentage of husband's education, more unemployed women had spouses with tertiary education compared to employed women who had spouses with non-tertiary education.

The table also shows the presence of children in the household. Based on the percentage of EMW working status, 419 married women (70.7 percent) had at least one child. Furthermore, a total of 174 women (29.4 percent) stated that they did not have any children at the time of answering the online questionnaire. The data also showed that 70.7 percent of the respondents had children. Based on the percentage of having a child, it was discovered that a high percentage of working women for both categories had at least one child and no child at all.

Table 5.5: Cross tabulation of the respondents by family characteristics

		EMW working status		Total
		Not working	Working	
Father's educational background	Tertiary	33	156	189
	% within EMW work status	41.8%	30.4%	31.9%
	% within father edu	17.5%	82.5%	100.0%
	Others	46	358	404
	% within EMW work status	58.2%	69.6%	68.1%
	% within father edu	11.4%	88.6%	100.0%
Total		79	5	93
% within EMW work status		100.0%	100.0%	100.0%
% within father edu		13.3%	86.7%	100.0%
Mother's educational background	Tertiary	16	96	112
	% within EMW work status	20.3%	18.7%	18.9%
	% within mother's edu	14.3%	85.7%	100.0%
	Others	63	418	481
	% within EMW work status	79.7%	81.3%	81.1%
	% within mother edu	13.1%	86.9	100.0%
Total		79	514	593
% within EMW work status		100.0%	100.0%	100.0%
% within mother's edu		13.3%	86.7%	100.0%
Husband education	Tertiary	75	407	482
	% within EMW work status	94.9%	79.2%	81.3%
	% within husband edu	15.6%	84.4%	100.0%
	Others	4	107	111
	% within EMW work status	5.1%	20.8%	18.7%
	% within husband edu	3.6%	96.4%	100.0%
Total		79	514	593
% within EMW work status		100.0%	100.0%	100.0%
% within husband's edu		13.3%	86.7%	100.0%
With / without children?	No children	9	165	174
	% within EMW work status	11.4%	32.1%	29.3%
	% within with/without child	5.2%	94.8%	100.0%
	Have children	70	349	419
	% within EMW work status	88.6%	67.9%	70.7%
	% within with/without child	16.7%	83.3%	100.0%
Total		79	514	593
% within EMW work status		100.0%	100.0%	100.0%
% within with/without child		13.3%	86.7%	100.0%

iv. Distribution of respondents by access characteristics

Based on the percentage of EMW working status, it was found that 95.4 percent of educated married women, as depicted in **Table 5.6**, did have access to the internet. Respectively, 5.1 percent and 4.5 percent of women who did not work and those who did work claimed that they did not have access to the internet at their homes. Besides, based on the percentage for access to the internet, the data also showed that working women had higher access to the internet than those who did not work; and even among those who did not have internet access, working women were also the majority.

Table 5.6: Cross tabulation of the respondents by access characteristics

		EMW working status		Total
		Not working	Working	
Access to Internet	No	4	23	27
	% within EMW work status	5.1%	4.5%	4.6%
	% within access to internet	14.8%	85.2%	100.0%
	Yes	75	491	566
	% within EMW work status	94.9%	95.5%	95.4%
	% within access to internet	13.3%	86.7%	100.0%
Total		79	514	593
% within EMW work status		100.0%	100.0%	100.0%
% within access to internet		13.3%	86.7%	100.0%

5.2.2 Logistic regression analysis

As this study looked into the participation of educated married women in labor force; either working or not working, '1' represented if a woman participated, while '0' represented if she was not in labor force. The regression employed was the "enter" regression method in two different blocks. Enter means to add all variables to the model simultaneously. The regression results are shown in the analysis.

i. Model performance

Omnibus is known as the "goodness-of-fit" test. The Omnibus Tests of Model Coefficients give us an overall indication of how well the model performs, over and above the results obtained for Block 0, with none of the predictors entered into the model (Pallant, 2005). For this set of results, a highly significant value was sought (the Sig. value should be less than .05). With that, **Table 5.7** is found to be satisfactory as the significance at 0.000 indicated very good fit.

Table 5.7: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	76.164	15	.000
	Block	76.164	15	.000
	Model	76.164	15	.000

Under Model Summary (**Table 5.8**), the projected -2 Log Likelihood statistics was 389.298. This provided the study another piece of information about the usefulness of the model; the smaller the statistics, the better the model.

Table 5.8: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	389.298a	.121	.222

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

The Cox & Snell R Square and the Nagelkerke R Square values provide an indication of the amount of variation in the dependent variable explained by the model (Pallant,

2005). The two values are .121 and .222, suggesting that between 12.1 percent and 22.0 percent, the variability is explained by this set of variables.

Furthermore, the results shown in **Table 5.9** indicate that the Hosmer and Lemeshow **Test** also supported the model developed in this study as being worthwhile. This test was interpreted very differently from the omnibus test discussed above. As for the Hosmer-Lemeshow Goodness of Fit Test, poor fit is indicated by a significant value less than .05. Thus, in order to support the model, a value greater than .05 had to be achieved.

Table 5.9: : Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	9.760	8	.282

For this model, the chi-square value for the Hosmer-Lemeshow Test was 9.760 with a significance level of .282. This value is larger than .05, therefore, indicating support for the model. This test was used to support the worthiness of the model developed. Pallant (2005) also claimed that it is the most reliable test-of-model-fit in SPSS.

A Receiver Operating Characteristic (ROC), or ROC curve, is a graphical plot that illustrates the performance of a binary classifier system as its discrimination threshold is varied as shown in **Figure 5.1**. The curve is created by plotting the true positive rate against the false positive rate at various threshold settings.

Other than that, the measure of goodness-of-fit often used to evaluate the fit of a logistic regression model is based on the simultaneous measure of sensitivity (True positive)

and specificity (True negative) for all possible cutoff points. The area under this curve (AUC of the ROC) provides an overall measure of fit of the model.

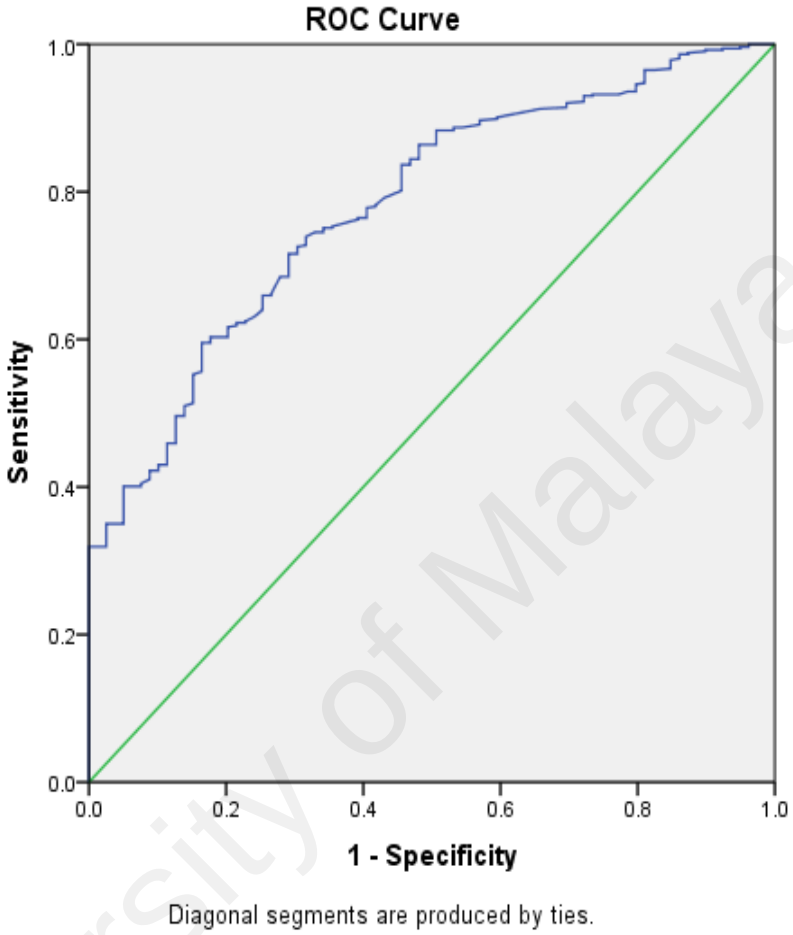


Figure 5.1: ROC Curve

Table 5.5: Area Under the Curve

Test Result Variable(s): Predicted probability

Area	Std. Error[a]	Asymptotic Sig.[b]	Asymptotic 95percent Confidence Interval	
			Lower Bound	Upper Bound
.781	.025	.000	.732	.830

The test result variable(s): Predicted probability has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.

a. Under the nonparametric assumption

b. Null hypothesis: true area = 0.5

Table 5.10 that presents the SPSS output shows an ROC curve. The area under the curve was .781 with 95 percent confidence interval (.732, .8307). Also, the area under the curve was significantly different from 0.5 since the *P-Value* was .000, which means that the logistic regression classified the group significantly better than by chance.

i. Parameter estimates

The Variables in the Equation (**Table 5.11**) provided us information about the contribution or importance of each of our predictor variables. The appropriate test for significance of individual variables in logistic regression is based on the parameter estimates. It contains the estimated beta coefficients for all eleven predictive variables of this model.

On the other hand, the **"*B*"** values provided in the second column explain the direction of the relationship. Negative *B-value*s indicate that an increase in the independent variable score will result in a decreased probability of the dependent variable and vice versa.

As a result, five of the 11 variables presented a positive relationship between the dependent and independent variables. This means; the variables of *ethnicity, father's education, access to the internet, have other financial resources,* and *husband's education* positively influenced the participation of women in the labor market. For example, based on the value of *B*, which was positive, respondents who said their *fathers' education* was not of tertiary level were more likely to participate in the labor market (fathers with tertiary education had been chosen for reference category). Meanwhile, 13 other items showed negative values for B. For instance, for educated women with *children*, they were more likely not to participate in the labor market.

Table 5.6: Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp (B)
Ethnic	1.251	.632	3.921	1	**.048**	3.494
Re_Loc (Urban)			10.334	2	**.006**	
Re_Loc (Sub-urban)	-1.016	.372	7.485	1	**.006**	.362
Re_Loc (Rural)	-1.345	.434	9.587	1	**.002**	.261
Women's Age group	-1.048	.352	8.859	1	**.003**	.351
Father's Education	.644	.316	4.141	1	**.042**	1.903
Mother's Education	-.233	.375	.384	1	.535	.792
Women's Edu (Master, PhD)			8.396	2	**.015**	
Women's Edu (Degree)	-.905	.358	6.376	1	**.012**	.405
Women's Edu (Cert, Diploma)	-1.329	.500	7.069	1	**.008**	.265
Access to Internet	.761	.611	1.550	1	.213	2.140
Have Other Resources	.551	.268	4.243	1	**.039**	1.735
Husband's Education	1.460	.561	6.771	1	**.009**	4.307
Hu_Inc (less than RM2,000)			9.425	3	**.024**	
Hu_Inc (RM2,001-4,000)	-.634	.412	2.374	1	.123	.530
Hu_Inc (RM4,001-6,000)	-.898	.481	3.478	1	.062	.408
Hu_Inc (more than RM6,000)	-1.489	.497	8.962	1	**.003**	.226
Have Children	-.992	.388	6.531	1	**.011**	.371
Constant	3.711	.893	17.267	1	.000	40.907

The Wald test is used to determine statistical significance for each of the independent variables. Wald Chi-Square statistics tests the unique contribution of each predictor in the context of the other predictors. With large sample sizes, the distribution is closely approximated by the normal distribution. With small and moderate sample sizes, the

normal approximation is described as 'adequate". According to Park (2013), Wald statistics is easy to calculate, but their reliability is questionable. From the above table, no item in Wald statistics displayed a value less than .05.

Column Exp (B) values are the odds ratios (OR) for each independent variable. According to Tabachnick & Fidell (2001), the odds ratio is 'the increase (or decrease if the ratio is less than one) in odds of being in one outcome category when the value of the predictor increases by one unit'.

Besides, positive *B* and the odds ratios that were "more-than-1" suggested that individuals (or educated married women) had been more likely to participate in labor market. In contrast, the findings with negative *B* and the odds ratios, which were "less-than-1", showed that individuals or specifically an educated married woman would be less likely to participate in labor force.

5.2.3 Determinants of labor force participation for Model 1

Table 5.11 also explains the relationship between the dependent variable and the independent variables. The relationship between each variable; whether the variables had a significant or insignificant relationship with educated married women participation, is explained based on four categories.

5.2.3.1 Economic factors

Two variables analyzed in the category of economic factors were *husband's monthly income* and *women's other financial resources*. In general, both variables showed significant results when the P-value was less than 0.05; P-value for *husband's monthly income* was 0.024 and the P-value for *women's other financial resources* was 0.039.

i. Husband's monthly income

This study found that the higher the income of the husband, the tendency of women not to work also increased. In other words, women were less likely to work if their husbands' income was higher. For example, women with husbands' income between RM2,001 and RM4,000 per month were less likely to work (B= -.634, P=.123) compared to the reference category (those women with husbands' monthly income less than RM2,000). The same applied to those women with husbands' monthly income between RM4,001 and RM6,000 (B= -.898, P=.062) and income more than RM6,000 (B= 1.489, P=.003).

However, the impact of husbands' monthly income to the participation of married women in the labor market had been varied. As this categorical data are compared with those husbands who earned less than RM2,000 per month (reference category), only women with husbands' income more than RM6,000 per month had been found to be significant at *P-Value* less than .01.

Furthermore, a number of open-ended questions, which were answered by the respondents, stated that they might stop working if income earned by their husbands was considered adequate to fulfil family expenses. As for lower-income spouses, women still had to work to help their husbands make ends meet or to improve the standard of living. Besides, decisions related to respondents' choice not to work based on husbands' income had been consistent with the findings obtained by Becker (1993b) and B. G. Spencer (1973).

ii. Women's other financial resources

Theoretically, those with additional income other than wages (non-labor income) had a negative relationship with participation in the labor market (Borjas, 2010b; McConnell et al., 2010b). Moreover, researches carried out by Bradbury & Katz (2005) and Ntuli (2007) supported the theory. However, findings obtained from this research had been otherwise since the coefficient was positive (B= .551), and it contributed to the model because the P=0.039; less than 0.05.

On top of that, most of the respondents of this study earned additional income in the form of pocket money from their husbands (*nafkah* in Islamic term), including for working women. Other respondents also earned additional income from investments and rental property.

