ปัจจัยกำหนดความต้องการใช้บริการคลอดบุตรในโรงพยาบาล ในภาคสะกายของประเทศพม่า

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต
สาขาวิชาเศรษฐศาสตร์สาธารณสุขและการจัดการบริการสุขภาพ
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DETERMINANTS OF DEMAND FOR INSTITUTIONAL DELIVERY CARE SERVICES IN SAGAING DIVISION OF MYANMAR

Miss Thida Win

A Thesis Submitted in Partial Fulfillment of the Requirements
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Thesis Title	DETERMINANTS OF DEMAND FOR INSTITUTIONAL DELIVERY CARE SERVICES IN SAGAING DIVISION OF MYAMNAR
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ทิดา วิน: ปัจจัยกำหนดความต้องการใช้บริการคลอดบุตรในโรงพยาบาลในภาคสะกายของประเทศพม่า (DETERMINANTS OF DEMAND FOR INSTITUTIONAL DELIVERY CARE SERVICES IN SAGAING DIVISION OF MYAMNAR) อ. ที่ปรึกษาวิทยานิพนธ์หลัก: ผศ. ดร. พิษเณศ เจษฎาฉัตร, 53 หน้า.

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยกำหนดความต้องการใช้ศูนย์บริการการคลอดบุตรของรัฐ (Institutional Delivery Care Services) ในกลุ่มผู้หญิงวัยเจริญพันธุ์ (อายุ 15-49 ปี) ซึ่งมีบุตรที่อายุต่ำกว่า 3 ปี ที่อาศัยอยู่ในภาคสะกายของประเทศพม่า

กรอบความคิดในการวิจัยประกอบด้วย 3 ปัจจัยหลัก คือ (1) ปัจจัยทางเศรษฐกิจ (Economic factors); (2) ลักษณะทางสังคม-ประชากร (Socio-demographic); และ (3) การรับรู้ความจำเป็น (Perceived need) ที่มีผลต่อความต้องการการใช้บริการการคลอดบุตร การวิเคราะห์ข้อมูลในการวิจัยนี้ใช้การทดสอบความเป็นอิสระไค-สแควร์ (Chi-square Test of Independency) และแบบจำลองโลจิท (Logit Model) ข้อมูลที่ใช้ในการศึกษา คือ ผู้หญิงวัยเจริญพันธุ์ (อายุ 15-49 ปี) ซึ่งมีบุตรที่อายุต่ำกว่า 3 ปี ที่อาศัยอยู่ในภาคสะกายของของประเทศพม่า จำนวน 414 ราย โดยได้มาจากการสัมภาษณ์ในช่วงเดือนกุมภาพันธ์ ถึง เดือนมีนาคม 2554

ผลการศึกษาจากแบบจำลองพบว่าตัวแปร รายได้ ระดับการศึกษา และจำนวนการมีบุตรของผู้หญิงมีผลต่อความต้องการใช้บริการการคลอดบุตรของรัฐ ลักษณะของความสัมพันธ์ของตัวแปรทั้งหมดในแบบจำลองนั้นเป็นไปตามการคาดการณ์ในทางทฤษฎีและผลจากการวิจัยอื่นๆ ยกเว้นตัวแปรของระยะทางที่ไม่มีนัยสำคัญทางสถิติ ส่วนการเปลี่ยนแปลงของตัวแปรอื่นๆมีผลต่อความน่าจะเป็นในการใช้บริการการคลอดบุตรของรัฐอย่างมีนัยสำคัญทางสถิติ ในครอบครัวที่มีรายได้ต่ำซึ่งผู้หญิงมีการศึกษาน้อยและมีจำนวนบุตรมากมีผลต่อความน่าจะเป็นในการรับบริการการคลอดบุตรของรัฐ

สาขาวิชา เศรษฐศาสตร์สาธารณสุขและการจัดการบริการสุขภาพ ลายมือชื่อนิสิต .....

ปีการศึกษา 2553 ลายมือชื่อ อ. ที่ปรึกษาวิทยานิพนธ์หลัก .....

##5385723829: MAJOR HEALTH ECONOMICS AND HEALTH CARE MANAGEMENT
KEYWORDS: DETERMINANT/ DEMAND/ INSTITUTIONAL
DELIVERY CARE SERVICES/ MYANMAR

THIDA WIN: DETERMINANTS OF DEMAND FOR INSTITUTIONAL DELIVERY CARE SERVICES IN SAGAING DIVISION OF MYAMNAR. THESIS ADVISOR: ASST. PROF. PHITSANES JESSADACHATR, Ph.D., 53 pp.

The objective is to study the determinants of demand for institutional delivery care services among reproductive age (15-49) women with a child under 3 years of age residing in Sagaing Division of Myanmar.

The conceptual framework consists of three main factors: (1) economic factors; (2) socio-demographic factors; and (3) perceived need that influence the demand for delivery care services. Chi-square test of independency and a logit model is used for the analysis. 414 women of reproductive age with a child under 3 years of age living in three townships of Sagaing Division were interviewed from February to March 2011.

The empirical model found that income, education and parity of women determined the likelihood of demand for institutional delivery care services. All the expected signs of the model were consistent with those of expectation, theories and other studies, apart from distance variable but it was also insignificant. The change in each significant variable significantly changed the probability of demand for institutional delivery care services. The low household income with less educated women who had higher order of births was sensitive to changes in those significant variables for likelihood of demand for institutional delivery care services.

Field of study: Health Economics and Health Care Management Student's Signature: .....

Academic Year: 2010 Advisor's Signature: P. Jessadachatr.

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Table of Contents

Table of Contents (continued)

List of Tables

List of Figures

Abbreviations

MMR	Maternal Mortality Rate
MCH	Maternal and Child Health
USA	United States of America
SNNPR	Southern Nations, Nationalities, and People's Region
DHS	Demographic and Health Survey

CHAPTER I

INTRODUCTION

1.1 Introduction

Around the world, there is significant unmet need for health care. With a better understanding of demand for these services, health care organizations can seek to improve the quality of human life. The unmet need for health care is growing, a increasing threat to quality of life. Identifying the factors that prevent and promote the demand of health care services will ultimately help health care organizations create programs for improving health services and increasing their utilization. Health care management must discern the factors influencing health care demand and utilization. Identifying the factors affecting on the demand of these services will help organizations target consumers for medical contact. Importantly, this knowledge can also help managers identify new customers, see the concerns of consumers who are rejecting health services, and ultimately increase customer satisfaction.

An understanding of the demand-side of productive health care markets is a key to the design and implementation of policies that enhance the health of mothers and newborns. Health care demand and utilization behavior is complex and multifaceted. As discussed, research of demand and utilization is central to improvements in quality of life. Without understanding the factors which play an important role in health care demand and utilization, efforts to promote utilization for health care will not offer a significant solution. Understanding which factors are most important to health care demand can assist in disease prevention and treatment through creation of effective health campaigns, policies, and promotion programs.

In Myanmar, the Ministry of Health is responsible for the preventive, promotive, curative and rehabilitative health services at all levels through seven departments and hospitals and clinics at various levels (WHO country cooperation 2008-2010, Myanmar).The population of Myanmar in 2008-2009 is estimated at 58.38 million

with the growth rate of 1.52 percent. About 70 percent of the population resides in the rural areas, whereas the remaining are urban dwellers. Approximately 1.3 million women give birth each year in Myanmar (Health in Myanmar 2010).

According to the Nationwide Cause-specific Maternal Mortality Survey carried out by the Department of Health in 2004-2005, maternal mortality ratio was estimated at 316 per 100,000 live births at the national level and 89.0 % of all maternal deaths were reported from the rural areas. Maternal mortality in rural areas was estimated to be about 2.5 times that in urban areas. The findings also showed that the complications during Antenatal and delivery periods were the main causes of maternal mortality and morbidity and 80.0 % of the maternal deaths were mostly at home. The majority of this mortality is found to be preventable. Bringing maternal mortality down and reaching the national Millennium Development Goal (MDG) 5 target of a maternal mortality rate of less than 145 per 100,000 live births by the year 2015 remains an on-going challenge.

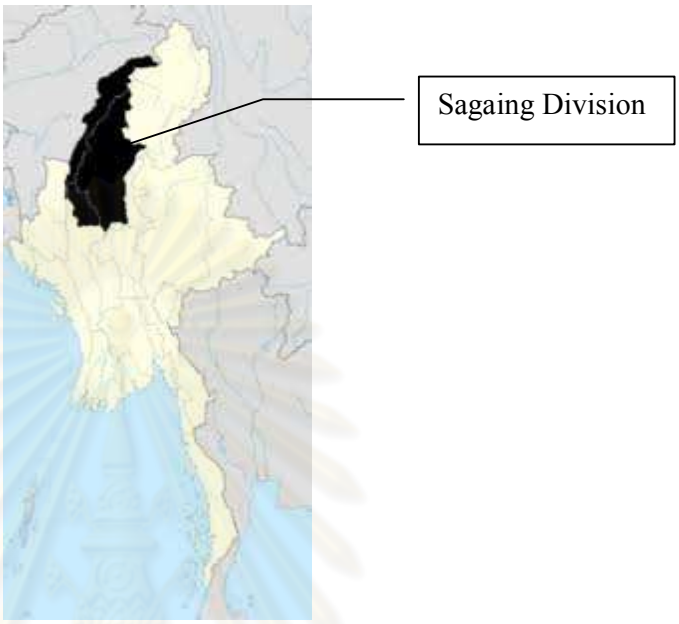
Birth delivered at home is more likely to be delivered without professional assistance whereas births deliveries at a health facility are delivered by trained medical personnel. Home delivery is usually the cheapest option, but is associated with attendant risks of infection and lack of available equipment should complications occur. In order to reduce the country's burden of maternal and prenatal morbidity and mortality, safe motherhood initiatives have been expanded into a national movement. Continuum of quality care for maternal and newborn health has then been focused as a priority in preventing maternal and newborn deaths and morbidities. It was ensured that increased availability of cost-effective health care intervention would have an immediate impact if women and babies were able to access them. In response to this challenge, emergency obstetric care facilities are supplied to the township civil hospitals. Institutional delivery has been enhanced in the community through upgrading and promoting of rural health centers and sub-centers with attachment of labor rooms to the facilities.

