# THE ROLE OF EDUCATION AND CHILD MORTALITY IN FERTILITY BEHAVIOUR IN TIMOR-LESTE: THE ANALYSIS OF THE 2004 TIMOR-LESTE POPULATION AND HOUSING CENSUS DATA

THESIS

This thesis has been proposed as one requirement to obtain a master degree in population and labour study

BY:

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DEPOK, MAY 2010

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This thesis has been successfully defended before the hearing examiners and the board accepted as part of the requirements necessary to obtain a master degree in population and labour in the postgraduate program of University of Indonesia.

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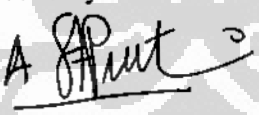

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## ABSTRACT


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| Name | : Anastasia Sri Endang Purwatiningsih Vong |
| Program Study | : Master on Population and Labour Study |
| Title of Thesis | : The Role of Education and Child Mortality in Fertility Behavior in Timor-Leste: the Analysis of 2004 Timor-Leste Population and Housing Census Data. |



Fertility is exceptionally high in Timor-Leste. Many efforts are needed to understand the factors affecting fertility behavior in this country. The aim of this study is to investigate the factors influencing fertility in Timor-Leste, particularly the role of education and child death in determining the chance of having more than three live births.

Data used for the study came from the results of the 2004 Timor-Leste and Housing Census. The dummy dependent variable is the number of live births. The independent variables are age of women, marital status, still-birth, child death experience, education, employment status, type of housing and mother tongue. Bivariate analysis used contingency table and multivariate analysis using binary logistic regression, were employed in the study.

The study results show the percentage of woman having more than three live births is higher among women who were older, were married, had still-birth experience, had child death experience, had low education, and were unemployed, lived in improper housing and spoke Mambai, Bunak, Kemak. All factors analyzed statistically have significant effect on probability of having more than three live births. Among these factors, child death experience has the strongest influence and then followed by role of education and other socio-economic factors in controlling fertility level.



Keys words: Fertility, Live birth, Still-birth, Child death, Education, Health, Census Population, Employment status, Type of Housing, Mother Tongue, Binary Logistics Regression,



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# ABSTRAK

Name : Anastasia Sri Endang Purwatiningsih Vong
Program Study : Pascasarjana Kependudukan dan Ketenga-kerjaan.
Judul Thesis : Peranan Pendidikan dan Pengalaman Kematian Anak Pada Perilaku Fertilitas di Timor-Leste: Analisis Data Census Penduduk dan Perumahan Timor-Leste Tahun 2004.

Fertilitas di Timor-Leste luar biasa tinggi. Banyak usaha yang diperlukan untuk memahami dan mengontrol beberapa faktor yang berpengaruh terhadap perilaku fertilitas di Negara ini. Studi ini bertujuan untuk meneliti faktor-faktor yang berpengaruh pada fertilitas di Timor-Leste, khususnya peranan pendidikan dan kematian anak sebagai faktor utama yang memberikan peluang untuk mempunyai anak lahir hidup lebih dari tiga anak.

Data yang digunakan dalam studi ini berasal dari hasil Sensus Penduduk dan Perumahan Timor-Leste tahun 2004. Dummy pada variable terikat adalah jumlah anak lahir hidup. Variabel bebas diantaranya adalah: umur ibu, status perkawinan, pengalaman anak lahir mati, pengalaman anak mati, tingkat pendidikan, status ibu bekerja, tipe perumahan dan bahasa ibu. Analisis bivariat menggunakan table contingency dan analisis multivariate menggunakan regressi logistic binary.

Studi ini telah memperlihatkan hasil; persentase perempuan untuk mendapatkan anak lahir hidup lebih dari tiga, lebih tinggi pada perempuan yang mempunyai karakteristik: usia tua, sudah menikah, punya pengalaman anak lahir mati, punya pengalaman kematian anak, berpendidikan rendah, tidak bekerja, tinggal di rumah yang tidak layak, dan berbahasa ibu Mambai, Bunak, Kemak. Secara statistik semua faktor berpengaruh signifikan terhadap peluang untuk mendapatkan anak lahir hidup lebih dari tiga anak. Pengalaman kematian anak adalah faktor yang paling kuat berpengaruh terhadap kemungkinan untuk mendapatkan anak lahir hidup lebih dari tiga anak, kemudian diikuti dengan faktor pendidikan dan sosial economi lainnya. Ini menegaskan bahwa pendidikan dan kematian anak berperanan penting dalam mengontrol tingkat fertilitas.