Based on the open-ended question about the importance of career to the respondents, it had been found that women worked not for their own subsistence. They worked to improve the quality of life, alleviate the financial burden of their husbands, provide financial aid to parents, pay debts and commitments, as well as for the sake of their career development.

Therefore, despite having non-labor income (those without other income besides salary are grouped in the reference category), it did not cause women to choose not to work. In fact, as working women, they had many contacts and had the opportunity to earn an additional income, such as teach tuition and have a part-time business, including online business.

5.2.3.2 Socio-demographic factors

The four independent variables that were analyzed for socio-demographic factors showed a significant result with educated married women's participation in the labor market. Variables of *women's age* (0.003), and *residential location* (0.006) were significant at P-values less than 0.01, while *ethnic* (0.048) and *women's highest qualification* (0.015) showed P-values less than 0.05.

i. Ethnic

For ethnic, with *P-value* at 0.048, it was proven that the variable of ethnic did contribute to the model. The positive *B* (B = 1.251) indicated that non-Malays were more likely to participate in labor market compared to Malay women (reference category). This finding supported the idea revealed by Hirschman & Aghajanian (1980) 35 years ago.

In addition, previous studies have shown that marital status affected the participation of women in the labor market. Malay women had been often associated with the need to get permission from their husbands to continue working after marriage. Besides, a research report entitled "*The study to support the development of national policies and programs to increase and retain the participation of women in the Malaysian labor force"* by MWFCD (2014c) also found that one of the reasons for women not working were requested by the husband to take care of their children and household.

In addition to ethnic, which had been connected with the labor force participation among women (S. Spencer, 2006; Diah, 1998; Tienda & Glass, 1985), Malaysian statistics also showed differences in fertility rates by race. In 1975, the fertility rate was 4.6 for children per Malay women, 3.6 for Chinese women, and 3.9 for Indian women

(Amin, 2004). However, in 2012, this figure was reduced to 2.7 for Malays, 1.7 for Chinese, and 1.5 for Indians (DOSM, 2013b).

Since the presence of children highlighted a significant link with women participation (Hotchkiss et al., 2008, 2010; Mahoney, 1961), having more children was synonymous with the Malay ethnic against the non-Malays. Malay culture considers every child born has their own provision (*rezeki* in Malay term). In addition, the Malay culture also expects that with more children, the children will take care of them when they get older. When the number of children increases, the responsibility for the children and managing the household will also increase. This resulted in the Malay women, who had a bigger ratio of children than non-Malays, more likely to be unemployed.

ii. Residential location

Those women who lived in suburban and rural areas were found to have a negative relationship with the participation of educated married women in the labor market. As the urban area was grouped in the reference category, this study found that those educated married women who lived in the rural area (B= -1.345) were less likely to work than those who lived in the urban area, as well as those who lived in the suburbs (B= -1.016).

Based on *P-value* less than .01, the residential location variables were found to have contributed to the model. Thus, this study could suggest that the residential location also played a role in determining participation in labor market. According to Munoz (2007), living in an urban area increased the likelihood that women participated in labor market. Urban area provided more job opportunities and provided various facilities, including more child care centers compared to the rural areas. This is because; the development

and the facilities initiated by the government or supplied by the private sectors were more focused in urban area. Hence, women had more options to choose a suitable job, place to work, and child care they want. This can minimize the risk of women living in the urban who were forced to stop work than those who lived in rural and suburbs areas. These findings had been consistent with the research done by Nor'Aznin & Norehan (2007).

iii. Women's age

This study also found that the women's age factor contributed to the participation of educated married women in the labor market because the *P-Value* for this variable was less than .01 (P= 0.003). Compared to those aged 25-34 years, women in other age groups were less likely to work. The odds ratio for this group was 0.351 times less likely to participate in labor market compared to those aged 25 – 34 years (reference category).

In 1947, the age at marriage among women in Peninsular Malaysia was 18.5 years. This number increased in 1970 to 22.3 years old (Von Elm & Hirschman, 1979). The mean age of first marriage for women was further increased to 23.5 years old in 1990, 25.1 years old in 2000, and 25.7 years old in 2010 (Malaysian Ministry of Women and Family Development, 2014a). Parallel to the first marriage for women, which is at a higher age, the age for having children is also relatively at a higher age.

Besides, previous studies have shown that there were women who did not work due to childbirth, caring for small children, and managing children during their schooling. In the 30s, family members increased and a woman might have several children in various ages. For this reason, those educated married women over 34 years old were less likely to be in the labor market because of the need to manage children and the household.

iv. Women's highest qualification

The results showed that married women with lower education qualification less likely chose to work compared to those with higher ones. This research found that those married women who possessed a certificate and diploma (B= -1.329, P = .008) were less likely to work than women who held postgraduate qualification (reference category). This had been similar to those women with a degree. This group was more interested in working than those with certificates and diplomas, but still less interested in work compared to women with higher degree (B= -1.905, P = .012).

This situation is often associated with income level. Based on academic qualifications, generally, those with higher qualifications would have higher incomes. Accordingly, the opportunity cost of not working for those who graduated with certificates and diplomas, for example, was lower than the opportunity cost of those women with higher education. This caused those with lower education attainment to be less interested in joining the labor market.

However, since *P-Value* for all education level was less than .05, women's education variable actually contributed to the model. This finding supported almost all previous studies that connected education level with the participation rate in the labor market.

5.2.3.3 Family factors

Of the four variables evaluated for the family factors, only the variable of *mother's education* (0.535) was insignificant. Other variables, such as *father's education* (0.042), *husband's education* (0.009), and *having children* (0.011) were found significant with the participation of educated married women in the labor market.

i. Father's education

The father's education factor showed a *P-Value* of .042, which was statistically significant. Compared with those with tertiary-educated fathers (reference category), the *B-value*, which was positive (*B*= 0.644), indicated that those women whose fathers without tertiary and did not enter the higher education institution had a positive contribution towards respondents to participate in labor market. These findings supported Faridi et al. (2009), who found that the higher education level of fathers was not necessary for employment decision.

The less educated fathers were more synonymous with lower incomes. Normally, children who had completed their studies would find a job to increase family income. This, in fact, will be sustained after they were married. They would continue to work to help raise their family income and to help parents who are aging, even with children. Therefore, they would work in the labor market.

However, E. Ahmad & Hafeez (2007) and Hafeez & Ahmad (2002) stated that the level of fathers' education had been captured more through the effect of daughter's education, and not their daughters' labor force participation. Besides, they found insignificant relationship because educated fathers ensured that their daughters were also educated, but did not see it as directly connected with their daughter's participation in the labor market. However, Chaudhry & Jabeen (2010) asserted the positive relationship between fathers' education with women's participation; as the level of fathers' education increased, the rate of women's participation increased as well.

ii. Mother's education

Different from fathers' education, which had been positively related to educated married women's participation, the education level of the mothers indicated the opposite direction**. Table 5-11** shows the value of B= -.233, suggesting that for those women with mothers who did not enter the tertiary education system, the respondents were less likely to engage in the labor market.

Meanwhile, for mothers who did not get to tertiary level, she herself did not feel the hardship of learning at the tertiary level to complete the study. They did not assume that the learning process is an investment for the future. Possibly, mothers adopted the culture that child care and management of the household is a woman's responsibility (Noraini & Nor Diana, 2015b, 2015a). Besides, the mother's way of thinking can easily influence her daughter. Therefore, if the problem of child care cannot be solved and housework is disorganized because the wife works, women tend to stop working.

However, these variables did not contribute to the model of labor supply for educated married women in Malaysia because P-value=0.535. These results supported the findings obtained by Faridi et al. (2009), which stated that education level of mothers of females was unnecessary for the employment decision of married women's participation in labor force.

iii. Husband's education

Higher in education level had been associated with higher income. Consequently, many studies have linked that educated husbands enable their wives to leave the labor market because they do not face any financial problem. However, based on the belief that women participate in the labor market to improve quality of life and to increase family's

finances, a woman with a husband who do not have tertiary education (which generally signified relatively low income) would participate in the labor market.

Even when compared to respondents with tertiary education, there is a possibility that the wife's income is higher than the husband who does not study up to tertiary level. Therefore, it is desirable that the wife continues to work and more likely to participate in labor market. This situation is contrary to the highly educated husband (reference category). Therefore, with positive coefficient value (B=1.460), these findings contributed to the model (P=.009) and it supported the study conducted by Faridi et al. (2009).

iv. Have children

Like other countries with various cultures and races, the responsibility of managing the child is more directed to the mother than the father. For women who are married, but do not have children, their daily activities do not differ much from those who are not married. However, the presence of small children will change the daily activities of the mother especially.

During the day, the mother needs to ensure that there is a person who could take care of her children before deciding going to work and when she comes home from the office, the mother's activity is continued to manage the needs of her children. If taking care of children poses a problem to working mothers, women would sacrifice and stop working because of the culture that considers man as the breadwinner (Noraini & Nor Diana, 2015b).

With B= -.992, this research agreed with Hotchkiss et al. (2008, 2010) that the presence of children created negative correlation with participation in the labor force.

Accordingly, as the P-Value was 0.011, which is less than 0.05, the variable "having children" contributed to the labor supply model by educated married women in Malaysia.

5.2.3.4 Access factor

There was only one variable analyzed for access factor. As stated by Dettling (2012), ***access to internet*** at home can increase labor supply among highly skilled women with families. With positive coefficient value (B=0.761), this research found a positive relationship between access to the internet (as part of ICT) at home with educated women's participation in Malaysian labor force. However, for this research, this variable did not contribute to the model as the *P-Value* (P=0.213) was more than 0.05.

Besides, those with access to internet were more likely to engage in the labor market than those who did not have access (reference category). The odds ratio indicated that women with internet access 2.140 times more likely participated in labor market compared to those without internet access. For a mother to maintain her career without neglecting household responsibilities, access to the internet at home is expected to facilitate various transactions. In addition, income from home also can be generated.

Access to the Internet was not used for the participation in the labor market could not be proven due to a few reasons. According to Dettling (2013), home internet can reduce time and monetary costs of working by allowing individuals to work from home and it can reduce search frictions in the labor market by connecting potential employees to employers.

However, based on the statistics provided by the Malaysian Communications and Multimedia Commission (2015), the use of the Internet at home to find a job (32.1

percent) and running a home business (15.0 percent) involved only a small percentage compared to the internet used for social media (87.1 percent), communication (81.1 percent), and leisure (73.2 percent).

While more than 70 percent of respondents actually lived in the sub-urban and rural areas, Dettling (2013) also highlighted that the metropolitan area status showed differential rates of labor market participation, where the internet penetration rates for Malaysia had been higher in urban (67.2 percent) compared to rural (32.8 percent).

Furthermore, the Malaysian data showed that the ratio of females (41.7 percent) as internet users was lower than men (58.3 percent). On the other hand, the researcher believed that the high access to the internet was more likely to be a supporting variable because the working system in Malaysia is still bound by the need to be in the office during working hours (Subramaniam, 2011; Subramaniam, Ali, & Overton, 2010).

5.3 EDUCATED MARRIED WOMEN WITH CHILDREN IN THE LABOR FORCE (MODEL 2)

Of the 11 variables analyzed in Model 1, nine variables were significant and 2 variables were not significant. The six variables found to be significant at $p < 0.05$ were *ethnic*, *father's education*, *women's education*, *other financial resources*, *husband's monthly income*, and *having children*. Also significant were *residential location*, *women's age group*, and *husband's education* with *P-Value* < 0.01.

Meanwhile, variables of *mother's education* and *access to the internet* were found insignificant for this study. The first objective of the study (to examine the determinants

of educated married women's participation in labor force) was achieved with this finding.

As stated, presence of children displayed a significant impact on the participation of educated married women in the labor force. However, to what extent is its association? For further details of this finding, a second model was generated specifically to look at how the presence of children in terms of the *number of children* and *age of children* influenced the decision to work or not to work by educated married women. By analyzing this part, the second research objective, namely to ascertain the determining factors in labor force participation of educated mother, had been achieved.

5.3.1 Descriptive statistical analysis

Model 1; labor supply by educated married women was based on 593 respondents among women with tertiary education attainment. Of these, a total of 174 married women did not have children and the rest (419 people) had at least one child. Therefore, in order to build Model 2, a total of 174 respondents without children were removed as respondents for Model 2.

Table 5.12 shows that from 419 educated married women with children, 349 were working married women (83.3 percent) and 70 were non-working married women (16.7 percent).

As shown in **Table 5.13**, there were respondents in every state and territories, which represented educated married women with children in Malaysia. Respondents from Selangor were the highest with 39.1 percent of the women involved.

Table 5.7: Distribution of respondents by employment status (Model 2)

	Frequency	Percent
Not working	70	16.7
Working	349	83.3
Total	**419**	**100.0**

Table 5.13: Distribution of respondents by state (Model 2)

	Frequency	Percent
Johor	34	8.1
Kedah	25	6.0
Kelantan	11	2.6
Melaka	17	4.1
Negeri Sembilan	17	4.1
Pahang	19	4.5
Pulau Pinang	19	4.5
Perak	18	4.3
Perlis	10	2.4
Selangor	164	39.1
Terengganu	16	3.8
Sabah	9	2.1
Sarawak	10	2.4
WP Kuala Lumpur	42	10.0
WP Labuan	1	.2
WP Putrajaya	7	1.7
Total	**419**	**100.0**

i. Distribution of respondents by economic characteristics

Based on the percentage of EMW working status, **Table 5.14** shows that 43.7 percent of the husband's income range among the respondents had been between RM2, 001 and RM4, 000 per month. Meanwhile, the percentage of married women with children whose husbands were earning more than RM4, 000 had been higher for women who did not work, whereas the percentage of women whose husbands were earning below RM4, 000 was higher among working married women with children. This situation explains

that the husband's income might affect the wife's employment status. Moreover, based on the percentage of husband's monthly income, the percentage of working women with children had been less when they were married to a higher-income spouse. This situation is similar to that projected in model 1.

On the other hand, for the variable of other financial resources, it was found that the ratio was quite similar for those who had no income other than salary (at 45.3 percent) or those with other source of income (54.7 percent), or also known as non-labor income. Based on the percentage for other financial resources, more women with children had decided to work even though they earned non-labor income.

i. Distribution of respondents by socio-demographic characteristics

Based on the percentage of EMW working status, in terms of ethnic groups, the data displayed in **Table 5.15** showed that 91.9 percent of the respondents were Malay women. Besides, based on the percentage concerning ethnicity, the percentage of Malays who were unemployed had been higher compared to non-Malays. Furthermore, 82.1 percent were aged between 25 and 34 years old. For percentage of age group for working women with children, 84.9% of them were in the 25 to 34 years old age range, while 76.0% were more than 34 years old.