Myanmar is divided administratively, into 7 States and 7 Divisions. It consists of 67 districts, 330 townships, 64 sub townships, 2891 wards, 13698 village tracts and 64817 villages. Sagaing Division is situated in the north-western part of Myanmar. The population of Sagaing Division is 5,380,000. Average density of the division is 139 persons per square mile. Sagaing Division is formed with eight districts and and 38 townships. Majority are Burmese and Buddish.

The range of MMR among the states and divisions is with 136/1000 live birth as the lower estimate and 527/1000 live birth as the upper estimate. MMR in Sagaing Division is 243/1000 live birth. Though it is not highest, it still doesn't reach to the national target of 152/1000 live birth. And annual public health statistic report (2006) shows that in Sagaing Division, the institutional delivery rate is 1.0 %, the third lowest among the country while the lowest being 0.2% and the highest being 4.6% as the whole country. And Home Delivery Rate in the Sagaing Division is 19.7%, the second highest among the states and divisions: as the whole country, the lowest being 1.7% and the highest being 26.6%. Again, % of Perinatal mortality out of delivery is 2.0 % reflecting one of the highest perinatal mortality in Myanmar while the lowest being 0.8% and the highest being 2.1% in the whole country.

Therefore it came to an interest of many pilot programs regarding Reproductive Health in that Division. This point shows that though government is promoting the institutional delivery there is underutilization of institutional delivery in Sagaing Division in compare to others state and division, and there still needs to know about the current magnitude of its importance and the factors influencing the use of these services. This study therefore aims to fill this gap by describing and analyzing the factors influencing the demand for delivery care services particularly institutional delivery in Sagaing Division.

Figure 1.1 Sagaing Division Map



Source: State and Division, Sagaing Division, MODiNS (Myanmar Online Information).

1.2 Research Question

What are the determinants of demand for institutional delivery care services among reproductive age (15-49) women who have under 3 years old child residing in Sagaing Division of Myanmar?

1.3 Research Objectives

1.3.1 Primary Research Objective

To study the determinants of demand for institutional delivery care services among reproductive age (15-49) women who have under 3 years old child residing in Sagaing Division of Myanmar.

1.3.2 Secondary Research Objectives

(1) To study the situation of utilization of delivery care services among reproductive age (15-49) women who have under 3 years old child residing in Sagaing Division of Myanmar.
(2) To describe the economic and socio-demographic factors affecting on demand for institutional delivery among reproductive age (15-49) women who have under 3 years old child residing in Sagaing Division of Myanmar.
(3) To analyze the elasticity and marginal effects of these factors on demand for institutional delivery among reproductive age (15-49) women who have under 3 years old child residing in Sagaing Division of Myanmar.

1.4 Scope of the Study

The scope of this study tends to focus on the determinants of demand for institutional delivery among reproductive age (15-49) women who have under 3 years old child residing in Sagaing Division of Myanmar by using the data collected during February through March, 2011.

1.5 Expected Benefits

This study can help policy makers to more understanding on what factors promote or which factors hinder the demand and utilization of maternal delivery care services which are important in policy making regarding MCH programs. This study can help to improve policy makers' understanding of the factors affecting on demand for institutional delivery care services in the country and serve as an important tool for any possible intervention aimed at improving the low utilization of institutional delivery in the country.

CHAPTER II

LITERATURE REVIEWS

2.1 Demand for health care services

Much of the economic theory of health care demand is based on the Grossman human capital approach to health (Grossman, 1972; and Grossman, 2000). In his model the demand for health care is derived from the demand for health. Individuals produce health using a variety of different commodities, including exercise, education, nutrition, and lifestyle choices, as well as health care. Luft, Hershey, and Morrell (1976) also stated that demand is a function of a budget constraint, money and time prices, and perceived wants. Wants, in turn, are a function of perceived health status or symptoms, knowledge of health care options, attitudes, and cultural expectations. Symptoms are in turn dependent on cultural norms, education, real and perceived pathologies, etc.

Akin, Guilkey, Griffin, and Popkin (1985) showed that the unique mixture of physical necessity, life cycle patterns, and unequal knowledge that can affect the consumption of medical services, variables that in other demand models might be used as controls, such as health status, education and age, are thought to be important in and of themselves in explaining health service use. In the approach to determinants of demand for health services in the third world includes the factors like price, other prices (substitutes and complements), income, time allocation, health needs, sex, household size, structure, urbanization, cultural issues and education and finally seasonality. The study concluded that taking the view that individuals behave rationally and that households can be treated as producers (rather than simply as consumers) of good health , the study have organized the determinants of health behaviors into an economic framework.

Feldstein (2005) stated that the demand for medical care is derived from the more basic demand for health. He stated analyzing the demand for medical care as being derived from the individual's demand for health provides a better basis for determining which factors should be included in a model of demand for medical care, and for hypothesizing their effects. In his study showed that variations in the demand for medical care are determined by a set of patient and physician factors. The patient's determinants of demand are his or her incidence of illness or need for care, a set of cultural-demographic factors and economic factors. He stated the factors influencing the demand for medical care are age and sex, marital status and number of persons in the family , family size , education, and economic factors as income , prices and the value of the patient's time.

A study in USA showed that factors influencing demand for medical care were: ability to pay (income, health insurance) desire to purchase care (ethnicity, education, perceived need), and incidental costs (transportation, child care, etc) based on a model using behaviorist theory to examine individual determinants of use. Predisposing characteristics (e.g. age, gender), enabling characteristics (income, health insurance), and need characteristics (e.g. Health status) were seen as independent influences on an individual's health-care use. It also stated the behaviorist model can describe behavior only in terms of stimulus and response; reasons for behavior are not explained. That study explored an economic model. Individuals using health care are assumed to be making rational choices in their own economic self interest. Their demand for medical services is a factor used to explain problems with access to care.

Demand is the quantity of goods or services that consumers wish and are able to buy at a given price in a given period. Demand includes the ability to pay and the desire to seek treatment, in addition to incidental costs-that is, non-medical expenses such as costs associated with obtaining medical care as well as foregone wages and income. In that study, items used in the behaviorist model are adapted to the economic model. Ability to pay is measured as annual family income, health insurance coverage, and concern about cost; desire to purchase is perceived need, years of education, and ethnicity and acculturation; incidental costs are estimated by concerns about barriers

to care, difficulties with transportation, child care, language translation, and waiting times (Smith et al.,1996).

For the determinants factors of health care utilization, there are many health seeking and health utilization models from socio-psychology, medical sociology. Health-seeking behavior models as applied to serve as catalogues of relevant variables that need to be considered in research design, rather than as behavioral models themselves. The mainly statistical data obtained using these models permit the evaluation of the relative weight of different factors in health behavior (use of preventive or therapeutic measures, choice between different health resources, non-compliance with treatment, or the consequences of behavior for delayed care seeking) (Muela, Riberaand, and Nyamongo, 2003).

The behavioral model of utilization, developed by Andersen and Newman (1973) is the most frequently used framework for analyzing the factors that are associated with utilization of healthcare services looks at three categories of determinants: (1) predisposing characteristics; (2) enabling characteristics; and (3) need based characteristics. During the 1980's -1990's, Andersen's model was again revised to form three components with a linear relationship: (1) primary determinants; (2) health behaviors; and (3) health outcomes. The direct cause of health behaviors; these determinants include characteristics of the population (i.e. demographics), the health care system (i.e. resources and organization), and the external environment (i.e. political, physical, and economic influences of utilization). The model also explains that health behaviors determine health outcomes. Health behaviors include personal health practices and the use of health services.

A further variant of Andersen's model was elaborated by Kroeger (1983). He proposed that determinants of utilization in developing countries could be grouped under three broad headings: (1) predisposing factors including age, sex, household composition and size, ethnic group affiliation and education; (2) characteristics of illness, expected benefits from treatment and beliefs about disease causation; and (3) characteristics of the health-care system, including cost and quality of care.

2.2 Factors influencing demand for maternal health care services

Those factors are as follows.

(1) Household monthly income

For Lavy and Guigley (1991), the decision to seek medical treatment in Ghana is responsive to household income. Sahn (2003) showed that own price elasticity of demand for all health care options are high in Tanzania. Other studies conclude that both price and income are a significant determinant of health care provider choice (Ntembe, 2009; Lopez-Cevallos, and Chi, 2010). Andy and Cassels (2004) emphasized that ill health can cause poverty via loss of income, catastrophic health expenditures and orphan-hood. Earning capacity could contribute to the use of maternal health care services by empowering women inside and outside the household (Mencher, 1988). The role of income in health seeking is buttressed by the fact that poverty is generally associated with poor health (Abel-Smith and Leiserson, 1979). Higher maternal mortality ratio/rate is found in women from poorest economic background in Bangladesh (Chaudhury, 2006).

Households within the wealthiest quintiles are more likely to seek health care from appropriate providers (Steinhardt, 2008). And the study done by Lakeh, Ramezani, and Naghavi (2007) in Iran stated that the opportunities of delivery in appropriate place and by skilled attendant were more common in those with higher economic levels. Shariff and Singh (2002) also showed that economic factors such as wages and income are important for child delivery services. A study in Yirgalem Town and in the surrounding Southern Nations, Nationalities, and People's Region (SNNPR) of Ethiopia showed that women's education, inadequate household income were important predictors of antenatal care utilization (Belay, 1997; and Hotchkiss, 1994). Unless provided with a subsidized health care plan, persons of lower socioeconomic status can have difficulty affording the costs associated with utilization of health care, making utilization less likely (Taylor, 2003).

(2) Distance between home and health care center

Accessibility of health services has been shown to be an important determinant of utilization of health services in developing countries. Acton (1975) studied that the users of New York City's "free" outpatient departments and municipal hospitals results support the major predictions that non-monetary factors such as travel distance will function as prices in discouraging demand. Distance from the health service is the strongest determinants of the choice of maternal health service used. (Mekonnen, 1998; and Salama, and Ismail, 2010).