Kata kunci : Fertilitas, Anak lahir hidup, Anak lahir mati, Kematian anak, Pendidikan, Kesehatan, Sensus Penduduk, Status bekerja, Tipe perumahan, Bahasa ibu, Regresi Logistis Biner.

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Special support from my biggest Suratiman families (Banjarbaru, Yogyakarta) and Amaral Vong families (Dili, and other places), for my bishops excellencies MGR. Demarteau, Msf, Dom Bazilio, Pr and Dom Richardo, Pr, that gift largest spiritual supports for me as well as daughters or sisters in Jesus Christ. Especially for my husband Manuel Lito Vong at Faro (Portugal), and my sons Emanuel and Noe at Dili (Timor-Leste) eventhough we were separated by distance Depok (Indonesia), but we are always together in God, thank you for all faith full in love, support, and understand.

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You will show me the part to life, abounding joy in your presence and the delights at your right hand for ever.

Those who sow in tears will reap with cries of joy.
Those who go forth weeping, carrying sack of seed will return with cries of joy, carrying their bundled sheave.

And I will live for the Lord, my descendants will serve You.
The generation to come will be told of the Lord: that they may proclaim to people yet unborn the deliverance you have brought.

Our soul waits for the Lord, who is our help and shield.
For in God our rejoice in your holy name we trust.
May your kindness, Lord, be upon us, we have put our hope in You.

They will receive blessings from the Lord, and justice from their saving God.
Such are the people that love the Lord, that seek the face of the God of Jacob

(Psalm 16:11. 126: 5-6. 22: 31-32. 33:20 -22)

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Di hadapan-Mu ada sukacita berlimpah,
Di tangan kanan-Mu ada nikmat yang abadi.

Orang yang berjalan maju dengan menangis sambil menabur benih,
pasti pulang dengan sorak sorai sambil membawa berkas-berkasnya.

Dan aku akan hidup bagi Tuhan,
anak cucuku akan beribadah kepadaNya
Mereka akan menceritakan hal ikhwal Tuhan
kepada angkatan yang akan datang.

Jiwa kita menanti-natikan Tuhan.
Dialah penolong kita dan perisai kita!
Kasih setia-Mu ya Tuhan, kiranya menyertai kami,
Seperti kami berharap pada-Mu.

dialah yang akan menerima berkat dari Tuhan
dan keadilan dari Allah, penyelamatnya.
Itulah angkatan orang-orang yang mencari Tuhan.
yang mencari wajah-Mu, ya Allah Yakub.

(Kitab Mazmur 16:11. 126: 5-6. 22: 31-32. 33:20 -22).

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mos ba dalas nebe atu mosu mai.

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Nia sempre tulun ho hamahan ona ita hotu!
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Hanesan ami nia espearansa nafatin ba Ita