Of the 419 educated women in Model 2, 60.4 percent of the respondents held a degree as their highest qualification, while 26.7 percent graduated with postgraduate level, and 12.9 percent had diplomas and certificates.

Table 5.14: Cross tabulation of the respondents by economic characteristics (Model 2)

		EMW_WC working status		
		Not working	Working	Total
Husband's monthly income (in RM)	RM2,000 / month and less	9	88	97
	% within EMW working status	12.9%	25.2%	23.2%
	% within husband monthly income	9.3%	90.7%	100.0%
	RM2,001 - RM4,000 / month	26	157	183
	% within EMW working status	37.1%	45.0%	43.7%
	% within husband monthly income	14.2%	85.8%	100.0%
	RM4,001 - RM6,000 / month	18	60	78
	% within EMW working status	37.1%	45.0%	43.7%
	% within husband monthly income	14.2%	85.8%	100.%
	RM6,001 / month and above	17	44	61
	% within EMW working status	24.3%	12.6%	14.6%
	% within husband monthly income	27.9%	72.1%	100.0%
Total		70	349	419
% within EMW working status		100.0%	100.0%	100.0%
% within husband monthly income		16.7%	83.3%	100.0%
Other financial resources	No	36	154	190
	% within EMW working status	51.4%	44.1%	45.3%
	% within other financial resources	18.9%	81.1%	100.0%
	Yes	34	195	229
	% within EMW working status	48.6%	55.9%	54.7%
	% within other financial resources	16.7%	83.3%	100.0%
Total		70	349	419
% within EMW working status		100.0%	100.0%	100.0%
% within other financial resources		16.7%	83.3%	100.0%

Table 5.15 also shows that 55.4 percent of the respondents lived in suburban areas, 25.1 percent lived in urban areas, and 19.6 percent lived in rural areas. In urban areas, the percentage of working women had been higher than those not working. Meanwhile, in sub-urban and rural areas, higher percentage of women who were not working lived in this area compared to those who worked.

Table 5.15: Cross tabulation of the respondents by socio-demographic characteristics (Model 2)

		EMW_WC working status		Total
		Not working	Working	
Ethnic	Malay	76	449	525
	% within EMW work status	96.2%	87.4%	88.5%
	% within ethnic	14.5%	85.5%	100.0%
	Non Malay	3	65	68
	% within EMW work status	3.8%	12.6%	11.5%
	% within ethnic	4.4%	95.6%	100.0%
Total		79	514	593
% within EMW working status		100.0%	100.0%	100.0%
% within ethnic		13.3%	86.7%	100.0%
Women age group	25 - 34 years	58	447	505
	% within EMW work status	73.4%	87.0%	85.2%
	% within age group	11.5%	88.5%	100.0%
	More than 34 years	21	67	88
	% within EMW work status	26.6%	13.0%	14.8%
	% within age group	23.9%	76.1%	100.0%
Total		79	514	593
% within EMW working status		100.0%	100.0%	100.0%
% within age group		13.3%	86.7%	100.0%
Women's highest qualification	Master & PhD	17	133	150
	% within EMW work status	21.5%	25.9%	25.3%
	% within qualification	11.3%	88.7%	100.0%
	Bachelor Degree	50	313	363
	% within EMW work status	63.3%	60.9%	61.2%
	% within qualification	13.8%	86.2%	100.0%
	Certificate & Diploma	12	68	80
	% within EMW work status	15.2%	13.2%	13.5%
	% within qualification	15.0%	85.0%	100.0%
Total		79	514	593
% within EMW working status		100.0%	100.0%	100.0%
% within qualification		13.3%	86.7%	100.0%

Continue..

(continued from Table 5.15)

		EMW working status		Total
		Not working	Working	
Residen-tial location	City Council (urban)	11	146	157
	% within EMW work status	13.9%	28.4%	26.5%
	% within location	7.0%	93.0%	100.0%
	Munic.Council (sub-urban)	49	275	324
	% within EMW work status	62.0%	53.5%	54.6%
	% within location	15.1%	84.9%	100.0%
	District Council (rural)	19	93	112
	% within EMW work status	24.1%	18.1%	18.9%
	% within location	17.0%	83.0%	100.0%
Total		79	514	593
% within EMW work status		100.0%	100.0%	100.0%
% within location		13.3%	86.7%	100.0%

ii. Distribution of respondents by family characteristics

Table 5.16 shows that respectively, 67.8 percent and 80.7 percent of respondents had parents who attained their education at secondary level and below. This showed that even with the background of the parents at the secondary level, their daughters pursued their education to a higher level than they had themselves. However, the husbands of the respondents showed a different background, as 82.6 percent of the respondents had tertiary-educated husbands (94.3 percent of those were unemployed, while 80.2 percent were employed respondents).

In terms of the number of children that the respondents had, the percentage of respondents with one or two children had been higher (79.0 percent) than those with at least 3 children (21.0 percent). Moreover, 81.4 percent of working women and 67.1 percent of non-working women had one and two children. The number of these children depended on the age of the respondents, mostly in the range of 25-34 years old.

Table 5.8: Cross tabulation of the respondents by family characteristics (Model 2)

		EMW working status		Total
		Not working	Working	
Father's educational background	Tertiary	33	156	189
	% within EMW work status	41.8%	30.4%	31.9%
	% within father edu	17.5%	82.5%	100.0%
	Others	46	358	404
	% within EMW work status	58.2%	69.6%	68.1%
	% within father edu	11.4%	88.6%	100.0%
Total		79	5	93
% within EMW work status		100.0%	100.0%	100.0%
% within father edu		13.3%	86.7%	100.0%
Mother's educational background	Tertiary	16	96	112
	% within EMW work status	20.3%	18.7%	18.9%
	% within mother's edu	14.3%	85.7%	100.0%
	Others	63	418	481
	% within EMW work status	79.7%	81.3%	81.1%
	% within mother edu	13.1%	86.9	100.0%
Total		79	514	593
% within EMW work status		100.0%	100.0%	100.0%
% within mother's edu		13.3%	86.7%	100.0%
Husband education	Tertiary	75	407	482
	% within EMW work status	94.9%	79.2%	81.3%
	% within husband edu	15.6%	84.4%	100.0%
	Others	4	107	111
	% within EMW work status	5.1%	20.8%	18.7%
	% within husband edu	3.6%	96.4%	100.0%
Total		79	514	593
% within EMW work status		100.0%	100.0%	100.0%
% within husband's edu		13.3%	86.7%	100.0%
With / without children?	No children	9	165	174
	% within EMW work status	11.4%	32.1%	29.3%
	% within with/without child	5.2%	94.8%	100.0%
	Have children	70	349	419
	% within EMW work status	88.6%	67.9%	70.7%
	% within with/without child	16.7%	83.3%	100.0%
Total		79	514	593
% within EMW work status		100.0%	100.0%	100.0%
% within with/without child		13.3%	86.7%	100.0%

Similarly, the percentage of respondents with children less than 6 years old was higher than those whose children had been in school. Accordingly, 9.5 percent of the respondents who worked and 4.3 percent of women who did not work had children aged more than six years old.

Hence, a simple conclusion that one can make is that the percentage of unemployed women with at least 3 children and a child aged less than six years old had been higher than that of the percentage for working women. This means; the aspects of *number* and *age* of children were likely to affect the participation of married women in the labor market.

iii. Distribution of respondents by accessibility to internet

Table 5.17 highlights the respondents by access factor, which was *internet access*. It was found that 95.5 percent of educated married women had access to the internet. Respectively, 4.3 percent of women did not have access to the internet at their homes.

5.3.2 Logistic regression analysis

The research framework for the second model that was itemized in section 3.7 exhibits seventeen independent variables that had been analyzed. However, similar to the first model, the variables *women's income* and *husband's employment status* were dropped due to separation problem, while *religion* and *household income* were dropped because of multicollinearity. As Model 2 was developed to study the participation of educated mothers in labor force, the variable *having children* was no longer relevant because all 419 respondents did have children. Hence, in order to understand how the presence of children affected women's participation in the labor force, two more variables; *number*

of children and *having children with age less than six years old*, were added to the regression equation.

Table 5.9: Cross tabulation of the respondents by access characteristics

		EMW working status		Total
		Not working	Working	
Access to Internet	No	4	23	27
	% within EMW work status	5.1%	4.5%	4.6%
	% within access to internet	14.8%	85.2%	100.0%
	Yes	75	491	566
	% within EMW work status	94.9%	95.5%	95.4%
	% within access to internet	13.3%	86.7%	100.0%
Total		79	514	593
% within EMW work status		100.0%	100.0%	100.0%
% within access to internet		13.3%	86.7%	100.0%

Model 2 retains the reference category for the existing 10 variables as in Model 1. Those with 1 & 2 children (for variable *number of children*) and those who did not have children less than six years old (for variable *having children below six years old*) had been defined as reference category.

i. Model performance

The variables *number of children* and *having children below six years old* were tested with the other ten variables via Enter method. **Table 5.18** gives the model performance criteria.

The full model that contained all predictors was statistically significant, $\chi 2$ (16, N=419) = 61.197, $p < 0.001$, indicating that the model was able to distinguish between respondents who chose to participate in labor force against those who chose not to participate. Hence, a significant value of $\chi 2$= 61.197 with degrees of freedom at 16.

Table 5.10: Model performance criteria

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	61.197	16	.000
	Block	61.197	16	.000
	Model	61.197	16	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	316.910[a]	.136	.229

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	9.614	8	.293

Classification Table[a]

Observed			Predicted		
			Educated women participation in labor force		Percentage Correct
			Not working	Working	
Step 1	Educated women participation in labor force	Not working	10	60	14.3
		Working	6	343	98.3
	Overall Percentage				84.2

a. The cut value is .500

The non-significant value of the Hosmer and Lemeshow Test (p = 0.293) and significant Omnibus test (p = 0.000) showed good performance of the model. As a

whole, the model itself explains between 13.6 percent (Cox and Snell R2) and 22.9 percent (Nagelkerke R2) of the variance in choosing to participate in labor force.

The classification table shows that out of the 349 educated women who chose to work, 343 were classified correctly. Alternatively, out of the 70 educated women who chose not to work, 10 were in the correct group.

Overall, the model correctly classified 84.2 percent (Working = 98.3 percent, and not working = 14.3 percent) of cases, which had been higher than its baseline of 80.5 percent, leading to an excellent model performance.

Figure 5.2 illustrates that the SPSS output shows a ROC curve. The area under the curve, as shown in **Table 5.19**, was .775 with 95 percent confidence interval (.714, .836) and significantly different from 0.5 since the *P-Value* was .000, meaning that the logistic regression classified the group as significantly better than by chance.

i. Parameter estimates

The variables in the Equation for Binary Logistic Regression Analysis that were conducted on Model 2 are shown in **Table 5.20**. This table shows that five of the twelve variables presented a positive relationship between the dependent variable and the independent variables, while seven others showed negative values of B.

In Model 2, women with *other financial resources* and *husband's monthly income* functioned as two predictor variables under the economic factors. *Ethnic*, *age*, *women's highest qualification*, and *residential location* were related to socio-demographic factors. Other than that, *father*, *mother,* and *husband's education*, *number of children*,

and *having children below six years* old were five predictive variables under family factors, while *access to the internet* was a variable under access factor.

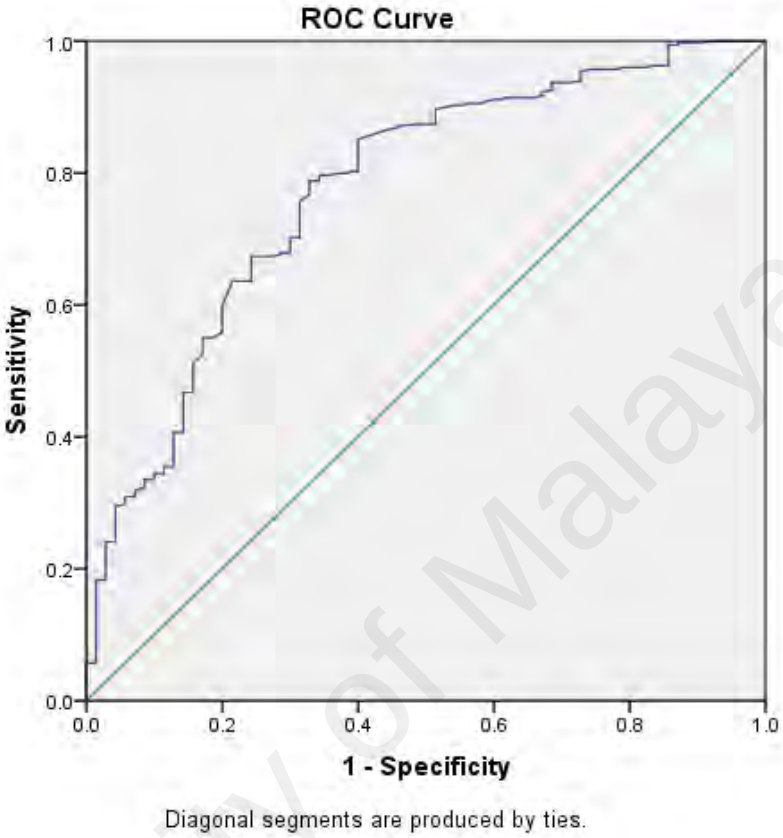


Figure 5.2: ROC Curve for Model 2

Table 5.11: Area Under the Curve

Test Result Variable(s): Predicted probability

Area	Std. Error[a]	Asymptotic Sig.[b]	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.775	.031	.000	.714	.836

The test result variable(s): Predicted probability has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.
a. Under the nonparametric assumption
b. Null hypothesis: true area = 0.5

Table 5.20: Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp (B)
Ethnic	1.971	1.048	3.537	1	.060	7.180
Urban			9.926	2	**.007**	
Sub-urban	-1.075	.416	6.671	1	**.010**	.341
Rural	-1.474	.477	9.568	1	**.002**	.229
Women Age group	-1.065	.458	5.415	1	**.020**	.345
Father Education	.596	.351	2.894	1	.089	1.815
Mother Education	-.469	.435	1.165	1	.280	.626
Women Edu (Master, PhD)			8.624	2	**.013**	
Women Edu (Degree)	-1.051	.399	6.953	1	**.008**	.349
Women Edu (Cert, Diploma)	-1.461	.554	6.948	1	**.008**	.232
Access to Internet	.717	.722	.984	1	.321	2.048
Have Other Resources	.266	.294	.819	1	.366	1.305
Husband Education	1.301	.576	5.109	1	**.024**	3.672
Husb_Inc >RM2,000			10.997	3	**.012**	
Husb_Inc RM2,001-4,000	-.559	.453	1.522	1	.217	.572
Husb_Inc RM4,001-6,000	-1.175	.526	4.998	1	**.025**	.309
Husb_Inc < RM6,000	-1.656	.552	9.006	1	**.003**	.191
Num. of children	-.303	.370	.669	1	.413	.739
Child below_6years	-1.470	.718	4.196	1	**.041**	.230
Constant	4.801	1.196	16.110	1	.000	121.689

For educated married women with children, the results in **Table 5.20** suggested that those who were non-Malays, whose fathers did not have tertiary education, those with internet access at home, women with other source of income besides salary, and a woman whose husband did not have tertiary education were more likely to participate in labor market. The reason for this positive relationship is similar to that of Model 1, which is described in section 5.2.3.