Many studies reveal the unsurprising fact that household use of services tends to decline with distance. The scarcity of vehicles, especially in remote areas, and poor road conditions can make it extremely difficult for women to reach even relatively nearby facilities. Walking is the primary mode of transportation, even for women in labor in Africa (Williams, 1985; and World Bank, 1994b). First, the economic costs of health care seeking include not only payment for treatment, but also lost productive time, and the expense of transportation. An important proximate determinant of maternal mortality is access to and use of quality health care services (Fauveau, 1991; McCarthy and Maine, 1992; and Bhatia, 1993). Due to the expense of transportation and time needed to access medical care, especially as health care services become more geographically scarce or distant, inaccessibility may increase (Young and Young-Garro, 1982). The study of Mpembeni et al., (2007) also showed that distance to the health facility was a significant determinant of type of delivery care. This was said to be made worse by the fact that there are no means of transport to the facility. Distance to the health facility has a negative and highly significant effect on facility choice (Hotchkiss, 1994).

Another study found that the utilization of emergency obstetric care (EOC) was more than doubled following the introduction of transportation and communication system (Shariff and Singh, 2002). Distance is also cited as a reason women choose to deliver at home rather than at a health facility (Philippines (Schwartz, Akin et al., 1993), Uganda (Amooti-Kaguna and Nuwaha, 2000) and Thailand (Raghupathy, 1996)). In other words, women living farther away are less likely to choose a health facility for

delivery, although their inferior access makes them the most vulnerable group in case of an emergency (Ensor and Cooper, 2004). Access for emergency deliveries is clearly hampered by long distances. One study, in Zimbabwe, suggested that up to 50 percent of maternal deaths from hemorrhage could be attributed to the absence of emergency transport (Fawcus and Mbizvo, 1996).

(3) Age of woman

The Grossman (1972) formulation suggested a positive correlation between age and the depreciation rate on health. A number of socio-demographic characteristics of the individual affect the underlying tendency to seek care (Addai, 2000). In this regard, good examples are maternal age and parity, which have been examined as determinants of health care use repeatedly (Adekunle, 1990; Celik & Hotchkiss, 2000; and Leslie and Gupta, 1989). Lakeh, Ramezani, and Naghavi (2007) also stated that Mother's age and educational level had significant correlation with safe delivery indices. A study done by Thind, Mohani, Banerjee, and Hagigi (2008) in India found that while increasing maternal age, greater media exposure, and more then three antenatal visits were associated with greater odds of delivery in a public facility.

(4) Education of woman

Education is a long-established determinant of the demand for health and health care. It was incorporated as a determinant of the production function of health in the early Grossman human capital model of health (Grossman, 1972; and Grossman, 2000). In that model better education allows an individual to be more effective in converting health care and other health-enhancing goods into health. Better schooling or education may raise understanding, and appreciation of the benefits of health care, and hence demand for it. Education and information variables significantly increase the utilization rates of prenatal, child delivery and postnatal health care. Women with primary education are, on an average, 10 per cent more likely to use maternal health services relative to illiterate women, even after controlling for income and health care supply factors.

A study done by Alam (2004) stated that education of wife (adjusted p=0.005) was significantly associated with utilization of antenatal care. Maternal education was statistically significant predictors of the choice of public versus private facility delivery (Thind, 2008). Many past studies showed that maternal education has a positive effect on the use of health-care services in some Middle-Eastern countries (Tekce and Shorter, 1984; and Abbas and Walker, 1986), Asia (Akin, 1986; Wong, 1987; and Streatfield, Singarimbun and Diamond, 1990) and Latin America (Ferndez, 1984; and Monteith, 1987). Illiterate women were less likely to use maternal health care services. Illiterate women were more likely to deliver a baby at home relative to hospital in all three states of India compared to literates (Navaneetham and Dharmalingam, 2007).

Educating women alters the traditional balance of power within the family, leading to changes in decision-making and allocation of resources within the household (Caldwell, 1979, and Caldwell and Reddy, 1983); that education modifies women's beliefs and the use of modern health-care services. Caldwell, 1979; Caldwell, 1983; and Cleland and van Ginneken, 1988 also pointed that educated mothers will have more confidence in handling the officials and have the ability and willingness to travel outside the home to seek services. The study done at Nigeria showed that the mother's literacy level was found to be the most important determinant of place of delivery as those as non formal education tend to deliver at home (Idris, Gwarzp, and Shehu, 2006). A lots of studies found out Maternal education has also been shown repeatedly to be positively associated with the utilization of maternity care services (Addai, 1998; Addai, 2000; Akin and Munevver, 1996; Beker, 1993; Celik and Hotchkiss, 2000; Ferdnandez, 1984; and Stewart and Sommerfelt, 1991). Mother educational level was the main determinants of place of delivey (Idris, Gwarzp, and Shehu, 2006).

(5) Area of woman (Place of Women)

The factors influencing on demand of maternal health services are expected to be different between urban and rural areas. Thind, Mohani, Banerjee, and Hagigi (2008) studied that respondents living in rural areas were more likely to deliver at home and

pointed out that utilization of maternal health care services is lowest in rural areas. The study of Navaneetham and Dharmalingam (2007) stated that differential in access to health care facilities between rural-urban areas is an important factor for lower utilization of maternal health care services, particularly for institutional delivery and delivery assistance by health personnel in the rural areas.

Twenty-two percent of rural women received antenatal care, and 2 percent received delivery or postnatal care. Sixty-three percent of women from the other urban areas received professional antenatal care, 31 percent received delivery assistance, and 10 percent received postnatal care (Mekonnen, Yared, and Mekonnen, 2002). Rich, urban citizens benefit more from public subsidies than do poor, rural citizens (for a summary of some recent evidence see Demery 2000). Location is a particularly critical factor in the uptake of obstetric, and especially delivery services.

(6) Working status of woman

It is well established that working mothers were more likely than nonworking mothers to take advantage of modern health care services (Caldwell, 1983; Mosley and Chen, 1984; Cleland & van Ginneken, 1988; and Mencher, 1988). Navaneetham and Dharmalingam (2007) stated that educated and working women in India are considered to have greater awareness of the existence and value of preventive health care services. Non-working mothers were more likely to deliver their babies in institutions than working mothers. The study of Salama and Ismail (2010) which was conducted in Egypt concluded that family income, mother's occupation and education are strong discriminating factors of the choice of MCH services.

(7) Parity (Numbers of birth)

It is generally believed that care during delivery would be higher for first order births and is expected to decline as order of birth increases (Elo, 1992; and Bhatia and Cleland, 1995).Women who had first order births were about one-and-a-half times to two-and-a-half times more likely to have delivered their babies at a health care institution (e.g. hospital) than women who had their second order births in all three

states. On the other hand, women with births of order 4 and above were less likely to do so (Navaneetham and Dharmalingam, 2007).

Also, lower utilization of maternal health care services among higher parity women could be due to time and resource constraints faced by those with larger families (Wong et al., 1987; Elo, 1992; and Bhatia and Cleland, 1995). It was also found that for all indicators of maternal health care services higher order births decreased the likelihood of using the services (Bhatia and Cleland, 1995; and Elo, 1992). The greater confidence and experience of the older and higher parity women, together with greater responsibilities within the household and for child care, have been suggested as explanatory factors for their tendency to use services less frequently (Kwast and Liff, 1988).

(8) Household Size

According to Acton (1975), all other things the same, larger households will have lower income per capita, reducing the demand for care at non-free sources. The presence of dependence and jobless members in family can influence the utilization and the decision making upon maternal health care services. Feldstein (2005) studied that family size also affects demand; a larger family has less income per capita (although not necessarily proportionately less) than does a small family with same income.

According to Akin, et al. (1985) stated that a larger household's resources must be shared with more people. This may result in lower levels of nutrition for each resident, less consumption of health care per person and a reduced ability to meet individual needs of children (Popkin and Solon, 1976). Particularly, in south East Asia region, most of the families are extended or three generation type family and the decision making of mother about the utilization of the health care services are largely influenced by the elder members and the male. It is also stated that the utilization of reproductive health care services in India is significantly affected by the mother's education and family composition (Shariff and Singh, 2002).