Ema ne mak atu bele, simu bensaun husi Maromak,
Maromak nebe justu, Maromak salvasaun.
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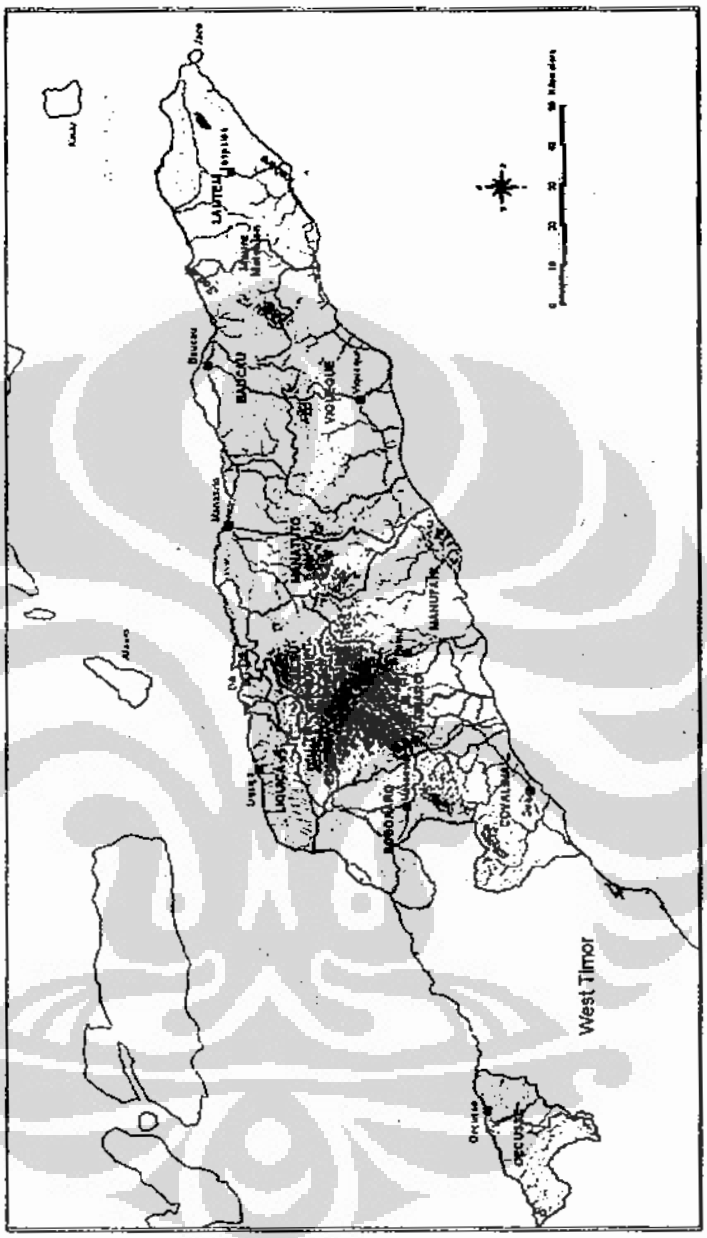
(Profeta Salmo: 16:11. 126: 5-6. 22: 31-32. 33:20 -22).

# LIST of ACRONIMS

| | |
|---|---|
| BKKBN | : Badan Keluarga Berencana Nasional (Indonesian language, = National Family Planning Coordinators Boards) |
| BLR | : Binary Logistic Regression. |
| CBA | : Children Born Alive |
| CBR | : Crude Birth Rate |
| DHS | : Demographic Health Survey |
| DNE | : Directore Nacional da Estatistika (in Portuguese language ) |
| DR | : Dependency Ratio |
| ICHS | : Integrated Community Health Services. |
| IMR | : infant mortality Rate |
| LDCs | : Less Development Countries |
| MBK | : Mambai, Bunak, Kemak (ones group mother tongue) |
| MDGs | : Millenniums Development Goals |
| MMR | : Maternal Mortality Ratio |
| MSS | : Ministries Social and Solidarity |
| MEYCS | : Ministries of Education, Youth, Culture and Sports |
| MoH | : Ministries of Health |
| NFPCB | : National Family Planning Coordinating Board (=BKKBN) |
| NGOs | : Non Governmental Organizations. |
| NDGs | : National Development Goals |
| NSD | : National Statistics Directorate |
| RDTL | : Republic Democratic of Timor-Leste (in English). |
| RDTL | : Republica de Democaratic de Timor-Leste (in Portuguese) |
| SISCa | : Servisu Intergradu da Saude Communitaria (in Tetum langue) |
| TFR | : Total Fertility Rate |
| UNDESA | : United Nation Department of Economic and Social Affairs. |
| UNDP | : United National Development Programme |
| UNFPA | : United Nation Fund Population Agency |
| VECM | : Vector Error Correction Models |
| WFS | : World Family Surveys |




Map of Timor-Leste

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# CHAPTER I
# INTRODUCTION

## 1.1 Background

The Republic Democratic of Timor-Leste (RDTL) as a nation is located in the eastern part from Timor Island and the western part of the island is a part of the province Nusa Tenggara Timur (NTT), one of provinces of Indonesia. RDTL, an island of the western Pacific Ocean in the Malay Archipelago that is located in eastern of Java, was divided between eastern of Indonesia and north of Australia. The eastern half of Timor Island was under colonial Portuguese until 1115 and such as overseas province of Portugal from 1914 to 1975. Timor-Leste is one of provinces and part of Indonesia from 1976 to 1999, and was declared its independence as nation of East Timor or RDTL. Republic Democratic of Timor-Leste achieved full independence in 20$^{th}$ of May 2002.