5.3.3 Determinants of labor force participation for Model 2

The explanation below discusses the relationship between the dependent variables (participation of educated married women with children in labor force) and the independent variables. The discussion is started by explaining the relationship of the similar 10 variables, which are discussed in Model 1. This is followed by the two new variables (*number of children* and *having children aged less than six years old*), which were included in Model 2.

Those resided far from city center, belonged to the age more than 34 years old, women's mother who did not have tertiary education, women with lower level of qualification, and women with husband's income more than RM4,001 per month had been less likely to participate in labor force.

a) The ten variables tested in Model 1

Variable of *ethnic* (P = .060) was no longer significant in Model 2. This is believed to be caused by two new variables included in model 2. Similarly, variables *father's education* (P = 0.089) and *have other resources than income* (P = .366) were no longer significant in Model 2, in comparison to model 1. This means; the participation of educated married women with children was no longer influenced by these three variables, but because of the issues related to the presence of the child.

Variables of *husband's education* (P = .024)*, residential location* (P = .007), *age* (P = .020), and *women's education* (P = .013) remained significant, while variables *mother's education* (P = .280) and *access to the internet* (P = .321) remained insignificant in this second model.

Although variable *husband's income* was still significant (P = .012) and influenced educated married women to participate in labor market, there had been difference in which level of income was significant. In Model 1, only women with husband's monthly income more than RM6,000 had been found significant. In Model 2, those with husband's monthly income RM4,001 – RM6,000 and more than RM6,000 were significant.

For educated mothers whose *husband's monthly income* were more than RM4,000, the mothers had less tendency to work because their husbands' income was considered sufficient to allow only the husbands to work to find the source of the family expenses. As the respondents in model 2 had at least three children and some were younger than 6 years old, the cost of child care would be larger if the mothers worked. Difficult process and increase in the cost of hiring maids from the neighboring country forced middle-class families to send their children to private child care.

However, the cost of care in registered child care centers with trained caregivers are very expensive (Wong, 2014; Boo, 2013). Thus, by choosing not to work, the mother can take care of their own children (save on the cost of care), no longer issuing cost of transport to the workplace, and the management of children, as well as household, would be better organized since their production time in the household would have increased. Thus, educated mothers with sufficient husband income were less likely to work to minimize the opportunity cost if they worked.

b) Results for new variables in Model 2

For the two independent variables that were only included in this second model, the logistic regression analysis found that both had a negative relationship with the

dependent variable. With B = -.303 for *number of children* and B = -1.470 for those *having children below six years old*, this research suggested that both variables led to a negative correlation with participation in the labor force. Thus, it was found that this relationship between dependent and independent variables had been similar to that of previous studies (Chaudhry & Jabeen, 2010; Ackah et al., 2009; Hafeez & Ahmad, 2002; Sasaki, 2002; Diah, 1998; B. Spencer, 1973; Mahoney, 1961).

For variable *having children below six years old*, the *P-Value*, which was .041 (less than .05), showed that it was significant and contributed to the model. Children under six years old who have not reached the age of compulsory schooling in Malaysia, require caregivers if the mothers go to work. If child care cannot be arranged either because of the high cost of care or even difficulty getting care centers that meet the prerequisites of the mothers, as social norms, which stated that household is women responsibility (Noraini & Nor Diana, 2015b; Rahmah & Noorasiah, 2014), they would prefer to quit their job and take care of their own children.

However, for the variable *number of children,* the *P-Value* = .413, which is more than .05, showed insignificant result and this variable did not contribute to the formation of labor supply model by educated married women with children. As the majority of educated women married to educated husband, it had been suggested that even with more number of children, it would not reflect the unaffordable cost of care. This is because; typically, higher education is accompanied by the high income of the spouse (McConnell et al., 2010a) and cost of care can still be handled and affordable for them. Besides, the Malaysian fertility rate was only at 2.6 in 2014.

5.4 CONCLUSION

Binary Logistic Regression with all categorical data that was conducted on 11 variables for Model 1, and 12 variables for Model 2, found that five variables were positively related, while the other eight variables were inversely related to the participation of educated married women in Malaysian labor force.

Of these, based on *P-Value* less than .05, as stated at the beginning of the study, nine out of eleven independent variables included in model 1 (educated married women), while six out of twelve independent variables included in model 2 (educated married women with children) had been included to the model. It was found that eleven variables supported the theory and one variable (*have other resources* to represent the non-labor income) showed the opposite.

Table 5.21 shows a summary result for Model 1 and Model 2 of this research. Association with participation was based on the coefficient of Tables 5-11 and 5-20, and they were assessed to either support or not to support the theory based on previous studies. The variables that were significant at *P-value* less than .05 were included in the model and vice versa. A description of the relationship for each variable with the dependent variable has been described previously. In this section, the researcher only explains the aspects that differentiate the findings found in Model 1 and Model 2 with previous studies.

Some literature stated that ethnic did not affect female participation in the labor market. For that reason, there was no expectation sign of the coefficient in the beginning (as shown in Table 4-2). Nevertheless, once the data from the respondents had been analyzed, the researcher found that ethnic differences also affected labor supply among

educated married women (Model 1) for participation in labor force. However, this variable was insignificant for educated women with small children (Model 2).

Table 5.21 : Summary Results of the Test Hypotheses

Predicted variable	Findings of the research			
	Association with participation	Based on P <.05		In comparison to theory / literature
		Model 1	Model 2	
1. Ethnic	Positive	Included	Not Included	Supported
2. Residential location	Negative	Included	Included	Supported
3. Age group	Negative	Included	Included	Supported
4. Father's Education	Positive	Included	Not Included	Supported
5. Mother's Education	Negative	Not Included	Not Included	Supported
6. Education	Negative	Included	Included	Supported
7. Access to Internet	Positive	Not Included	Not Included	Supported
8. Other Resources	Positive	Included	Not Included	Not Supported
9. Husband's Education	Positive	Included	Included	Supported
10. Husband's Income	Negative	Included	Included	Supported
11. Have Children	Negative	Included	-	Supported
11. Number of children	Negative	-	Not Included	Supported
12. Age of children	Negative	-	Included	Supported

Although mother's education was excluded from both the models, the value of coefficient (*B*) showed a negative correlation, as presented in a few previous studies. It is believed that these variables were not the determinants for participation of educated

married women because the characteristics of the research sample itself. As people with high education level, academic qualification that women obtained is sufficient as factors that predispose them to work. Hence, the ***mother's*** and ***father's education*** background that were not significant with the participation of women in the labor market can be accepted.

Furthermore, previous studies indicated that women with non-labor income were more likely choose not to work. However, the finding of this research displayed a reverse situation, where women with non-labor income worked. As explained earlier, the reason for women to work was to increase the quality of life for the family.

In Islam, a Muslim husband needs to provide pocket money (or *nafkah* in Islamic term) to his wife. If recommendations are adhered to by all Muslims, women who are married will have non-labor income, whether she is working or function as a housewife. For a few respondents in this study, their non-labor income was earned from their husbands as monthly pocket money. Some also had investments and received dividends derived from their monthly earned income.

This means; because of working and earning an income, they have the opportunity to earn income from the investments. Similarly, those who work also have extra income, such as running small businesses. Some respondents were identified as running side businesses and they generated profits from these activities. Due to work, they had customers that composed from colleagues and acquaintances. This situation explains why non-labor income was positively related to the participation of educated married women in the labor market.

However, one more important finding had to be refined. Why, "access to the internet", which was positively associated with female participation in the labor market, cannot be

proven in the Malaysian environment? What are the factors that caused access to the internet not to contribute to the model? Meanwhile, almost all the studies proved that technological advancements and access to ICT helped to empower women.

Among the benefits of the internet is able to perform various transactions (Suhaida et al., 2013) and enable women to work from home (Suhaida et al., 2014) for their work-life balance. However, some challenges promote women empowerment through the benefit offered by ICT tools. It requires learning, training, affordable access to the technology, information relevant to the user, and a great amount of support to create enabling environments (Jorge, 2002). Their ability to take advantage of these opportunities is contingent upon conducive policies, an enabling environment in their countries to extent increased education levels, financial support, and infrastructural support (P.N. Prasad & V. Sreedevi, 2007).

With the progress and the needs of development for Malaysia nowadays, all employees have access to the internet that is provided by employers to facilitate work at office. At home, having an internet for individuals or households is based on their needs. However, availability to access to the internet at home depends on both sides, demand from the user and supply from the provider. However, when it is generally accepted that flexibility in the workplace has the potential to benefit employers, employees and economy as a whole, adoption is still low and there is little empirical evidence on the benefits or costs (Dettling, 2012).

Compared to neighboring countries, Malaysia is not far behind in ASEAN, where Singapore showed the highest access to the internet at 73.0 percent (2013), while Malaysia displayed 65.8 percent (2012) and 67.0 percent (2013). However, global

ranking of Malaysia in The ICT Development Index decreased from 66th place in 2012 to the 71st in 2013 (International Telecommunication Union, 2014).

Other than that, in order to enable the use of the internet for those who use a smart phone, 3G technologies are required because of limited ability of 2G technology. As approximately, 30 percent of the Malaysian population live in rural areas (DOSM, 2014a), where ICT facilities should be available for the internet benefits can be utilized. However, only 32 percent of rural population had been covered by at least a 3G mobile network (International Telecommunication Union, 2014). In the aspect of cost to use this technology, mobile broadband is still more expensive than fixed-broadband services in developing countries (International Telecommunication Union, 2013).

Furthermore, of the 593 respondents to the survey, 27 educated married women stated that they did not have access to the internet at home due to unavailable internet connection, the bill was high but the internet speed was low, and there was no requirement for them to use the internet at home. **Table 5.22** shows that 73.9 percent of the respondents had problems in using the internet at home.

The percentage of those who faced problems in using the internet increased in urban areas (70.0 percent) to the suburbs (74.8 percent) and rural areas (76.6 percent). For those who lived in urban areas, they described a major problem when using the internet at home as the network was found unstable (48.6 percent) and had low internet speed (31.4 percent).

Meanwhile, those living in sub-urban and rural areas were also confronted with the same problems, respectively 36.4 percent and 36.8 percent in sub-urban and 41.5 percent and 35.4 percent of the respondents for those who lived in rural areas. The

conclusion one could make is, those living in rural areas faced more problems in using the internet at home than those who resided in the urban area. The two main problems for using the internet at home were unstable network and slow Internet speed.

Table 5.12 : Main problems for using the internet at home * Residential location Cross tabulation

Category		Residential location							
		Urban		Sub-urban		Rural		Total	
		No.	%	No.	%	No.	%	No.	%
Main problems using the internet at home	Expensive fee	18	17.1	53	22.9	14	17.1	85	20.3
	No coverage	3	2.9	7	3.0	1	1.2	11	2.6
	The speed was slow	33	31.4	85	36.8	29	35.4	147	35.2
	Unstable network	51	48.6	84	36.4	34	41.5	169	40.4
	Others	0	0.0	2	0.9	4	4.9	6	1.4
	Total	105	100	231	100	82	100	418	100
Total respondents who used the internet	Have problem	105	70.0	231	74.8	82	76.6	418	73.9
	No problem	45	30.0	78	25.2	25	23.4	148	26.1
	Total	150	100	309	100	107	100	566	100

As an **overall conclusion** to this chapter, in general, consistent with the Theory Of Human Capital Investment (Becker, 1994), the results of this study showed that the level of education had a strong impact on women's decision to participate in the labor market. This theory also portrayed that those with higher education would expect higher income. With higher wage rate, the Theory of Allocation of Time (Becker, 1965)

highlighted that higher wage rate would induce more people to work and as a result, leisure hour will decrease. However, the allocation of one's time depends on trade-offs that are more complex than a simple choice between work and leisure.

Thus, this study showed that the participation of educated married women in the labor market had been influenced by many factors. Ethnicity, education, age, residential location, other financial resource, father's education, husband's income, and the presence of children displayed significant relationships with the option of educated married women to work or not to work in the labor market. For those with children below six years old were found more likely not to participate in the labor market, even if the mother was an educated person. The question is, to what extent the presence of children, especially for those younger in age, might affect the participation of educated married women in the labor market? To answer this question, the researcher furthered this study with the use of qualitative research methods and the findings are discussed in the next chapter.

CHAPTER 6

CHILD CARE ARRANGEMENT ISSUES

6.1 INTRODUCTION

Quantitative data extracted from surveys were analyzed using logistic regressions and its output enabled more precise and generalized findings. Therefore, this study applied the mixed method research to help answer the third research question; What are the problems faced by educated mothers related to child care arrangement? As stated by Creswell & Plano Clark (2006), by mixing the datasets, better understanding can be obtained compared if either dataset had been used alone.

To follow up on the quantitative findings (which are discussed in chapter 5), this research used the sequential explanatory design. In this design, qualitative and quantitative data were not combined in the data analysis. Quantitative data were collected and analyzed first, followed by the collection and analysis of qualitative data (Creswell, 2012b).

For the qualitative study, responses and findings from interview participants or informants (those among educated mothers) were confirmed by using data triangulation. This second source of data had been obtained via interviews with experts in the field. The results of this qualitative study are presented starting with demographics of the informants, the emerged themes, and conclusion.

6.2. DEMOGRAPHICS OF THE INFORMANTS

This qualitative part involved two processes of the data collection process. The first part was interview sessions with educated married women who were likely to face problems of child care arrangement, while the second part was interviews with experts in the field. For interviews with educated married women, abbreviations were used to ensure confidentiality. Symbol definitions for their working status and residential location are given in the following:

W	=	Working
NW	=	Not Working
U	=	Urban
SU	=	Sub-Urban
R	=	Rural

a) Educated married women with children

Of the nine educated married women with children, five of them were working on a full time basis, while the other four were unemployed. Mrs. W/U/3 (working), Mrs. NW/U/2 (not working), and Mrs. NW/R/9 (not working) were educated mothers and their residential location had been in urban areas. ON the other hand, Mrs. W/SU/5 (working), Mrs. NW/SU/6 (not working), and Mrs. W/SU/7 (working) resided in the suburbs, while Mrs. W/R/1 (working), Mrs. W/R/4 (working), and Mrs. NW/R/9 (not working) lived in rural areas.