CHAPTER III

RESEARCH METHODOLOGY

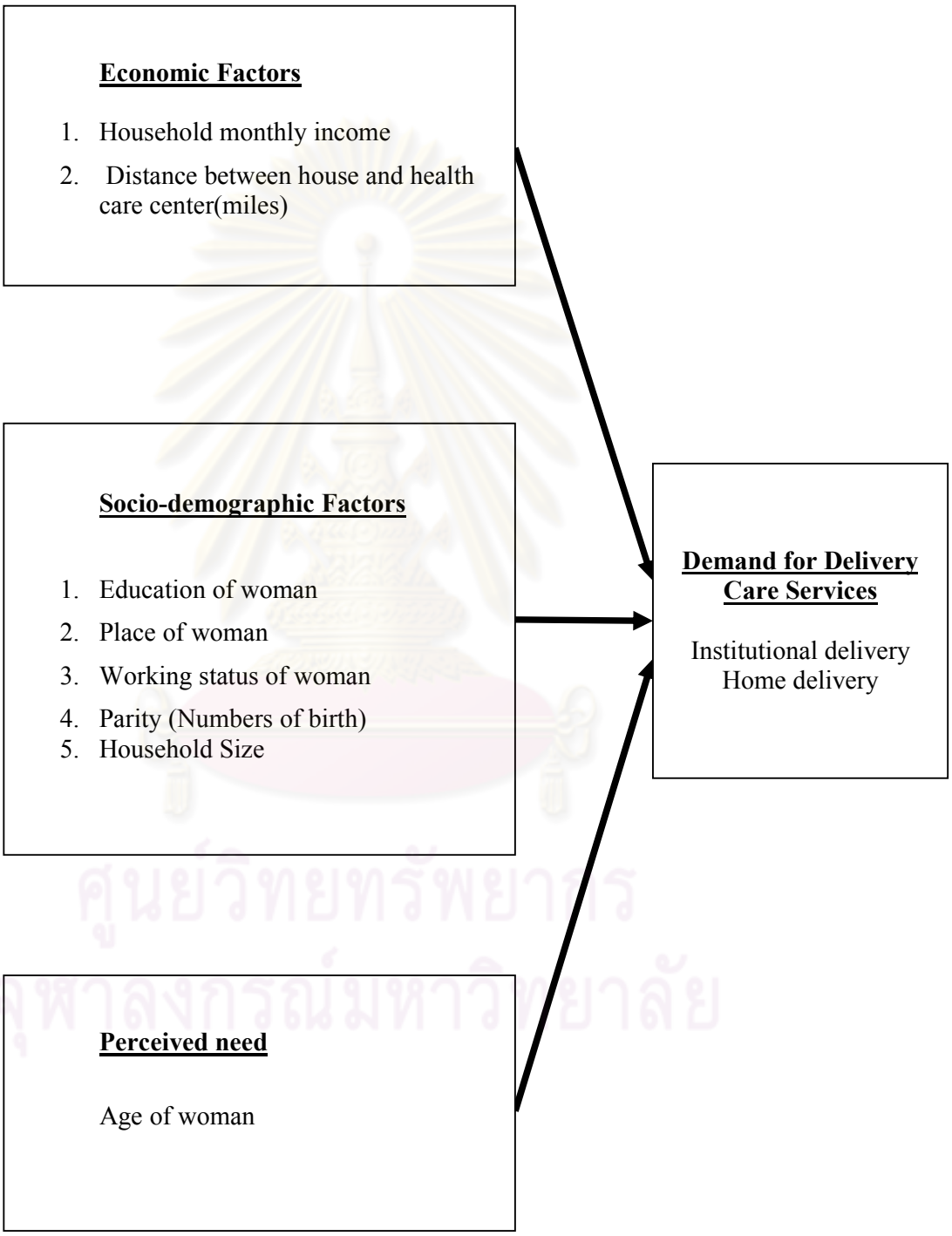
3.1 Conceptual Framework

My conceptual framework consists of three main factors that influence on the demand for delivery care services. The first one is economic factors: not only household income, but also distance is used as proxy for the expenditure of respondent on delivery care services which can influence on demand for that service. Acton (1975) also stated non-monetary factors such as travel distance are important for health care demand framework.

The second one as socio-demographic factors and the third one as perceived need are included in my framework. Akin, Guilkey, Griffin, and Popkin (1985) organized the income, household size, health needs, knowledge/information, education, urbanization and age as the determinants of health behaviors into an economic framework. A study in USA conducted by Smith et al., (1996) added perceived need, incidental costs (transportation, child care cost etc) as in the framework of demand for health care. Andersen, Aday, and others (1973) concluded that (1) predisposing characteristics; (2) enabling characteristics; and (3) need based characteristics influence the health seeking behaviors of people.

According to these previous studies and theories, I developed my conceptual framework as follow (see Figure 3.1).

Figure 3.1 Conceptual Framework



3.2 Data Analysis

To study the situation of demand for delivery care services and to describe the economic and socio-demographic factors affecting on demand for these services, descriptive statistics is used. The proportion of the woman using each kind of the services is calculated and compared the utilization with the factors that affecting on it by using descriptive statistics such as mean, frequency and chi-square tests. For analysis, this study will use logit model.

3.2.1 Logit model

Logit regression analysis will be used to analyze the relation between economic and socio-demographic factors and the demand of institutional delivery care service. Logistic regression analysis can be used especially for the analysis of dichotomous data like (institutional and home delivery) and it can also predict the probability of demand of the service for meaningful interpretation. Marginal effect and elasticity of demand for delivery care services are then calculated.

Functional form:

$$P_i = f(\text{INC, DIST, AGE, EDUC, URBAN, WORK, PAR, SIZE}) = f(Y) = \frac{1}{1 + e^{-Y}}$$

Explicit form:

$$(1 + e^{-Y})\, P_i = 1$$

Therefore, $e^{-y} = \dfrac{1 - P_i}{P_i}$

and $\dfrac{P_i}{1 - P_i} = e^{Y}$

When taking logarithm of both sides,

$$Y = ln \frac{P_i}{1 - P_i}$$

Therefore

$$ln \frac{P_i}{1 - P_i} = \beta_0 + \beta_1 INC + \beta_2 DIST + \beta_3 AGE + \beta_4 EDUC + \beta_5 URBAN + \beta_6 WORK + \beta_7 PAR + \beta_8 SIZE + e_i$$

where,

P	=	Probability of using Institutional Delivery Care Services
1-P	=	Probability of not using Institutional Delivery Care Services (ie. Home Delivery)
INC	=	Household Monthly Income
DIST	=	Distance between Woman's Home and Health Care Centre
AGE	=	Age of Woman
EDUC	=	Number of Years of Education
URBAN	=	1 if the place of woman is urban
	=	0 if rural
WORK	=	1 if the woman is working
	=	0 if dependent , not working
PAR	=	Parity (Numbers of Birth)
SIZE	=	Household Size

Estimation Method

Non-linear equation is estimated by using the Maximum likelihood method.

3.2.2 Expected Signs

The expected signs, the unit of measurements and the description of variables are showed in the Table 3.1.

Household monthly income is the income of household per month (in '000 Kyat).
The monthly household income has positive effect on demand for health care services is found in many past studies. The rise in income is expected to cause an increase in consumption of most goods, including health care.

Distance between home and health care center is the distance between woman's home and health care centre (in miles). The distance of the woman house and health care center is a great impact on demand for health services. Non-monetary factor, travel

distance will act as price in discouraging the demand for medical care. Therefore the greater the distance, the less utilize the institutional delivery services.

Table 3.1 Expected Signs

Variables	Description of Variables	Unit of Measurements	Expected Signs
INC	Household Monthly Income	'000 Kyat	+
DIST	Distance between Woman's Home and Health Care Centre	Miles	-
AGE	Age of Woman	Years	+
EDUC	Number of Years of Education	Years	+
URBAN	Place of Woman	Dummy	+
WORK	Working status of Woman	Dummy	+
PAR	Parity (Numbers of Birth)		-
SIZE	Size of the Family		-

Age of woman is the age that the woman had already completed. It is the important characteristic that can affect demand for health care services especially the delivery care services. The higher the age, the more depreciation occurs and so the more demand for health care services.

Education of woman is the education of woman by years of schooling. The education makes a woman not only increased knowledge of her own health but also increased the demand for institutional delivery through preference and increased welfare.

Urban refers to Rural and Urban. Rural woman utilizes less institutional delivery than urban woman through their accessibility, knowledge and preferences and it is shown in many studies.

Working status of woman refers to Working and not working (Dependent). The working woman has more chance of exposure to external environment and can get more information of delivery services and can access them. So the working woman uses more institutional delivery than non- working woman.

Parity is the numbers of child that the woman gave birth. The higher the number of the children, the lower the utilization of institutional delivery and more likely to take home delivery. The woman has more experience about delivery and less inclined to use institutional delivery.

Household Size is the number of members of the household. The large household has negative effect on demand for institutional delivery care services through the sharing of household's resource among more people. The number of member in family affects the resources like time, effort and money and so there is explicit or implicit cost for this. Therefore the greater the size of the family the less demand for institutional delivery care services.

Delivery care services are Institutional delivery: any delivery at medical institution such as government or private hospital/clinic, primary health centre, or maternity home; and Home delivery.

3.3 Data Collection

3.3.1 Target Population

Total population of women in Sagaing Division is about 2,700,000. The target population of this study is reproductive age (15-49 years) women living in Sagaing Division, Myanmar which is about 1,500,000. The sample population is reproductive age (15-49 years) women living in three townships of Sagaing Division, Myanmar and totally is about 150,000.

3.3.2 Sampling Procedure

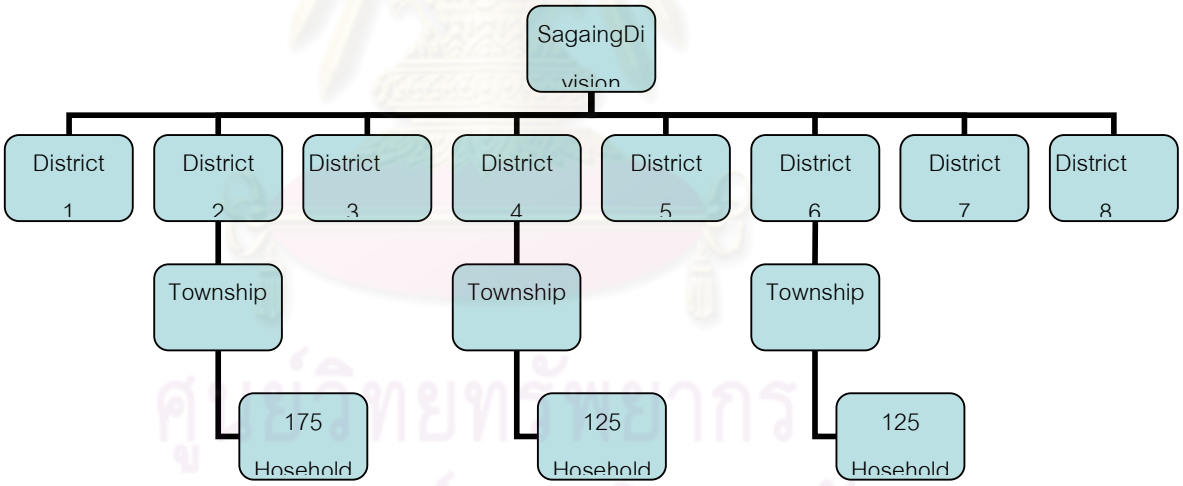
Sagaing division has total 8 districts. Due to time limitation I will choose 3 districts randomly and that will be about 40% of Sagaing division. These 3 districts are stratified by townships and then one township form each district is selected by proportional stratified sampling. These are 1). Myin Mu Township which is 33% of

Sagaing District; 2). Shwe Bo Township which is 14.0% of Shwe Bo district; and 3) .Chaung Oo Township which is 8.0% of Mone Ywar District.

The responsible persons in these townships are asked for the houses having reproductive age (15 -49) women having under 3 years old child. Then 125 houses having reproductive age (15 -49) women who have under 3 years old child from Myin Mu and Chaung Oo Townships and 175 houses having reproductive age (15 -49) women who have under 3 years old child from Shwe Bo Township are selected by using simple random method.

My sample size will be 425. The additional 25 numbers of the sample is for non-respondents and incomplete data.

Figure 3.2 Multistage Sampling



3.3.3 Sample Size Determination

By using the simple formula provided by Yamane (1967), with 95% confidence level and P = 0.05:

$$n = \frac{N}{1 + N (e)^2}$$

$$n = \frac{1{,}500{,}000}{1 + 1{,}500{,}000(0.05)^2}$$

Sample size 400

Sagaing division had average total population of reproductive age women was about 1,500,000. Then 3 districts were chosen randomly. These 3 districts were stratified by townships and then one township form each district was selected by proportional stratified sampling. These were 1). Myin Mu Township which was 33.0% of Sagaing District; 2). Shwe Bo Township which was 14.0% of Shwe Bo district; 3) .Chaung Oo Township which was 8.0% of Mone Ywar District.

The average total population of reproductive age women in Sagaing District was about 130,000 and Myin Mu Township had about 40,000 which was 33% of Sagaing District. The average total population of reproductive age women in Shwe Bo District was about 400,000 and Shwe Bo Township had about 70,000 which was 14.0% of Shwe Bo District. The average total population of reproductive age women in Mone Ywar District was about 500,000 and Chaung Oo Township had about 40,000 which was 8.0% of Mone Ywar District.

Then 125 houses having reproductive age (15 -49) women who have under 3 years old child each from Myin Mu and Chaung Oo Townships and 175 houses having reproductive age (15 -49) women who have under 3 years old child from Shwe Bo Township were selected by using simple random method. My sample size was 425.

CHAPTER IV

RESULTS AND DISCUSSIONS

According to the methodology outlined in the previous chapter, 425 reproductive age (15-49 years) women who have an under 3 years old child were interviewed. A selected team of basic health workers and voluntary health workers having experienced in data collection was trained as interviewers. The data were then collected form February through March 2011. This chapter will show the results of the data and discuss the results of the study to answer the research question and objective of the determinants of demand for institutional delivery care services among reproductive age (15-49) women who have under 3 years old child residing in Sagaing Division of Myanmar.

4.1 The Situation of Utilization of Delivery Care Services in Study area at Sagaing Division of Myanmar

4.1.1 Description of the Data

The Table 4.1 shows the mean, standard deviation and range of the variables in the study.

Table 4.1 Mean, Standard Deviation and Range of Distribution of Respondents

Variables	Mean	Standard Deviation	Range	
			Minimum	Maximum
Age (Years)	30.2	6.27	18	49
Education (Years)	5.46	4.11	0	16
Household Size	5.16	1.85	2	12
Average Household Income (‘000 Kyat)	103.9	98.5	10	710.7
Parity (Numbers of Birth)	2.17	1.48	1	12
Distance from home to health center (Miles)	1.44	0.97	1	5

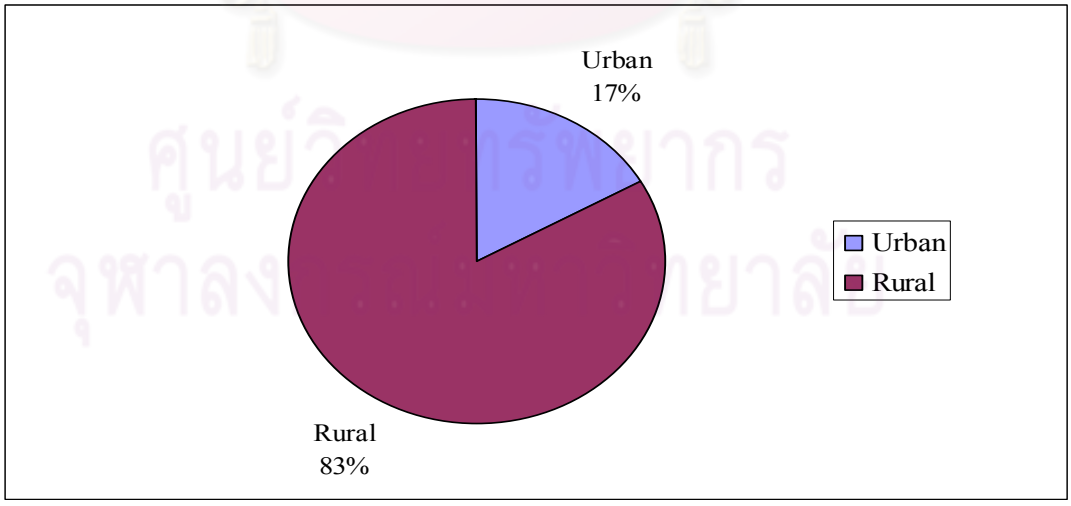
As shown in Table 4.2, most of the respondents were between 26-35 years; this group represented 54.35% of the group. The mean age was 30 years. The youngest respondent is 18 years and the oldest one is 49 years.

Table 4.2 Frequency Distribution of Age of Respondents

Age Group (Year)	Frequency	Percentage (%)
18 and below	1	0.24
19-25	105	25.4
26-35	225	54.4
36-45	78	18.9
46 and above	5	1.21
Total	414	100

Nearly 83 % of the respondents were living in the rural area; 17% reported living in the urban area (see Figure 4.1).

Figure 4.1 Percentage Distribution of Place of Respondents



Concerning education, the education group was divided into four groups: group 1 being 4 years of schooling and below, group 2 being 5 to 8 years of schooling, group 3 being 9 to 10 years of schooling and group 4 being 11 years of schooling and above. According to Table 4.3, over half (61%) of respondents were in the group 1; only 12% were in the group 4. The majority of the respondents had low educational status. The mean education of the respondent was 5.46 years. The maximum was 16 years and minimum was 0 years of schooling.

Table 4.3 Frequency Distribution of Education of Respondents

Education Group (Year)	Frequency	Percentage (%)
4 and below	254	61.4
5-8	79	19.1
9-10	32	7.73
11 and above	49	11.8
Total	414	100

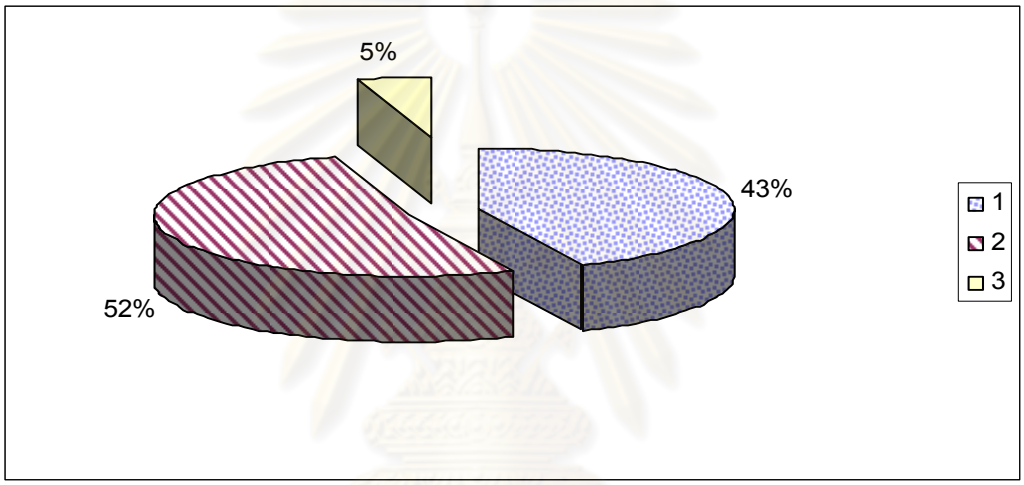
The income of the respondents was grouped into 5 subgroups: income 10,000 to 50,000 kyat being group 1, 50,001 to 100,000 kyat being group 2, 100,001 to 300,000 kyat being group 3, 300,001 to 500,000 kyat being group 4 and group 5 being 500,001 to 800,000 kyat. More than 60% of the respondents were in group 2 and 3, and only 1% was in group 5 with the mean income of 103,895.70 kyat. Therefore more than 60% of respondents in this study had low income (see Table 4.4).

Table 4.4 Frequency Distribution of Income of Respondents

Income Group (Kyat)	Frequency	Percentage (%)
10,000-50,000	142	34.3
50,001-100,000	171	41.3
100,001-300,000	84	20.3
300,001-500,000	13	3.14
500,001-800,000	4	0.97
Total	414	100

The maximum household size in study area was 12 and the minimum was 2 with the mean household size of 5.16. There were three groups in this category: group 1 was the household size ranging from minimum to 4, group 2 was the size of 5 to 8 and group 3 was 9 to maximum. According to Figure 4.2, most of the respondents were in the group 2 (52.17%) and only 4.59% was in the group 3.