All those women were aged between 34 and 44 years and lived in several states in Malaysia. As had been set for the respondent characteristics, those educated married

women as informants had at least three children, and among them there were children aged less than six years old. Basic information about the nine informants is shown in **Appendix 7**. Five of the nine informants had three children, two had four children, and the remaining one informant had seven children.

b) Experts in the field

There was no problem in the researcher's efforts to meet the senior officer of Ministry of Women, Family and Community, MWFC. For UNDP, the directors of gender program had been individuals who were newly appointed and she suggested the name of their research consultant who was a lecturer at University of Malaya.

Nevertheless, the researcher faced difficulties in getting the representatives of Social Welfare Department. As this department was an agency under the supervision of MWFC, the senior officer in the ministry who was directly involved in the management of child care and flexible working arrangement had been successfully interviewed. Thus, the three individuals who were interviewed for the data triangulation are as follows:

i. Mrs. Zalinah Mohd Yusof, Deputy Under Secretary, Policy Branch (Of Women And Family), Ministry Of Women, Family, And Community
   - abbreviation = EiF_1

ii. Mrs. Masni Mustapa Kamarul Basah, Principal Assistant Secretary, (Family Development Unit, handled child care and flexible working arrangement), Ministry of Women, Family And Community
   - abbreviation = EiF_2

iii. Associate Prof. Dr. Shanthi Thambiah, Lecturer in the Department of Gender Studies, Faculty of Arts and Social Sciences, University of Malaya, who was also a consultant to several studies conducted by UNDP
- abbreviation = EiF_3

6.3 QUALITATIVE ANALYSIS

Qualitative approach is carried out to inquire the collection of data in a natural setting sensitive to the people and places under study, and data analysis that is inductive and establishes patterns or themes (Creswell, 2007). The summary of the key points that emerge is produced from undertaking the activity. This summary compresses long statements into briefer statements in which the main sense of what has been said and observed is rephrased in a few words (Saunders et al., 2009). For this study, all transcripts from the two categories of interviews were read to get a general understanding prior to assigning theme based on a review of the existing literature.

The initial themes reflected the study's major topical areas, including: *availability of child care centers*, *child care costs*, *family support*, and *health of children*. Additional category that emerged through the process until a list was finalized was *child safety*. For each theme discussed, the responses from all the informants are mentioned, and then, the opinions of experts in the field of emerging themes are discussed.

6.3.1 The Availability of child care centers

Easy access to child care will affect women's labor supply and female employment rate (Del Boca & Vuri, 2007). A mother will only go to work when she is not faced with the problem of who will take care of their children and where their children can be placed

when they work. The first part of the findings from interviews with participants provided such information.

a) Informants

Mrs. W/R/1 who was pregnant with her fourth, studied during the weekends, and stayed in an apartment that was quite far from the city center. She stated that in the area where she lived;

> *"there are several child care centers in this area, including for children for transit. My employer does not provide facilities for child care in the workplace"*

Even those who can take care of her children around the house can be found, but at that time, Mrs. W/R/1 felt that it was better for her children to live in the village with her parents because the environment in the village had been more suitable for them. Maybe, when they went to school, and after her financial status becomes more stable, she would bring them to stay with her.

As for Mrs. NW/U/2, who had resigned from her career as an officer in Research Department at one of the large companies in the city center, she stated that there was a child care center in the area she lived. However, while the third child was still an infant and she was breastfeeding, she chose to send her daughter to the nursery that was closer to her workplace. She was more comfortable sending her children to the nursery even though there were neighbors who were willing to take care of them. In terms of child care centers provided by the employer, Mrs. NW/U/2 informed;

" there are many child care centers in this area.. I've heard there was a proposal to provide a nursery in my workplace .. but until I stopped working.. there has not been any progress".

Mrs. W/U/3 is a medical doctor in a government hospital and at the same time, she was continuing her studies at the postgraduate level. She employed the service of an Indonesian maid to manage domestic work at home and to take care for her three children while working. Before that, her son was also sent to a babysitter and regarding access to child care center, she said;

"My employer does not provide child care center, but not far from where I work there is a child care center… as well as in my area".

Mrs. W/R/4, who formerly had a job in Kuala Lumpur, had chosen not to work. The husband of Mrs. W/R/4 was a teacher who taught in a rural area in Johor. At first, they sat separately and her husband commuted every weekend or once every fortnight to meet them since the children stayed with Mrs. W/R/4 in Kuala Lumpur. In explaining about care of children, she informed that the area where they lived involved with an oil project that caused the residents to move out. Mrs. W/R/4 stated;

"I live in the village.. There is no registered child care center... it's quite difficult to find people who can take care of the child".

Mrs. W/SU/5 never used a housemaid because she did not want an outsider who had never been known to take her role as a mother. When the children were still small, they were cared for by her family, babysitter, and nursery. Her families who lived in two different areas stated that there was no problem to get the person or place to take care of

her children while she went to work. Regarding providing child care centers by the employer, Mrs. W/SU/5 said;

> *"I know the government is announcing a budget to set up a nursery in a workplace... but it has not existed until now in my department since we are not in headquarters... and they put the terms of salaries and household income. Therefore, I am not eligible even I have seven children".*

According to Mrs. NW/SU/6, her eldest son was sent to a neighbor's house. When her son was six months old, the child care center was not as many as present. When her second child was born, she stopped working. She preferred to take care of her own children;

> *"The child care centers are plentiful… there is no child care center provided by my employer".*

According to Mrs. W/SU/7, a working mother who lived in the suburbs, no longer used the services of a maid because her children were growing up. When the fourth child was born, the child was sent to a nursery near to the area where she lived. Regarding child care center in the workplace, she informed,

> *"I work in a private company .. my employer does not provide any child care center for us".*

Mrs. NW/U/8, who became a fulltime housewife when she was pregnant with her fourth child, explained that she preferred sending their children to a babysitter while she was working. According to Mrs. NW/U/8;

"There is no proposal from my employers to provide child care center for employees".

According to Mrs. NW/U/9, they moved because her husband served in Melaka and she was able to find a job in a private company. Since they were new to the area they lived then (rural area), they did not know anyone to send the child to or to find a babysitter at home. So, it was easier to send the child to the nursery. However, due to health problems of her children, she chose to stop working. In addition, she told;

"There is a nursery that is not far from where we lived".

b) Experts in the field

EiF_1 who was a senior officer in The Ministry of Women, Family And Community Development (MWFC), Malaysia stated that indeed there were many registered child care center, especially in urban areas. According to EiF_1, some ministries (public sector) still failed to provide nurseries at the workplace. To encourage the establishment of child care centers in the private sector, the government has provided several incentives, such as grants and tax exemptions for the establishment.

She added that the new registration to set up a child care center in the country also increased in every month. Regarding provision of child care centers in the country, EiF_1 explained,

"we do not yet require every institution establish child care in a workplace but we always encourage the establishment by providing incentives, assistance, and guidance".

EiF_2 was also a senior officer from MWFC, who managed the affairs related to child care and flexible working arrangement. She explained that four types of child care centers existed in Malaysia, namely child care at home, child care at institutions, child care at the workplace, and child care at community.

EiF_2 added,

> *"We always update the data on the number of child care centers in Malaysia and it showed increment... it means that… in many places, there is a child care center for those who need. But where the establishment of child care is being built, it is up to the owners... as long as the owner complies with rules that we have set ".*

However, EiF_3 who was an Associate Professor in the Department of Gender Studies, Faculty of Arts and Social Sciences, University of Malaya, as well as a consultant for several researches conducted with UNDP and UNICEF, believed that,

> *"Actually... the number of child care centers in this country is not enough... maybe there is a child care center in their home but far from the workplace.. no option. In terms of ratio .. the number of children with the number of registered child care.. there is not enough.. "*

EiF_3 explained the important thing is to increase in the quality of child care centers, not only increase in number. She stated that the quality of child care should be "balance". For children, all necessary aspects, such as to learn, play, activities to improve communication skills of children, and safety aspect, should be emphasized.

6.3.2 Child care costs

For educated mother to work in the labor market, children need to be taken care of by other people. Therefore, the fee of child care services needs to be paid. Fees paid to a registered child care, generally, are more expensive compared to those who send their children to be cared for by a babysitter. However, there are also babysitters who are registered and unregistered with authoritative institutions. Alternatively, there is the opinion that hiring a maid to take care of the child is more cost effective.

a) Informants

Mrs. W/R/1 had no choice and she had to leave her children with their families in the village. According to Mrs. W/R/1, who had information about child care centers near their homes, said that the cost of care was according to age. To take care of the baby from 7.00 am until 6.00 pm, the charge was RM350. For children aged 3 years and above, the rate varied and care for only half day, the fee was RM180. She said;

> *"I have three children.. I can't afford to send them to the nursery with my current income".*

Mrs. NW/U/2, living in Taman Melawati, explained that in 2012, her children were cared by the nursery. For her children aged less than 2 years old, she paid RM300. Sometimes, she had to work for extra hours in the office, where additional charge of RM5 per hour was charged because later than 6.30 pm. She said;

> *"When I have 3 children .. nursery care costs are a burden… but the cost to take a maid was not cheap".*

Mrs. W/U/3, who hired maids, stated that her elder son was sent to the babysitter. The cost was not so expensive for one child, but when she already had two children, she said;

> *"It is expensive to pay for the nursery.. when there is more than one child.. I feel it is more worthwhile to take a maid.. she can do the domestic work at home".*

Mrs. W/R/4 chose to take care of her children on her own. According to her, she noticed that she would earn an income if she worked. However, since the cost of child care was high, the balance of her salary was not worth for her to remain in the labor force. According to Mrs. W/R/4;

> *"...cost of sending a child to the nursery is not cheap".*

Mrs. W/SU/5, who had seven children, had sent her child to be taken care of by her sister, babysitter, and child care center. She noticed that her small children needed monitoring, but by sending them to the nursery, she expressed that the cost of child care was expensive. She said;

> *"With my income at that time... it was so expensive.. but I had no choice".*

Mrs. NW/SU/6 informed that her children's ages were different by a few years between one and another. The first one then was 19 years old and the second was 15 years old. Thus, she did not pay child care costs simultaneously. So, the pressure on costs did not give her a big problem. However, she stated that;

> *"When I stopped working .. we can save the cost of their care".*

Mrs. W/SU/7 expressed her less satisfaction in cost of child care in her area. She told, in December last year, the nursery had informed about the new rates being increase because of the GST. In 2014, as her daughter stayed in the nursery until the evening, she paid RM250 for full day. Now (2015), as her child had enrolled in kindergarten, the child just went to the nursery in the evening.

> *"For the half day nursery.. I still need to pay RM250.. that does not include the cost to kindergarten".*

According to Mrs. NW/U/8, her eldest daughter was cared by her sister in 1998 and she gave her RM150. For the second and third children, she paid RM200 to RM250 each to the babysitter. But when the third child was born, the second child already went to school. Mrs. NW/R/9 showed her gratitude by saying:

> *"Luckily the ages of my children are not close.. thus, I did not pay the cost simultaneously".*

Mrs. NW/R/9, who had three children, sent all of them to the nursery before they started school, also expressed her views on the cost of care;

> *"When my three children were sent to a nursery.. it was almost RM800 per month I have to spend for the cost of child care.. but that was a few years ago while I'm still working. Now it must be more".*

b) Experts in the field

Regarding child care cost, EiF_1 gave her opinion as,

"Child care center has become an industry.. more facilities are available and the child care centers are better.. they are more expensive because we need to pay for the service. Meaning .. if parents want a quality child care center.. the cost is going to be expensive".

However, according to EiF_1, the government has provided a support system for parents from low-income groups. Based on the parents' or household income, subsidies for child care fees can be applied to ease financial burden. However, the subsidy is somewhat limited because it depends on the budget provided by the government.

EiF_2 explained that the fee of registered child care center is determined by the entrepreneurs themselves. That is, there is no minimum or maximum rate setting for the cost of child care center determined by the ministry. She said,

"...we have no control over these fees.."

Regarding subsidy for child care center that can be applied by parents who qualify, EiF_2 explained that the subsidy granted under MWFC was RM250 per person and it was limited to only two children in a family. However, the subsidy was only revealed to the ministry for year 2015 and can be applied as long as extant. For the next year, the subsidy is subjected to the provision by the government. For civil servants, they can also get a subsidy under the provision of the Public Services Department at RM180 per person. However, EiF_3 did not discuss the cost of child care directly. However, she argued that,

"For something that has quality .. sure it would entail higher costs"

For EiF_3, she believed that aspects of child care are very important. Therefore, child care should be viewed as valuable as health and education. According to EiF_3,

> *"An investment in quality child care is not only for the women to go out to work.. Quality child care will produce future human capital… that is good for the country"*

According to EiF_3, the important thing is for professionals and educated women to maintain the quality of child care centers. If they choose to stop working because they want to take care of their children, the country will lose a source of talent. Therefore, as quality child care centers involve higher costs, the government should pay attention and give adequate funding to ensure better quality child care centers in Malaysia.

6.3.3 Family support

When married women begin to have children, activities related to household management will increase. Therefore, if the responsibility of managing the household could be shared with other family members, especially husbands, it would ease women's responsibility at home. Help in this study reflects child care assistance, help in managing the household, and any other form of help that can ease the responsibilities that often played by women within the family.

a) Informants

When interviewed, Mrs. W/R/1 was almost eight months pregnant, while the first child was with her new husband. According to Mrs. W/R/1, who was also a part-time student, she and her new husband were both working. When returning home, usually she quickly

started cooking. However, when she was pregnant, her husband had wanted her to get extra rest. Her husband helped to wash the clothes, tidy, and cook. The situation was proven because during the interview session, Mrs. W/R/1's husband was cooking for their lunch. Mrs. W/R/1 also explained that his brother also spent more time with her children who lived in the village with their parents. During weekend, Mrs. W/R/1 stated;

> *"My children are taken care of by my parents.. I was back only in the weekends. My husband also cooperates.. especially when I have an examination".*

Mrs. NW/U/2 also expressed her family's support because her husband did help her to take care of their children, especially the two older children. While Mrs. NW/U/2 was still working, her husband helped to cook, and sent children to school before he started his work. Besides, Mrs. NW/U/2 said;

> *"Now when I'm not working.. my husband still helps to manage the children and household needs. My mother and sister also helped a lot in terms of child care, cooking.. there is also financial constraint".*

As a working mother who was also in her third year of postgraduate studies, Mrs. W/U/3 informed that she and her husband had to manage their own household as their parents could not help because they were old and unhealthy. In the morning, she would send their children to school and when the time came to go home, her husband would manage it. Support from her husband was truly appreciated, especially when her husband was willing to quit his job as a government doctor to give opportunity for Mrs. W/U/3 to focus on her studies before he could find a permanent job. This was because,

Mrs. W/U/3 lived in Johor, but she should be in the faculty at Kuala Lumpur for her first year and final year of studies. Therefore, Mrs. W/U/3 stressed;

"He is very helpful... Alhamdulillah".