Figure 4.2 Percentage Distribution of Household Size of Respondents



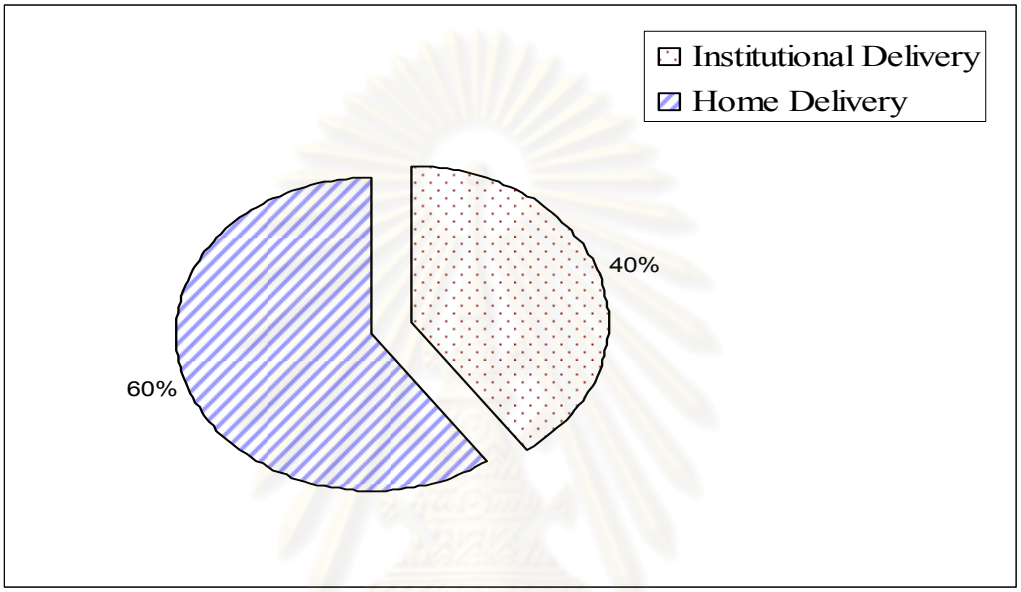
In terms of parity, women were grouped into 4 groups with 1 being 1 to 3, group 2 being 4 to 6 , group 3 being 7 to 9 and group being 10 to 12. The majority of the respondents had low parity (85.99%) (see Table 4.5).

Table 4.5 Frequency Distribution of Parity of Respondents

Parity Group (Numbers of Birth)	Frequency	Percentage (%)
1-3	356	85.9
4-6	51	12.3
7-9	6	1.45
10-12	1	0.24
Total	414	100

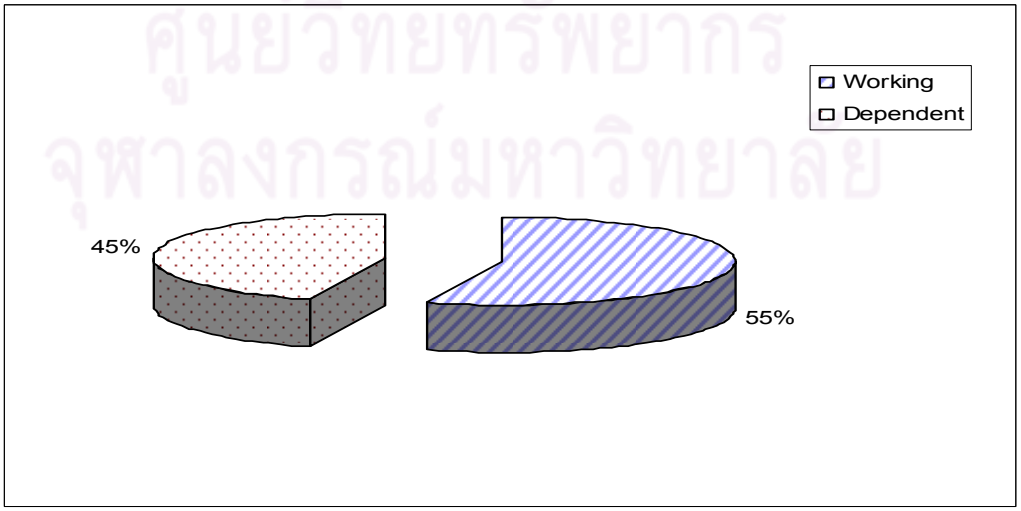
More than 60% of women gave birth at home. The remainders gave birth at the health center/hospital (see Figure 4.3).

Figure 4.3 Percentage Distribution of Place of Delivery of Respondents



From the Figure 4.4 more than 55% of women were employed; most reported being farmers. The remaining 45% of women reported being dependent on someone.

Figure 4.4 Percentage Distribution of working status of Respondents



The Table 4.6 shows that most of the respondents lived within 1 mile of the health center/hospital (78.26%). The mean distance was 1.44 miles from home to the health center/hospital.

Table 4.6 Frequency Distribution of Distance of Respondents

Distance (Mile)	Frequency	Percentage (%)
1	324	78.3
2	35	8.45
3	30	7.25
4	12	2.90
5	13	3.14
Total	414	100

4.1.2 Utilization of Delivery Care Services in Study Area at Sagaing Division of Myanmar

In this study 425 women were asked about the utilization of delivery care services. Incomplete and non responded answers yielded the final sample of 414 women. The chi-square test was done to see the association between the delivery care services and the other variable.

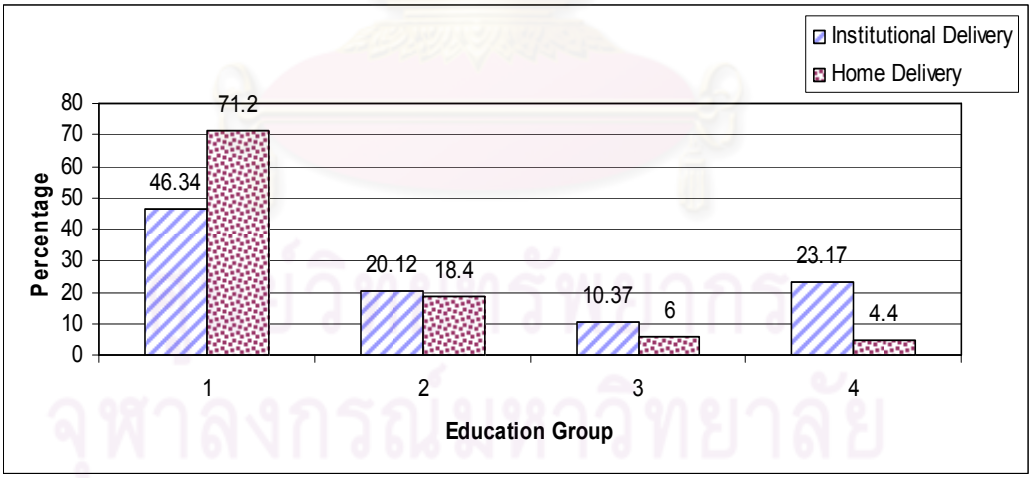
From Table 4.7 there was association between the delivery care services and the education of women. So the Null hypothesis that the delivery care services and the education of women had no relation was rejected. Figure 4.5 indicated that, most of the less educated women (71%) compared with 4.4% of well educated women gave birth at home. At the same time low educated women (46%) compared with the remaining higher educated women gave birth at institution. And the test was also statistically significant with P value <0.001. It showed that education was very important for choosing delivery care services especially institutional delivery care services.

Table 4.7 Chi-Square Test for the Association between Delivery Care Services and Education of Women

Delivery Care Services	Education Group (in Years) 1	2	3	4	Total
Institutional Delivery					
Frequency	76	33	17	38	164
Percentage (%)	46.3	20.1	10.4	23.2	100
Home Delivery					
Frequency	178	46	15	11	250
Percentage (%)	71.2	18.4	6	4.4	100
Total					
Frequency	254	79	32	49	414
Percentage (%)	61.4	19.1	7.73	11.8	100

Pearson chi-square with (4-1) df = 42.1 Pr = 0.000

Figure 4.5 Percentages of Delivery Care Services Classified by Education of Women



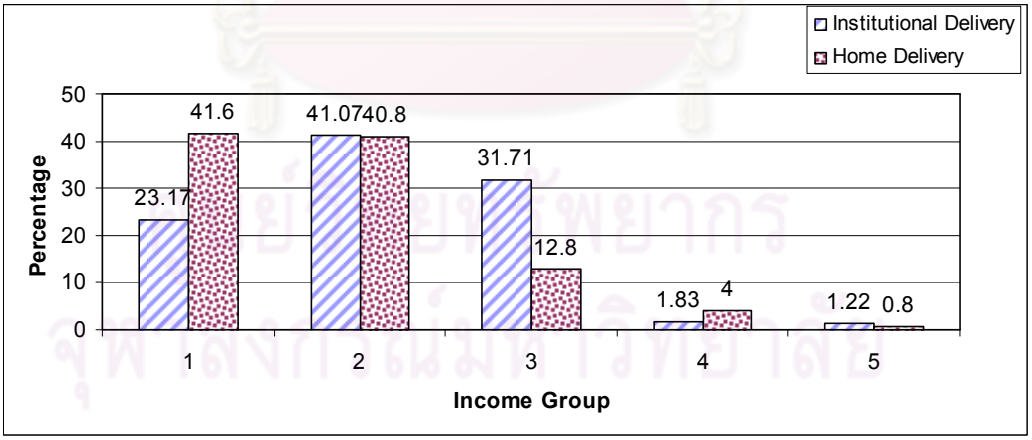
According to Table 4.8, the association between the delivery care services and monthly household income hence rejected the null hypothesis of no association between these two variables. According to Figure 4.6, over two thirds of the home delivery that was about 80% were from the lowest income group while over 70% of total institutional deliveries were from income group 2, 3 and 4 (P value 0.000).

Therefore higher income groups were more likely to deliver at the institution. At the highest income group, at the time the institutional delivery was 1.22%, the home delivery rate was only 0.8%. It was also statistically significant with P value <0.001.

Table 4.8 Chi-Square Test for the Association between Delivery Care Services and Monthly Household Income

Delivery Care Services	Income Group (Kyat) 1	2	3	4	5	Total
Institutional Delivery						
Frequency	38	69	52	3	2	164
Percentage (%)	23.2	41.1	31.7	1.83	1.22	100
Home Delivery						
Frequency	104	102	32	10	2	250
Percentage (%)	41.6	40.8	12.8	4	0.8	100
Total						
Frequency	142	171	84	13	4	414
Percentage (%)	34.3	41.3	20.3	3.14	0.97	100
Pearson chi-square with (5-1) df = 28.9 Pr = 0.000						

Figure 4.6 Percentages of Delivery Care Services Classified by Income of Women



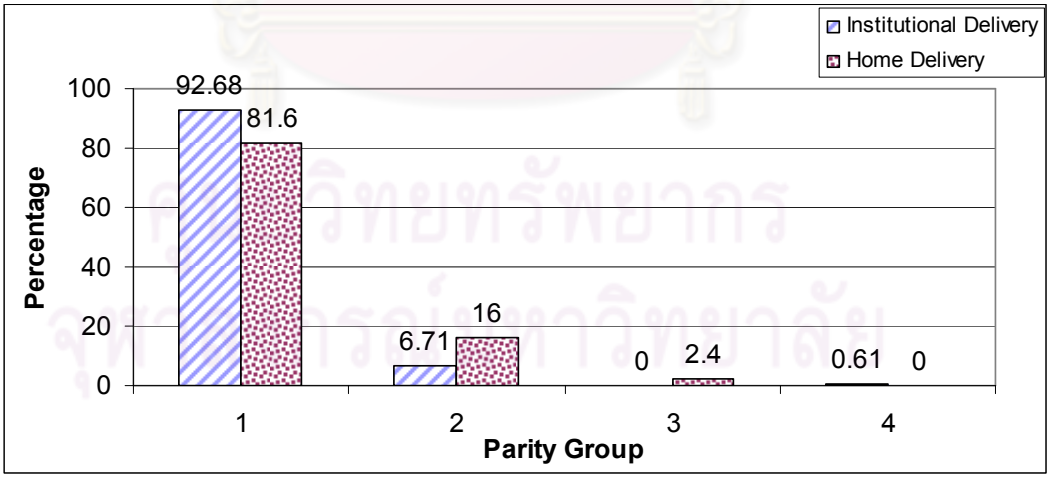
The test was statistically significant at P value <0.01. Null hypothesis was rejected therefore there was association between the delivery care services and the parity of women. Nearly all of the women (92.68%) gave birth at institutions had low parity with less than 1% institutional delivery at the higher parity group. About four fifth of

the women from low parity group and 2.4% of high parity women preferred to deliver at home. There was not much difference between home and institutional delivery for parity group (see Table 4.9 and Figure 4.7).

Table 4.9 Chi-Square Test for the Association between Delivery Care Services and Parity of Women

Delivery Care Services	Parity Group				Total
	1	2	3	4	
Institutional Delivery					
Frequency	152	11	0	1	164
Percentage (%)	92.7	6.71	0	0.61	100
Home Delivery					
Frequency	204	40	6	0	250
Percentage (%)	81.6	16	2.4	0	100
Total					
Frequency	356	51	6	1	414
Percentage (%)	85.9	12.3	1.45	0.24	100
Pearson chi-square with (4-1) df = 13.8		Pr = 0.003			

Figure 4.7 Percentages of Delivery Care Services Classified by Parity of Women



According to chi-square test there was no association between the delivery care services and the other variables such as age, distance between home and health care center, place of women, occupation, and household size.

4.2 Factors affecting on demand for institutional delivery

This was aimed to study the determinants of demand for institutional delivery care services among reproductive age (15-49) women who have under 3 years old child residing in Myin Mu, Shwe Bo and Chaung Oo Towinships of Sagaing Division of Myanmar. It could help the policy makers in using as an important tool for any possible intervention through improving the low utilization of institutional delivery in the country. In this study not all but some main factors might be useful for the policy makers to take account in the efforts to reduce maternal mortality and morbidity in Myanmar. They were income, education of the women and the number of birth (Parity) of women in the study area.

Table 4.10 Logit Estimation for Determinants of Demand for Institutional Delivery Care Services

Variable	Coefficient	z-Statistic
C	-1.9913	-1.947
INC	0.0028	2.454***
DIST	0.0579	0.524
AGE	0.0286	1.336
EDUC	0.1465	4.704***
URBAN	0.1432	0.459
WORK	0.0452	0.205
PAR	-0.2620	-2.399***
SIZE	-0.0538	-0.868
Log likelihood	-248.237	
N	414	

Notes: *** - Significant at 1%

In the regression results, the institutional delivery was the dependent variable and all the variables had the consistent signs with our expectation and theory. Apart from average household income, education of women and the number of birth (parity), other variables were found insignificant.

The main important factor was the average income of the household. Income had positive and significant effect on demand for institutional delivery care services

(significant at the 1% level). It meant that when the average monthly household income increased, the probability of demand for institutional delivery would increase. Holding other regressors constant, if average monthly household income increased by a unit, on average the estimated demand for institutional delivery increases by 0.0028 units. But the more meaningful interpretation was in terms of odds, which were obtained by taking the antilog of the various slope coefficients.

Thus antilog or odds ratio of coefficient of income was 1.0028 suggesting that women with higher monthly household income were more than one time more likely to take institutional delivery through increasing demand, other things remaining the same. In the previous study done in Iran by Lakeh, Ramezani and Naghavi (2007) also concluded that the opportunities of delivery in appropriate place and by skilled attendant were more common in those with higher economics levels. The result in this study was also consistent with other studies done by Ntembe 2009; Lopez-cevallos and chi, 2010 saying that both price and income were a significant determinant of health care provider choice. From this result, it can be said that if income generation activities in townships and country can increase the demand for institutional delivery care services and can reduce the maternal mortality and morbidity.

The result showed that if the education was increased one unit, on average, the probability of demand for institutional delivery increased by 0.147 with other regressors held constant. The odds ratio of education was 1.16, stating that the educated women were more than one time likely to increased demand to deliver at institutions than less educated ones. The education of the women was significant at 1% level and had positive effect on demand for institutional delivery meaning that the more educated women were more likely demanded for delivery at institutions. From the past studies done in Asia (Akin, 1986; Wong 1987; and Streatfield, Singarimbun and Diamond, 1990) were also found that maternal education has a positive effect on the use of health-care services. This study result of education could also provide the finding of the study done by Idris, Gwarzp, and Shehu (2006) in Nigeria where it was concluded that the mother's literacy level was found to be the most important

determinant of place of delivery as those as non formal education tend to deliver at home.

This study can point out the fact that education can not only modifies the women's beliefs and the use of modern health-care services but also gives the mother confidence in selves to seek the appropriate health care outside the home. The policy makers can also see that not only the interventions for Reproductive health care but also some kind of educational investments are required to implement to increase the demand for institutional delivery. It also showed the fact that the demand for institutional delivery services is multifaceted and is needed to consider all factors apart from health sector.

The probability of women' demand for institutional delivery care services would decrease when the parity increased. It showed the fact that with increasing the parity there had increased confidence and experience in both pregnancy and during child birth. It also consistent with the studies done by Wong et al., 1987 and the studies done in India by Navaneetham and Kharmalingam, 2007. These studies said that the women who had their fourth order births and above were less likely to delivery their babies at a health care institution. In this study, if the parity was increased one unit, on average, the probability of demand for institutional delivery decreased by 0.262 with other regressors held constant.

The odds ratio of education was 0.769, stating that the women with higher parity were one time less likely to deliver at institutions than lower parity women. The parity of the women was significant at 1% level and had negative effect on demand for institutional delivery. This study was also consistent with the studies done by Bhatia and Cleland (1995): for all indicators of maternal health care services higher order births decreased the likelihood of using the services. It might be the fact that increasing the birth order, women got more confidence and experience and had taken more responsibilities of child care.

Rural women were less likely to use institutional delivery services. Though it was insignificant here, it could support the studies of Thind, Mhani, Banerjee, and Hagigi (2008) done in India stating that the that respondents living in rural areas were more likely to deliver at home and pointed out that utilization of maternal health care services is lowest in rural areas. It was revealed the fact that geographical difference had great impact on demand for institutional delivery so if this difference could be lessened then the demand might be increased in both urban and rural around the country. According to reproductive health program in Myanmar, rural health center are upgrading with attached birth room, but this result showed that there still needed to expand more to rural area.

The working status of women showed that if the women had occupation the probability of demand will increase. If the women were dependent then the probability of demand for institutional delivery would decrease. It was consistent with many other past studies done by Caldwell, 1983; Mosley and Chen, 1984; Cleland and van Ginneken, 1988; and Mencher, 1988 saying that working mothers were more likely than nonworking mothers to take advantage of modern health care services. In our country, the women has more decision power in the household compare to other developing country but working women are more accessible in term of exposure to external environment and getting increased role in the family. It showed that if we promote the working opportunity for women the demand for institutional delivery could go up but this factor was insignificant in this study.

The higher the age, the more depreciation occurred and so more demand for health care services. It can also support the Grossman (1972) formulation suggesting that a positive correlation between age and the depreciation rate on health. If the women lived near from the health center, the demand for institutional delivery would decrease. It was different from past studies and theories but it was insignificant.

Household size had negative effect on the demand for delivery at institution but it was not a significant factor. Even it was insignificant, it was consistent with the theory that the number of member in family affects the resources like time, effort and money and

imposing explicit or implicit cost for the demand for institutional delivery. From this study, it could seen that the increase the size of the household, the less demand for the institutional delivery. It was showing the fact stated by Akin (1985) that increasing the household size, there was sharing of resources among the household members resulting less consumption of health care per person.

Table 4.11 Marginal Effects or Rate of Change of Probability and Elasticity

Variable	Marginal effects	Elasticity
INC	0.0006	0.1961
DIST	0.0126	0.0567
AGE	0.0062	0.5885
EDUC	0.0319	0.5434
URBAN	0.0312	-
WORK	0.0099	-
PAR	-0.0571	-0.3862
SIZE	-0.0117	-0.1888

Notes: Marginal effect or rates of change of probability = $\beta_i P_i (1- P_i)$

Elasticity with respect to demand for institutional delivery = $\beta_i (1 - P_i) X_i$

(where X_i = Independent Variable)

From the results of the Table 4.11, the women with higher average monthly household income (i.e. one unit increase in income) had 0.0006 increased probability of demand for institutional delivery care services. The change in average monthly household income of the women would significantly change the probability of demand for institutional delivery care services. The elasticity of income for demand of institutional delivery care services was 0.196. One percent increase in the monthly household income, the probability of the demand would increase by 0.19%. Because of positive income elasticity of demand, the institutional delivery care service was a normal good showing that an increase in income would lead to a rise in demand. Being the income elasticity of demand was less than 1, the institutional delivery care services were necessity goods.