According to Mrs. W/R/4, who did not work full time, but conducted an online business, also gave positive reaction regarding her husband's support and assistance. If her husband had no much work to do, he would take their children home from school. However, the verse stated by Mrs. W/R/4 explained that her husband's assistance had been limited by the following sentences;

"He helped a little-bit of housework .. washing clothes, washing dishes.. that's it".

Challenges faced by Mrs. W/SU/5 had been greater in managing seven children. According to her, the children were grown up and helped to do a lot of housework, such as cleaning the house, washing, and hanging clothes. She added;

"My husband helps with housework.. only when the children were still small.. after being told".

For Mrs. NW/SU/6, she highlighted that her husband did not help with the work in the kitchen, but he was fully responsible for sending their children and taking them from school. When Mrs. NW/SU/6 was still working, her husband also sent and fetched her from the workplace. However, in order to describe the role of the spouse in the household, Mrs. NW/SU/6 used the following sentences;

"My husband was just interested for work outside the house. Inside the house.. all that I do, from A – Z".

Mrs. W/SU/7 informed that her husband was self-employed. Therefore, he had flexible working hours and he would take their children from the nursery if he finished his work early. Any program or activities in children's school, her husband managed them and it saved her annual leaves. Besides, Mrs. W/SU/7 added;

"If he returned home early.. He helped me to cook rice".

Mrs. NW/U/8's sister helped her to take care of her daughter when she was working. Even after she had stopped working, Mrs. NW/U/8 said that her husband still helped her to manage the household. According to Mrs. NW/U/8, her husband did help to send their children to school, hanged clothes, and managed all work outside the house, while she managed other household chores. If the children were sick or unhealthy, the husband would take care of them. While she was cooking or cleaning in the house, NW/U/8 informed that her husband would take care of their children. Therefore, Mrs. NW/U/8 said;

"When the children are with my husband.. I can focus on my housework..
so I can work in peace".

For Mrs. NW/R/9, who did not work, but sometimes received orders to produce ingredients for food, she shared her husband's involvement in the housework. When her first and second children were unhealthy, Mrs. NW/R/9 and her husband took turns to accompany the child in the hospital and at home. When she started to do small businesses, her husband was plentiful with help because he sent the products to the shop or to customers. Furthermore, he also helped to provide some information as promotion in Facebook. Moreover, Mrs. NW/R/9 added;

"About homework.. less... there are occasional in weekends"

b) Experts in the field

Based on the research conducted by her ministry, EiF_1 shared that some respondents placed their children under the care of grandparents. In addition, she also believed that,

> *"If women have to work.. to share the responsibility of her husband.. to earn an income for their expenses.. as the cost of living is increasing.. of course a husband should help his wife to do the housework"*

Regarding family support that can ease the role of women in the workplace and in the household, EiF_3 stated that,

> *"many proposals have suggested that the role of the husband in the household should be expanded. Maybe the man loves to be the king of the household ... but there are changes happening now.. but the changes are very slow"*

According to EiF_3, Malaysians uphold the culture that women are responsible for all household chores, including child care. She added that working women still worked when they returned home. Work at home is not divided equally with the husband even though the wife is working. This causes women to become extremely tired.

6.3.4 Child's health

Unhealthy children worry parents. Sometimes, it is complicated to handle them especially when the child is sick and choose to be approached only by certain people. For working mothers, when the children are unhealthy, it could interrupt their work

because more attention can be given to them, especially if the child needs to be hospitalized.

a) Informants

According to Mrs. NW/U/2, challenges related to child health problems caused her to stop working. Her first child, since baby until the age of 4 years old, was always admitted to the hospital. She felt that when she often took leave, it affected her job performance. When asked to explain the situation further, Mrs. NW/U/2 added that her work involved teamwork and she was a junior. She realized that when she always took leave to accompany her children in the hospital, it burdened the team work although they understood her situation. When she gave birth to a new baby, the baby was exposed to infection at birth, thus, the baby was also always hospitalized. However, even though she never received a complaint and still received bonus and increment, Mrs. NW/U/2 still felt that her work performance was low. She expressed the situation as;

> *"I feel stressed.. awry between work and children. When discussed with my husband.. we decided that.. the best decision is.. I should take care of my own children at home"*

Mrs. NW/R/9 also dealt with her children's health problems, which led to her decision to stop working. Mrs. NW/R/9 told that two of her children had asthma. They were very sensitive to cold weather and dust. Mrs. NW/R/9 told that there was one day when both of her children were attacked by asthma when they were in the nursery. They brought the children to see a specialist doctor and the doctor said that the quickest remedy to immediately recover their asthma was by always bringing them to swim. By learning how to swim, they would learn to control breathing and receive cold feeling.

But, as a working mother, she was only left with Saturdays and Sundays. There was a place to learn swimming only on weekends, but it was ineffective to cope with their asthma problems because as the Doctor suggested, they need three to four times of swimming a week. Moreover, the pool was quite far from their house. Mrs. NW/R/9 continued explaining about the health of their children;

> *"Because I wanted to see them healthy as other people.. the best choice is one of us should stop working. As a mother, I realized that.. I have to stop working.. bring them to swimming class.. and be aware of their environment.. so that they are not easily attacked by asthma".*

Mrs. W/U/3, Mrs. NW/U/8, Mrs. W/SU/5, Mrs. NW/SU/6, Mrs. W/SU/7, Mrs. W/R/1, and Mrs. W/R/4 had been quite lucky because they were not tested with the situation of children who often fell sick or suffered from any disease. Their children just had common unhealthy symptoms (such as flu and fever) and if they were sick, it happened only occasionally (such as Mrs. W/SU/5, as her son got infection and was hospitalized for 10 days).

However, for Mrs. NW/U/2 and Mrs. NW/R/9, the situation of children who were frequently sick, gave an impact on their careers. Opportunity of working was too high because it had been related to their children's lives. They were often unable to work and had to take time off to care of their sick children, which lastly, influenced them for the decision to quit from the job. Hence, children's health condition was the cause for them to leave the labor market.

b) Experts in the field

EiF_1, EiF_2, and EiF_3 agreed that children's health problem do not always happen and do not happen to everyone. They had no comment on this matter.

6.3.5 Safety of children in a child care center

Based on the past studies that has been referred to date, only four child care issues (as discussed earlier in 6.3.1 to 6.3.4) had been studied about its association with women's participation in the labor market. The informant, actually, had been only asked questions related to the four issues. However, the theme of safety in a child care center, either in the nursery or cared by a babysitter, had been the issue that was **indirectly uncovered through interviews** with the participants for this study.

a) Informants

Mrs. W/R/1 chose to have her children cared for by her families due to higher confidence for the safety of her children. Besides, her father was always at home to look after her children when he retired. Mrs. W/R/1 said;

> *"I left the children in the village because .. they are familiar with the family. Their safety is also more secure .. I have no doubt".*

According to Mrs. NW/U/2, she had never sent her children to child care centers, which are not formal. She realized that near her house, there was a housewife who received babies to be taken care of, but she did not send her child there. Besides, she was still breastfeeding as she was worried about those who brought the children out of their

homes, such as when they needed to go shopping or visiting a neighbor's house. Mrs. NW/U/2's opinion was;

> *"Children with a babysitter in a house… have no standard procedures for child care as in the nursery".*

According to Mrs. W/U/3, when she had two children and no maid, she sent her children to a nursery. In the nursery, she noticed there were always other children who were unhealthy. Then, she found her son also began getting sick, which needed her or her husband to take off from work because they felt sorry for the children who had to go to the nursery while being ill. Even though there was a special room for those unhealthy in the nursery, as parents and maybe because both of them were doctors, Mrs. W/U/3 stressed her opinion;

> *"We always.. and still worried if the children were infected with various diseases. In fact, when children are taken care of by the maid.. I was often asked them.. what has the maid done every day".*

Even among the reasons, Mrs. W/R/4 did not work because her husband worked far away from her and her son, where Mrs. W/R/4 also imagined a situation which concerned about the safety of their children during interview as;

> *"I do not believe for someone else to take care of my child .. worried."*

Meanwhile, Mrs. W/SU/5 faced the challenge of cleanliness that affected his son's health in the babysitter's house. She explained that her son used to sleep in the hammock. Every week, she would bring back the fabric for hammock to be washed. However, sometimes, the babysitter requested to let her wash. Even agreed upon the request, after a long time, Mrs. W/SU/5 asked to bring back the hammock. Then, she

found that the fabric of the hammock looked bad, smelly, and there was fungus. Besides, she noticed that the babysitter loved giving the children cereal to eat, which she thought as unhealthy food. One day, her son was infected with infection. Mrs. W/SU/5 told that her son got fever when she took him back to home in the evening. Probably, due to high fever, her son got convulsion. With regret, Mrs. W/SU/5 expressed;

> *"For 10 days my son was treated in the hospital. Since that.. we stopped sending my child to a babysitter".*

In terms of child safety, Mrs. NW/SU/6 also stated that her neighbor who took care of her son loved bringing him out when she went out without her permission. She stated;

> *"It makes me feel my son is unsafe.. I fear of accident or kidnap. Then, the relationship with the neighbors had become unfavorable".*

Mrs. W/SU/7 also faced a problem when the babysitter gave a short notice that she was unable to take care of her child and she kept changing babysitters. She told that her fourth child was taken care of by a housewife. At first, there was no problem with her because she just cared her son. However, when children that she cared of increased, Mrs. W/SU/7 saw that she failed to provide good commitment to care for her child. She expressed her situation as;

> *"I saw my son as neglected by the babysitter"*

Not long after that, the babysitter told Mrs. W/SU/7 that she could not take care of her child anymore because a few children whom she had cared, even actually her son was the first child she had received to take care of. The babysitter only gave her one month's notice to find another person. When her child was sent to another babysitter, he kept

crying and turned from one to another babysitter because they did not accept a child who kept crying and difficult to be taken care of. Finally, Mrs. W/SU/7 sent her child to the nursery, only the nursery that accepted and knew how to treat her son who kept crying because they were unfamiliar to him.

However, Mrs. W/SU/7's case did not directly involve issues pertaining to the safety of children, but because the babysitter who started receiving more and more children to be cared for, causing Mrs. W/SU/7 began to feel that his son was being neglected. Moreover, since her son kept crying and Mrs. W/SU/7 was forced to switch from a babysitter to another babysitter, Mrs. W/SU/7 also expressed dissatisfaction because informal child care places accepted and refused her child to be cared with very short notice. Change caregiver also means children have to adapt to a new environment and child safety would always be a concern among parents, especially if the babysitter began to feel uncomfortable with a child who they cared. This situation irritated Mrs. W/SU/7 who was working.

From all participants of the interview, only Mrs. NW/U/8 and Mrs. NW/R/9 did not face any challenges related to the safety of their children.

b) Experts in the field

Elaborating on the issue of safety of children in child care, EiF_1 stated that it occurred when parents sent their children to child care centers that were not registered. According to her,

> *"accident or negligence often occur because of incorrect ratio between caregivers and children. For registered child care center.. they have guidelines that must be followed… including trained caregivers. Cases*

reported in the media... when we investigate.. happen in child care centers that are not registered".

According EiF_2, the issues of negligence and accidents that occur in child care centers occur because too many babies and children who are cared for within the same time. Unregistered child care centers do not comply with the ratio of caregivers and children. For that reason, EiF_2 warned that parents should always make sure that they send their children to a registered care center. She added,

"if something happens in an unregistered child care center... it would be difficult to take action".

For EiD_3, safety issues do not just affect children who are left at the child care center when the parents go out to work. She indicated that there are also cases of children abandoned and abused even when being taken care of their parents and family. In term of safety of children in a child care or nursery, EiF_3 stated that,

"if we have a quality child care center .. all aspects will be taken care of. Not only safe place.. even space to move around, well-trained caregivers, interpersonal skills .. all aspects related".

6.4 CONCLUSION

The informants who were selected from the three different locations; urban, suburban, and rural areas, did not face any problem pertaining to no place for the custody of their children. In relation to the availability of child care centers, nine educated mothers were interviewed, where only one of them stated the problem concerning access to child care center. Eight other educated women did not deal with the problem, no matter where the

location of their residence had been, whether in urban, suburban or rural area. This means; whether in the form of formal and registered (such as nursery and kindergarten) or in the form of informal (such as a babysitter), a child care center is easily accessed by educated married women in Malaysia.

This theme had been agreed upon by experts in the field. However, although child care centers are available in most areas in Malaysia (and the number increased by time), there are parents who are still not satisfied with the quality, as highlighted by Yamauchi (2010). The chosen point to take care of their children is not all in registered institutions. Some informants had chosen neighbours and their contacts to take care of their children. Moreover, no informant stated that their employers or former employers provided child care centers at the workplace.

All participants consistently highlighted that the cost of child care was expensive although there was an informant who lived in rural areas, where relatively the cost of child care supposedly is cheaper. For that reason, some informants felt that they could not afford to bear the cost, especially when the number of children increased. Besides, some informants had chosen to hire a maid and some felt that they could save family expenses by taking care of their own children. By choosing not to work, opportunity costs can be reduced when compared if they worked. This findings had been consistent with those discussed by Wetzels (2005), Kimmel (1998), Connelly (1992), and Rita (1979).

These qualitative findings evidenced that the issue of high child care costs have burdened the family, especially those with many children. While agreeing that the cost of child care is not cheap (Wong, 2014; Boo, 2013), experts in the field confirmed that

the quality of child care should be given priority. Although child care subsidy is provided by the government to those who qualified, the eligibility is very limited.

Family support, on the other hand, is not only meant in terms of helping to take care for children. It also includes help from the husband in managing the household, especially for a wife who works and has dual role. Cooperation in managing the household will help to reduce the burden of working wives who still need to manage the family and could reduce the production of time in the household (Grossbard, 1993).