There was 0.032 increased probability of demand for institutional delivery in the women with one year higher in education of women. With one percent increased in education the probability of demand would increase by 0.54%. The increase in parity of women about pregnancy and child by one unit, the probability of demand for institutional delivery would decrease by 0.057 with the elasticity of -0.39 showing that one percent increased in parity of women, the probability of delivering at institution would decrease by 0.39%. From these results, it can be said that low household income, less educated women with low birth orders was responsive to changes in income, education and parity for likelihood of demand for institutional delivery care services.

CHAPTER V

SUMMARY AND CONCLUSIONS

In Myanmar, approximately 1.3 million women give birth each year. Maternal mortality ratio was estimated at 316 per 100,000 live births at the national level and 80.0 % of the maternal deaths were mostly at home. In order to reduce the country's burden of maternal and prenatal morbidity and mortality, safe motherhood initiatives have been expanded into a national movement. Emergency obstetric care facilities are supplied to the township civil hospitals. Institutional delivery has been enhanced in the community through upgrading and promoting of rural health centers and sub-centers with attachment of labor rooms to the facilities. In Sagaing Division, the institutional delivery rate is the third lowest among the country and Home Delivery Rate is the second highest among the states and divisions with one of the highest perinatal mortality in Myanmar This point shows that though government is promoting the institutional delivery there is underutilization of institutional delivery in Sagaing Division in compare to others state and division, and there still needs to know about the current magnitude of its importance and the factors influencing the use of these services.

This study therefore aims to fill this gap by describing and analyzing the factors influencing the demand for delivery care services particularly institutional delivery in Sagaing Division. The objective of this research is to study the determinants of demand for institutional delivery care services among reproductive age (15-49) women who have under 3 years old child residing in Sagaing Division of Myanmar.

This study was done form February through March 2011 in three townships of Sagaing Division. 425 women who are at Reproductive age (15-49) having under 3 years old child from Myin Mu and Chaung Oo and Shwe Bo Townships were asked according to pre-structured and tested questionnaire. Data cleaning and analysis are done by using Epidata, Stata and Eview computer programs. Chi-square test and logit regression analysis were used to analyze the relation between economic and socio-demographic factors and the demand for institutional delivery care service.

According to the results, more than 60% of women gave birth at home and about 40% of women gave birth at institutions. About half of the women were between the ages of 26-35 years with the mean age of 30.2%. In the study over 60% of respondents were educated at primary level and more than 83% live in rural area. 86% of them had at least one time of giving birth. Nearly 80% of women lived within 1 miles of health center and on average they had to take about 20 minutes to reach there. About 75% of women were in the low income group. From the Chi-square test of independency, education, monthly household income, parity, were associated with the delivery care services and significant at the levels of 1%.

The main important factor for demand of institutional delivery in this study was average monthly household income. The greater the average monthly household income the more demand for institutional delivery. It had positive effect and was also statistically significant at 1% significant level. Women with higher monthly household income were more than one time more likely to take institutional delivery through increasing demand.

More educated women had more than one time more likely demand for deliver at institutions than less educated women did. Education was significant and had positive effect on demand. Education had long lasting believed to be positive effect on demand for health care and it was consistent here in this study. The increases in parity have the women, the likely decrease in demand for institutional delivery.

In this study, age of the women, distance between home and health center, working status of women, and the household size are insignificant. The results showed that the higher the age, the more demand for institutional delivery care services and the same for working: the working women were more likely to deliver at institution than dependent women did. Women living in urban area are more likely to deliver at institutions then the women from rural area. But the expected sign is different for distance variable and it is also insignificant in this study. And big household sizes had negative effect on demand.

From the marginal effect of income on demand, the women with higher average monthly household income (i.e. one unit increase in income) had 0.0006 increased probability of demand for institutional delivery care services. The elasticity of income for demand of institutional delivery care services was 0.196. One percent increase in the monthly household income, the probability of the demand would increase by about 0.2%. If the education of women was increased by one year, the probability of demand for institutional delivery care services went up by nearly 0.032. The probability would increase 0.54% with one percent increase in years of schooling of women. If the higher the women had birth order, the probability of demand for institutional delivery would decrease by nearly 0.057 with the elasticity of -0.39.

The results of the study showed that the income, education and parity of the women were the most important factor for demand for institutional delivery care services. To promote the demand for institutional delivery care services in Myanmar, not only providing the institutional delivery care services but also some kinds of income generation interventions are needed according to this study. Most of the women worked as farmers in study area and some subsidies or providing new technology for agriculture can increase their income and hence on the other hand can promote the demand for institutional delivery care services.

Because of the positive effect of education of respondents on demand for institutional delivery, by promoting the education of women can increase the demand of delivery at institution. In Myanmar, education level is not too severe (adult literacy rate: 94.83% in 2008) compare to other developing countries but most of the people especially in rural area are still at the level of primary education. In the study area, most of the women are only up to primary level of education and this study can show if the education of women are promoted than now , the aim of promoting delivery at institutions can be drawn up.

Increasing the birth order the less likelihood of demand for institutional delivery might be the fact that the women have to take care of the children, more experience

about pregnancy and child birth. But the higher the birth order, the more dangerous the risk of the pregnancy will be. Therefore the women should be educated more about the danger associated with increasing parity, giving birth at the safe mode of delivery place like institutional delivery. It is also worth to change their perception and should try to convince them to take institutional delivery by introducing demand side financing like giving incentives to mother who gave birth at institutions, giving them the travel expense and giving some credit which can be attracted to them.

For urban-rural difference, Myanmar, being the largest country in South East Asia, has a lot of mountainous and hilly area. The remote rural area are still needed to cover the institutional delivery services hence in this study, it was shown in the results. The rural area had about 3 times less demand for institutional delivery care services. It can be concluded that the upgrading and promoting of rural health centers and sub-centers with attachment of labor rooms to the facilities should be reinforced ever than before for increasing demand for institutional delivery.

Although not significant in this study, other factors such as age, distance, place of the women residing, work of the women and the household size are hoped to give some idea to policy maker in implementing the Reproductive Health Interventions especially institutional delivery care services in Myanmar.

This study cannot give all the information that the policy makers or program managers needed to know. There still needs to do further research based upon this information. In this study, the information are given quantitatively but if further qualitative information are available in addition to this quantitative one, the determinants of demand for institutional delivery care services can be understood more completely. In this study nearly all of the information are taken from the demand side and if the supply side can be added on further, then it would be very informative.

Only the demand for institutional delivery care services is focused in this study. For implementing the Maternal and Child Health care interventions, other services such as

demand for home delivery, the role of skill birth attendants, the role of the antenatal care taking and the quality of the services are needed to know. The institutional delivery care services are said to be given free, in this study, not all the opportunity cost are involved and not all pricing and costing information are included. But there might be other direct or indirect cost for this service and if it can be evaluated in further study, it would be more valuable for policy maker.

Based on the information of this study, on further studies it should be conducted in other state and division of Myanmar. On further studies, it is suggested to added more on qualitative information, pricing and costing information, quality of services or supply side information and other related services like skilled birth attendants and antenatal care services. Finally the information from this study is hoped as a base for further studies to continue in reproductive health care services in Myanmar.

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APPENDIX A

Questionnaire for

Determinants of Demand for Institutional Delivery Care Services in Sagaing Division of Myanmar

Number .....

Name of Township .....

Questionnaire for

Determinants of Demand for Institutional Delivery Care Services in Sagaing Division of Myanmar

The purpose of this study is only for research and for thesis entitled to Faculty of economic, health economics, Chulalongkorn University, Thailand. Your name will not be disclosed and therefore you need not to answer your name. Your answer will be valuable for the study but if you feel unease to answer, please feel free not to answer.

If you have any question which is unclear for you, do not hesitate to ask question to interviewer. Thank you for your collaboration for this study.

Part 1 Socio-economic characteristics of respondent

1.1 What is your completed age now?

……...Years

1.2 Where is the place that you lived?

[ ] 1. Urban [ ] 2. Rural

1.3 How many years of schooling did you attend?

…… Years

1.4 Are you working?

[ ] 1. Working [ ] 2. Not working (Dependent)

1.5 How many numbers of family members living in the house?

……

1.6 What is monthly household income at the time of delivery of last child?

…….. Kyat

Part 2 Maternal Health Care Status of Respondent

2.1 How many children did you give birth?

……...……..Child/Children

2.2 Did you take Antenatal care during your last pregnancy?

[ ] 1. Yes [ ] 2. No

2.3 Where did you give birth your last child?

[ ] 1. Medical institute (hospital, clinic, health center, maternity room either private of public)

[ ] 2. Home

2.4 How much did you pay for the person or persons who took care during your last child birth (in cash)?

…….. Kyat

2.5 Have you heard about the complications of pregnancy and child birth?

[ ] 1. Yes [ ] 2. No

<u>If yes,</u> what are the complications of pregnancy and child birth?

…….....

…….....

…….....

…….....

…….....

…….....

2.6 How long does it take to reach to health center from your home either walking or using a vehicle ? (in minutes)

…….. Minutes

2.7 What is the distance between your house and health care center/hospital/clinic? (in miles)

……. Miles

APPENDIX B

Correlation Matrix

Table B.1 Correlation Matrix

	INC	DIST	AGE	EDUC	URBAN	WORK	PAR	SIZE
INC	1							
DIST	-0.0282	1						
AGE	0.028841	-0.01436	1					
EDUC	0.126247	-0.00727	-0.0875	1				
URBAN	0.009043	-0.05675	0.008284	-0.35903	1			
WORK	-0.08031	-0.04893	-0.09667	0.023791	-0.08039	1		
PAR	-0.04316	0.076725	0.572991	-0.28585	0.098825	-0.04884	1	
SIZE	0.105704	0.102952	0.169953	0.034218	-0.02871	0.068405	0.262101	1

Biography

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