Besides, some studies have discussed that grandparents and close relatives who took care of the children when the mother went to work helped to reduce the tendency of educated married women to exit from the labor market because of child care issues (Albuquerque & Passos, 2010; Sasaki, 2002). Moreover, data triangulation confirmed that this theme is relevant. Help and support can ease the responsibilities of a mother. However, a few informants still chose not to work.

Only two informants expressed their child's health related issues, which affected their careers. The other seven informants stated that their children did not have persistent health problems, which had to frequently rush to the hospital. Since only two from all informants indicated the child health issues, saturation of data was not obtained. Thus, child health cannot be associated with the less likely of educated married women to participate in the labor force. This is because; the percentage of informants that agreed to the issue had been less than 70 percent, as that adopted by Bowen (2008). Hence, this study supported the findings by Ke Meng (2012) and G. Loman (1990), which stated that the child's health is not related to mother's employment and labor force participation. Experts also stated that child's health problem would not happen to everyone.

Moreover, the issue of safety of children aged less than six years, not yet in school and who are taken care of by other people, especially when parents work, had been the issue that was successfully uncovered through interviews with the participants for this study. The situation concerned by parents regarding their child's safety was informed indirectly by informants when they itemized who took care of their children while they were working (for mothers who worked) and when they were still working (for mothers who did not work when interviewed). It also shelled out more when they answered questions about the challenges faced by them in caring for their children. This issue was seldom discussed in previous studies, especially in Malaysia; especially on how these variables had been related to the participation of educated mothers in the labor market.

An important finding from this study was that there was a high sense of worry among parents about the safety of children when their children need to be taken care of by other people. In addition to anxiety by their own experience, a concern was raised with the information from other people's experiences that were reported by the media. Then, choosing to stop working was the best thing to do to avoid a greater risk on the safety of their children. Moreover, deciding to give priority to the safety of children means participation of mothers in the labor market as an opportunity cost.

In addition, according to DOSM (2009) in 2008, it was reported that nearly 1,500 new cases of child abuse with respect to physical, emotional, and sexual had been found. Since 1999, there were at least 900 children reported abused in Malaysia each year, involving more than 13,000 children by end of 2008. For the period of 1999-2007, it was observed that neglect (30.4 percent) and sexual abuse (30.3 percent) cases were the main contributors to the number of child abuse cases, followed by physical abuse (28.1 percent).

Furthermore, media reports about the maid who hurt employer's children, small children who fell sick and died while in child care centers certainly haunt parents to leave their children for their work in the labor market. **Appendix 8** shows that the child safety is not guaranteed as reported by the media. It is believed that this information is worrying mothers and makes them tend to not work. As for experts who were interviewed, they said that the security is not guaranteed, especially for those who sent their children to babysitters or day care centers, which were unregistered. As they were unregistered, they cannot be monitored by the responsible party. Thus, the quality of child care is not guaranteed and the safety guidelines are not followed.

As for the overall conclusion, the findings obtained from this qualitative part of the study examined the problems faced by educated mothers that bothered them to work and at the same time the need to leave their children to be taken care of by a third party. The four themes that had been validated by the informants and experts in the field had answered the research question; What are the problems faced by educated mothers in relation to child care arrangement?

Unable to overcome the problem to get child care centers that meet their needs, the cost of care, which they cannot afford to pay, and inadequate family support that makes women exhausted as having two roles, have reduced their ability to work. Also, an important finding that the researcher gained from these interviews was no confidence about the safety of child care places had been the main problem faced by educated mothers. These are the things that actually cause many women to leave the labor market even they have invested in education and should play an active role in the economy. The reasoning related to child care arrangement could also provide an additional rationale for a backward-bending labor supply curve for educated married women.

CHAPTER 7

CONCLUSION AND RECOMMENDATIONS

7.1 INTRODUCTION

The overall objective of this research was to identify the labor supply decision among educated married women in Malaysia and how issues of child care arrangements affected their participation in the labor force. This research had been guided by three major theoretical paradigms, which were inter-linked with each other. They were Theory of Allocation of Time, Theory of Investment in Human Capital, and Theory of Access.

The present study identified the cross-sectional predictors of the relationships between a few independent variables with labor force participation by educated married women. Quantitative data were collected via online survey and they were analyzed by using Binary Logistics Regression. As for the qualitative part, interviews were conducted in two phases; the interviews with informants and experts in the field to validate the findings. The interviews were analyzed using content analysis. This chapter summarizes those obtained from the study that employed the Sequential Explanatory Mixed Methods Design.

The discussion chapter is organized as follows. The first section is dedicated to an overview and interpretation of findings related to labor force participation by educated married women. The next section provides information on policy recommendation and how the findings of this research contribute to the body of knowledge. Discussion on

the limitation of the study and indication of future research are also discussed. Finally, the chapter ends with concluding remarks.

7.2 SUMMARY OF THE FINDINGS

Educated married women make their employment decisions based on various characteristics. The four factors of concern (economics, socio-demographics, family, and access factors) were explored as potential indicators of various measures of employment status. The main findings drawn from this study are summarized below.

The first research objective examined the factors that influenced educated married women, while the second research objective ascertained the determinants of educated married women with children for their participation in labor force. In model 1 (educated married women), nine of the eleven variables were analyzed in parallel with the literature, while six of the twelve variables for model 2 (educated married women with children) proved a significant result for the participation of women in the labor market.

Other than that, the quantitative findings of this study proved no particular difference in the factors that determined the participation of educated married women in Malaysia compared to those in the literature. Variables of *residential location*, *women's age group*, *women's education*, *husband's education*, and *husband's income* displayed a significant relationship with the participation in labor force for all educated women, including those with children.

However, the researcher had found that mothers' decision to the supply of labor was very much influenced by presence of children. This had been due to the fact that variable *have a child* was found significant for educated women. Meanwhile, for those

with children, variable *have children aged less than six years old* exhibited significance with the participation of mothers in the labor market. Other than that, variables *ethnicity* and *father's education*, which were significant for all educated women, had been proven to be insignificant among those with children at a younger age.

Furthermore, variable *have other resources* (represented as non-labor income) that showed a significant result in model 1 had been inconsistent with the literature, while *access to the internet* that had been proven in a previous study to have a positive relationship with the participation of women in the labor market was insignificant in this study. Besides, *mother's education* did not contribute to both models, whereas the *number of children* was insignificant in the labor supply model for educated mothers.

Lastly, the third research objective discovered a **real problem** faced by educated mothers in their child care arrangement. It sparked the motivation for this research to gain better understanding of the importance of child care arrangement to women where they had to choose between participating or leaving the labor market. Thus, a qualitative study with data triangulation that was conducted found that respondents who *had access to child care places* around the area they lived expressed that the *cost of child care was high*.

In addition, *family support* was available to help mothers in managing their household work and *safety aspects of the child* had been a matter that was highly emphasized by the informants who had to leave their children for work. Moreover, the content analysis found that *children's health problems* was not related to the participation of educated mothers in the Malaysian labor force.

For the overall analysis, these findings are discussed within the three underlying theories. The Theory of Investment in Human Capital that explored ideas about those

with higher education in participating in the labor market, had an exemption upon women who are married and those who cannot manage the required child care of their children (this idea is detailed in section 7.4).

Thus, the decision among married women either to work or not work actually had been explained by the Theory of Allocation of Time. This theory recognized that women not only arbitrated between leisure and labor hours, but between leisure, labor, and home production of goods and services. Labor supply of married women was decided in a family context and that the time that was not spent in the labor force included not only leisure, but also household production, child care, and education.

Although earlier studies noted that access to technology (for this study, it had been the access to the internet at home) could increase the number of working women in the labor market, it was not proven by the sample in this study. The educated married women in Malaysia had been unable to prove the argument depicted from the Theory of Access; which stated that those with access to technology possessed higher ability to gain advantages from it.

7.3 POLICY TO INCREASE PARTICIPATION OF EDUCATED MARRIED WOMEN INTO THE LABOR FORCE

The main findings of this study were the factors that determined labor supply decision made by educated married women in the labor force. For educated women who were working, they implied the possibility of not working when faced with problems related to child care. Childbirth and child care had been among the reasons why educated women chose not to work (Malaysian Ministry of Women and Family Development, 2014b; Suhaida & Mohd Faizal, 2014). Moreover, due to the difficulty of balancing the

needs of work and household management or in other words, achieving the ***work-life balance***, women had been forced to make choices and face the opportunity cost between their work and household activities. Table 7-1 depicts the answers obtained from the open-ended question posed to the respondents; "*What women need for work-life balance*", during the online survey.

Table 7.1 shows what educated married women with children yearn to achieve work-life balance. A majority of them stated *child care center in the workplace* and *flexible working arrangement*, respectively 44.1 percent and 26.9 percent. Most respondents from private companies expressed the need of child care in a workplace, such as those provided by the government for civil servants. Meanwhile, 5.3 percent of respondents expected to work within a more appropriate time because at the time the study was conducted, they had been working a long time in a day. For example, bank officers stated that they always returned home at night.

Similar to the theme of *safety of children* that has been discussed in the qualitative analysis, 4.6 percent of educated women expected for a child care center that can be trusted due to concern for the safety aspect of the children in the child care center. Thus, in order to achieve work-life balance, each 4.4 percent of the respondents required affordable child care costs and perhaps for the policies that could allow them to work from home.

For breastfeeding mothers, they expressed the necessity of having breastfeeding corner with proper utensils and facilities pertinent to store the expressed breast milk while at work. The absence of a suitable space for such purposes was also expressed by an informant (W/U/3) although she was a medical doctor, where her employer encouraged breastfeeding for infants to grow healthier.

Table 7.1: What educated women need for work-life balance?

	Responses		Percentage of Cases
	N	Percent	
1. Child care in a workplace	182	44.1%	64.1%
2. Flexible working arrangement	111	26.9%	39.1%
3. Appropriate working time	22	5.3%	7.7%
4. Trustworthy child care places	19	4.6%	6.7%
5. Affordable cost of care	18	4.4%	6.3%
6. Flexibility to work from home	18	4.4%	6.3%
7. Baby-friendly office	17	4.1%	6.0%
8. Housing near workplace	14	3.4%	4.9%
9. Maid	7	1.7%	2.5%
10. Husband's help	4	1.0%	1.4%
11. Allowance for the unemployed	1	0.2%	0.4%
Total	413	100.0%	145.4%

In addition to the specific issue of child care arrangement, there were also other things that had been expected by the respondents. Since their workplace was far from residential location, 3.4 percent of the respondents expected for a workplace that was closer, 1.7 percent said that they needed maids, 1.0 percent expected help from their husbands in managing household chores, and 0.2 percent proposed for allowances for those who were unemployed.

Hence, one can note that the issues related to educated women's decision to participate in the labor market had been strongly associated to child care arrangement. Therefore, the suggestions to retain them in the labor market are discussed in two parts; policies related to child care and policies related to women in labor force. Before that, opinions from the researcher are shared pertaining to the existing policies.

7.3.1 Review of the existing policies

The low rate of female participation in the labor market began rise when Malaysia gained her independence. Compared to the old tradition that considered women should stay at home to manage the household, education opportunities have expanded and more jobs are given to women. The government too has encouraged active participation among women in the labor market, which began from the Second Malaysia Plan (1971-1975), but the specific policies for work-life balance among women were been established.

Since decades ago, many previous studies have discussed the issue of low participation rate in the labor market among Malaysian women (Aminah, 1998, 1999; Jamilah, 1994; Siti Rohani, 1994; Rahmah & Fatimah, 1992; Abdul Razak, 1983; Tham, 1983). In addition, international statistics, including those data retrieved from Malaysia, revealed a massive gap in participation rates between genders. However, a special effort to increase the participation rate of women only started in 2000 when the Millennium Development Goals (MDGs) set a target of achieving 55 percent participation rate of women in the labor market by 2015.

Besides, from the historical aspect, the mandate to manage the affairs related to women actually took a very long time. Based on information from the official portal of the Department of Women (www.jpw.gov.my), National Advisory Council on the Integration of Women in Development (NACIWID) was established in 1975. However, at that time, NACIWID was still small in size and it was placed under the department or ministry. In addition, the agency that was responsible for the development of women was placed in several different ministries. In fact, the Ministry of Women, Family, and Community Development (MWFCD) at present is only 11 years old. Before the

establishment of MWFCD, empowering women in terms of participation in work place only involved enhancements in Employment Act 1955.

In terms of the policies carried out, the existing policies fail to benefit all working women in Malaysia. Options for 90 days maternity leave, paternity leave up to 7 days, and staggered working hours only benefited the civil servants. The establishment of child care centers in the workplace too was not obliged by all employers, while flexible working hours had been just attempted for implementation in the government sector, and subsidy of child care fees was very limited.

Although changes and improvements had been observed from the previous, practice of work-life balance sorely lacked in Malaysia (Noraini & Nor Diana, 2015b, 2015a). The existing policies were inadequate to increase the participation of women, especially those educated in the labor market. For that reason, in the researcher's opinion, the main reason for women not to work was due to the need to look for the children, as the issue of child care arrangement needs a drastic solution that is more efficient. These two recommendations are believed to meet the needs of work-life balance required by married women.

7.3.2 Policies related to child care

Within short term, it has been proposed that the government can expand the coverage of their nurseries (a.k.a. TASKA), which are organized by KEMAS. Recently, KEMAS has provided nursery services for low income and underprivileged groups, especially for rural and suburban communities. As for TABIKAs, the kindergartens organized by KEMAS, the number of classes in each state deemed appropriate for children aged 4 to 6 years. However, the number of TASKAs, nurseries for children aged 2-4 years, should

be increased. In a densely populated state and surely with many children like Kuala Lumpur and Selangor, the number of TASKA KEMAS available had been found to be respectively low, compared to Sarawak.

Expansion suggestions, which are intended, are not only in terms of its class, but supposed to also accept children aged less than 2 years old. Besides, based on monthly fees, TASKA fees are set by the TASKA Committee according to the capabilities of parents and the local communities. A minimum monthly fee of RM30.00 and a maximum of RM180.00 for daily services from 7.30 am – 5.00 pm, 6 days a week and a minimum monthly fee of RM10.00 for half-day services from 7.30 am -1.00 pm, 5 days a week (Ministry of Rural and Regional, 2015) had been imposed. It is believed, no fee is cheaper than those. Hence, with the expansion of the number of TASKAs and also being open to those who demand for it although not from the target group, should offer parents with more choices to choose from to send their children while working.

Second, mothers need to be ensured to send their children to registered nurseries. The Social Welfare Department of Malaysia under Section 5 of Act 308 allows TASKAs to be established under four categories; child care in Institutions, child care in the workplace, child care in community, and child care at home. According to this act, it is an offense for those who care for more than three children without being registered. In fact, the supply of informal services emerges to supplement the shortage of places in the registered sector or when the costs of registered child care centers are too high.

Furthermore, based on the findings of a qualitative study, the expensive cost of sending children in registered nursery caused them to send their children to babysitters who were unregistered, including neighboring houses. Although not all cases of injury or negligence had arisen from care by those unregistered, at least, a mother can confirm

that the registered nurseries are trained and have standard work processes. In that way, worries about the safety of children are reduced and the mother can work in peace. By working, educated women can increase their income and standard of living of households, contributing to the national economy and putting into practice the knowledge and skills they have learned.

In the press, reports on the existence of illegal nurseries still exist. Without training and monitoring of qualified institutions, the safety of children in nurseries cannot be guaranteed. In fact, if there is any negligence, these illegal nurseries cannot be prosecuted. Hence, it is crucial for the government to close down and punish those who set up illegal nurseries. Besides, it is the responsibility of all parties to ensure that all nurseries are monitored for the level of cleanliness, comfort, and safety of children in nurseries. Parents also should be given access to immediately complain to the institutions that monitor this nursery.

In the long term, the provision of child care centers in the workplace should be managed by agencies with wider jurisdiction. Currently, the MWFCD is able to act as a coordinator and can only seek the cooperation of other agencies to manage the nurseries in the workplace. This was stated by an expert in the field, EiF_2, as follows;

> *"To set up child care in the workplace.. maybe in existing buildings.. many ministries and agencies will be involved... Local authorities, Fire Department, Ministry of Health and so on ... We can only regulate".*

Hence, it is recommended that only nurseries that reach a certain level of quality can be operated in the country. Quality child care defined by DeBord (1914) provides a responsive, developmentally appropriate environment for young children that added to a quality home environment, leads to the best possible physical, intellectual, and social-

emotional development in the child. Parents who know that their child is receiving quality child care can be assured that their child is safe, nurtured, and challenged to learn.

With quality nurseries, aspects of learning and teaching can be monitored properly and the safety aspect of children in child care centers can be assured. Since the quality of the registered nurseries may involve cost, it is desirable for the government to give more funding for initial investment in human capital. This is in line with the opinion of an expert, EiF_3, as follows.

> *"From primary schools to universities, individuals and the government have spent so much on education. So, if she did not go out to work and generated wealth for the country, then this would be detrimental to the government because the government has invested in the education of women. But an investment that will ensure that women are going out to work is child care".*

Malaysia can take the example of how developed countries pay attention to child care arrangement. For example, all families in France with at least two children under 18 are granted family allowances. France also offers several benefits to reduce professional activity and could stay at home with children. In German, child benefits can be claimed for children under 18, and they can be extended up to the age of 21 if unemployed or up to the age 27 if the children are in school or training, regardless of parents' income. Besides, benefits can be claimed without any age limit if the child is disabled (Malaysian Ministry of Women and Family Development, 2014c).

Government support for and involvement in child care are deemed essential to provide equitable access to quality child care because private markets for child care tend to

create cost barriers for low-income families (Du & Dong, 2013). With child care centers that meet the intent of "quality", they are not just a place where the parents who have to work hand over their children to be cared for by a third party. Thus, elements of care and education should be integrated in the child care centers in Malaysia.

7.3.3 Policies related to working women

Since it was found that the practice of work-life balance are sorely lacking in Malaysia, this study suggests that the government should have more efficient policy to ensure that educated married women remain and increase in the labor market. As shown in the demographics of the survey respondents, more than 85 percent of educated mothers in the age range of 25-34 had at least a child under the age of six years old. At this period, mothers are always faced with the conflict of dual role. Thus, Malaysia needs a specific policy for working mothers as what the researcher calls "mother-friendly working policy".

Since March 2015, the Malaysian Ministry of Women, Family, and Community has implemented Flexible Working Arrangement or FWA. However, in developed countries, this is not a new system. Instead, some private agencies in Malaysia have begun adopting this system. Therefore, it is recommended for this system to be immediately implemented and to hasten the implementation throughout the country, both in private or government offices. Furthermore, the existing work rules (such as maternity leave and rigid office hours) should be improved to ensure that employee productivity can be maintained. By offering these practices, organizations do not only attract new employees, but they are also able to reduce work–life conflict among the existing ones, hence increasing organizational performance by providing more control to employees to manage their work and family demands (Noraini & Nor Diana, 2015b).

Besides, giving confidence to workers to complete their tasks regardless of where it is performed can reduce the rate of exit from the labor market.

From this matter, FWA has been highlighted as more suitable for professional groups because they can do the work even if they are not in the office (Noraini & Nor Diana, 2015a; Subramaniam, 2011; Subramaniam, Ali, et al., 2010). As for educated women, they need high access to the internet to ease their work. This is because; smoothness in adapting the FWA and working from home could only be guaranteed by the high access to internet. With only 32 percent of rural population covered by a 3G mobile network (International Telecommunication Union, 2014), the cost to use the technology is still expensive (International Telecommunication Union, 2013) and the respondents of this research expressed that they often faced unstable internet network.

Thus, it is highly proposed to the government that they must increase the accessibility of the internet to a higher level. This does not only help with the implementation of FWA in the government sector, but even women who work in the private sector could gain benefits. Furthermore, for those who do not work, accessibility to high internet allows them to conduct business from home and they could still generate income.

7.4 CRITICAL CONTRIBUTIONS OF THE RESEARCH

According to Petre and Rugg (2010), in his book entitled "The Unwritten Rules of PhD Research", a significant contribution can be divided into several parts; which are (i) confirmation and expansion of an existing model, (ii) re-contextualization of an existing model, (iii) contradicting an existing model, and (iv) addition of a new material in the literature.

7.4.1 Confirmation and expansion of an existing model

Previous studies mainly focused on the factors that determined the participation of women in labor market. This study has confirmed the existing determinant, which could influence women's decision either to work or not to work in labor markets, such as *residential location*, *women's age group*, *women's education*, *husband's education*, and *husband's income*.

The existing researches on labor force participation, nonetheless, only focused on married women, while the data obtained showed that the low participation rate had been due to the deterioration in participation rate among those women with tertiary level education. With that, this thesis projected the first attempt to investigate the labor behavior of educated married women in Malaysia.

In identifying the key determinants of LFP among women with tertiary education, this research also expanded the existing model. In addition to other factors that also affected participation, the child care arrangement had been discovered as the most important decision made by married women. This modification (as explained in chapter 3.7) had been indeed important because the traditional theories were primarily based on the fact that the workforce was comprised of mostly males. Nevertheless, at present, with females making up a significant percentage of the workforce, the older model should be improvised.

This modified model is of significant value because the empirical work had offered some evidence (albeit in Malaysia) that women only entered the labor force if the childcare responsibilities had been satisfactorily taken care of, for example, assistance sought from grandparents, availability of good childcare centers, and so forth.

Arguably, the proposed model had been constrained by scope with data only from Malaysia, but the findings had indicated that this adaptation offered better explanation and could perhaps lead to new support for studies conducted in other countries.

7.4.2 Re-contextualization of an existing model

The decision to work or not to work among married women had been explained extensively using the Theory of Allocation of Time, as discussed in Chapter Three. This theory asserted that a person gets satisfaction from the consumption of goods and the consumption of leisure. As consumption of goods depends on wage rate one gets from the labor market, consumption of leisure is related to how much time one does not work in the labor market. However, leisure hours are inclusive of the time spent on household production (McConnell et al., 2010a). If production in the house can be managed, then only women can participate in the labor force.

As such, if the household production time can be reduced, women can increase their working hours in the labor market. In fact, new home economics, NHE, which expanded this theory, explained that household structure also revealed that the factors affected participation in labor force rates were varied (Grossbard, 1993). As for educated married women, these factors had been identified in the quantitative study carried out in this research.

Re-contextualization of the existing model was done as the qualitative study in this research proved that the child care arrangement actually had become a major determinant in allowing women choose to go to work or vice versa. Thus, one could conclude that the labor supply of educated married women was decided only after issues related to childcare arrangement are resolved.

In addition, those with higher education would earn higher incremental earning and as a result, have a higher tendency to work in the labor market. This idea is expressed through the Theory of Investment in Human Capital. Moreover, statistics has displayed that the enrollment of women has increased in the Malaysian higher education institutions. Besides, in the study, more educated women (such as those with masters and PhD) indicated that they were more likely to work than those who were less educated (such as those with a certificate or diploma). However, from the respondents of this research, a number of educated married women had decided not to work. Some of the constraints that they faced had caused them to withdraw from participating in the labor market. This situation suggested that **higher education** did not necessarily increase women's participation in the labor market.

Additionally, as this research had been related to educated women in the labor market, adapting the Theory of Access had been rarely done before. Re-contextualization of the existing model was done to highlight that the access to technology may influence women's participation in the labor market (for this study, it was referred as access to the internet). Although access to technology was insignificant to the samples in this research, it had been believed that access to the internet could increase the participation of women in the labor market, as specified in previous studies. Besides, it had been recommended that the Theory of Access could be discussed and hence, new aspects had been developed; access to the facilities available.

7.4.3 Contradicting an existing model

Theoretically, the variable *non-labor income* displayed a negative relationship with participation of women in the labor market. This is because; for those with another

source besides salary, they usually tend to choose not to work. However, the findings of this research contradicted the existing results.

This research also found that educated married women with non-labor income still had the tendency to work. They were not likely to stop working despite having non-labor income. This difference highlighted new knowledge, stating that having a non-labor income did not necessarily cause a woman to leave the labor market.

7.4.4 Addition of a new material in the literature

This mixed method study in PhD thesis that combined both quantitative and qualitative methods, which employed the triangulation approach to verify the data, is believed to contribute to the new literature on research design in the field of labor force participation. Furthermore, success in using online questionnaire with many responses had been rarely achieved in studies carried out by individuals in the current environment.

Although there are a few studies on married women in the labor market, a limited number of researchers had actually focused on educated married women. Thus, the present study bridged the gap in the existing literature on what exactly bothered these educated women from continuing to work in the labor market. Besides, the focus on this group had been essential because they have invested in human capital through a longer period of study in higher education institutions. Therefore, identifying their tendency to work or to leave the labor market is indeed an important task.

Based on the arguments contributed by previous studies that access to the internet had been found to provide many benefits to people and their work, this study had added to

the literature on the factors that influenced women's participation in the labor market. In addition, access to the internet as one of the branches in ICT has given a **new dimension** concerning access to the technology, as described by the Theory of Access.

7.5 LIMITATIONS OF THE STUDY

There had been limitations to ensure that all women who met the criteria of educated women being part of the research sample. The definition "educated women" used in this study referred to those who had taken the Sijil Pelajaran Malaysia (SPM) in Form 5 of their secondary school, then continued and completed their tertiary education in any higher education institution. Since the sampling was obtained from the Malaysian Ministry of Higher Education, the respondents of this study were those who responded to the Tracer Study 2008/2009 (follow-up). Those who had completed Sijil Tinggi Pelajaran Malaysia (STPM) in Form 6 of their upper secondary school, other professional certificate, and those who did not answer the Tracer Study were not covered in this research.

Based on the literature review; *religion*, *women's income*, *husband's employment status*, and *household income* were among the factors that affected women's participation in the labor market. However, after the method of identifying outliers was executed, information provided by the respondents indicated that those who stated they were unemployed had no income and their husbands were employed. This caused a separation problem. Similarly, the variable *religion*, which had collinearity with *ethnic* and *household monthly income*, has collinearity with *husband's monthly income*. For that reason, the analysis could not be carried out on these variables and had to be removed from the model. This condition caused four variables to be excluded from this research.

As this study selected respondents from the Tracer Study in 2009, the background of the respondents had been equivalent to the respondents chosen by the Malaysian Ministry of Education. In the beginning, the respondents were separated according to ethnic and age groups, as practiced by the DOSM. However, as the number of respondents from other ethnics (Chinese and Indian), as well as other age groups (such as 16-24 years old, and 35-44 years old), had been a few and the parameter estimates generated high value of standard error, it was combined with “other ethnic” and "other age". This situation led to a comparison between the reference group with other ethnic groups and other age ranges, cannot be done.

7.6 INDICATIONS OF FUTURE RESEARCH

One limitation of this study is that; not many respondents were from those aged 24 to 34 years old. Based on the literature, after the children started their school and they had been more independent, many women, especially among those in the age group of 35 to 44, returned to work in the labor market. Therefore, it is recommended for future research to identify if labor supply decision for this age group could still revolve around the same determinants or have changed to other aspects.

This study had been based on Sequential mixed methods design, where information from the quantitative part was used to draw the qualitative part. The findings of this research revealed that some respondents left the labor market due to concerns about the safety of children when cared for by others. Therefore, it is suggested for the future research that the questionnaire should ask about their views and experiences related to child care arrangement.

7.7 CONCLUDING REMARKS

As specified in the Theory of Investment in Human Capital, women with tertiary education have invested her time and financial aspects for better income earning. However, the Theory of Allocation of Time depicts that 'time' is a constrain to women in their decision to ‘work’ or ‘leisure’. If the problem of child care arrangement cannot be solved, married women, especially with young children, will maximize utility by choosing to manage their own children compared to their careers. This will cause the amount of labor supply and the participation rate of married women to decrease.

Furthermore, factors related to demographics, such as ethnicity, age, and education background, are attributes that happen naturally. What can be undertaken to enhance educated women's participation is by improving the support systems to prevent them from exiting the labor market or from not entering into the labor market.

In order to appreciate the dual role of women, support from all parties is required to achieve a work-life balance, the equilibrium between career and family life. Have a child and the child's age are variables associated with child care arrangements. If issues related to the management of children cannot be resolved, the opportunity cost for this situation is a mother's career because a father normally plays the role of the breadwinner for the family. Therefore, the availability of child care institutions that are accessible, affordable and can be believed is the most important support system to encourage educated married women to participate in the labor market.

Furthermore, the opportunity for educated married women to harmonize the needs of careers and their family should be emphasized. Flexible working hours and flexible working arrangements are expected to help women to achieve their work-life balance.

However, the implementation of both systems should be expanded and not be restricted by inadequate facilities.

Besides, it has been understood that promoting gender equality and empowering women are not something easy to do. With effort to achieve the target of increasing women participation in labor force up to 55 percent by the end of 2015, the participation of educated women should be given priority. This is because; they are the ones who are knowledgeable, trained, and skilled employees that will spur the efforts to make Malaysia a developed nation by 2020.

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LIST OF PUBLICATIONS AND PAPERS PRESENTED

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