The geographical position of Timor-Leste is place in coordinates of Timor-Leste is 8°50'S 125°55'E, and the capital city Dili on 8°34'S 125°34'E area 125° 36 E and 8°35S. The total area of Timor-Leste covered 14.900 km$^2$; the region name is Oecussi (Ambeno 815 Km$^2$). Timor-Leste has 2 small other islands named Atauro (141 km$^2$) and Jaco (11 km$^2$) islands. Timor-Leste has an enclave area in part of west of Timor Island with name Oecusse District.

Timor-Leste have country borders: Wetar Island and Sawu Sea on the north, North Australia and Timor Sea on the south, West Timor (or Nusa Tenggara Timur Province) on the west and Banda Sea and Papua New Guinea on the east. East Timor is located in Southeastern Asia, northwest of Australia, in the Lesser Sunda Islands, at the eastern end of the Indonesian archipelago. The Timor-Leste has the length of land border with Indonesia of 228 km and the length of coastline of 706 km.

Based on Census Atlas 2004 data, the distribution of geographical area categorized by the zone of elevation explained in table 4.1, with extreme elevation lowest point Timor Sea at south, Savu sea at north, and Banda sea at east, on 0 m above sea level, and highest point in mountain Tatamailau in 2.963 meters above sea level (Census Publication, 2006). The climate of Timor-Leste is tropical; hot,

humid; has two seasons: rainy and dry seasons. Timor-Leste is relatively cool from May to October, and wet from November to April, with the intensity of rain fall of 1.800 mm in Ainaro, 1.500 mm in Viqueque, 1.100 mm in Baucau, and 800 mm in Dili. The average daily temperatures ranged from $20^0$C in highlands and $27^0$C in lowland coastal area (Durand, 2002).

Table 1.1

Timor-Leste land area and population sorted by elevation zone.

| Zona | Meters | Land area | | Population | |
|---|---|---|---|---|---|
| | | Meters | % Total | Numbers | % Total |
| 1 | 0 - 500 | 9,742 | 65.3 | 559,458 | 60.6 |
| 2 | 500 - 1.500 | 4,782 | 32.1 | 339,740 | 36.8 |
| 3 | Higher than 1.500 | 395 | 2.6 | 24,000 | 2.6 |
| Total | | 14,919 | 100 | 923,198 | 100 |

In most of Less Development Countries (LDCs), such as Timor-Leste, the population growth was signed with rapid and high. The population growth that was speed and high particularly was a problem for the world, and it becomes problem for the country itself. As we know Timor-Leste is a new country that has the tendency of the population growth tending to rapidly average 3.2 percent per annum with high level of total fertility rate more than six per women. According with DHS 2003 was resulted crud birth rate (CBR) 30.8 birth per 1000 population and total fertility rate (TFR) at high level of 7 children per woman. Population Census 2004 was resulted the fertility was small down with TFR 6.99.

The population growth in past time is very important to understand how it is related with the actual population growth. This section showed the number of total population and the population growth in Timor-Leste sorted by years, and other information that was relevant to actual situation. This data showed profile or the trend population growth, pre- and post-conflict period stage.

Table 1.2
Timor-Leste on total population and growths of population in past time by years.

| Year | Total Popualation | % Growth |
|---|---|---|
| 1927 | 451,604 | 1.1 |
| 1936 | 436,996 | -0.4 |
| 1948 | 420,430 | -0.3 |
| 1960 | 517,079 | 1.7 |
| 1970 | 609,477 | 1.7 |
| 1973 | 626,546 | -0.9 |
| 1980 | 555,350 | -1.6 |
| 1987 | 656,796 | 2.4 |
| 1990 | 747,557 | 3.5 |
| 2004 | 923,198 | 3.2 |

The population growth rates increased as the numbers of births exceeded the number of deaths, the downfall in the birth rate associated with trends in marriage or birth control, or both (Rowland, 2003). Following on the Demographic Dictionary 1982, the related study of demographic phenomenon is being integrated by the economic and the social phenomenon. The term economic demography and social demography have been used by some demography writer who also deals with the study of population's quality.

Demographic analysis is a branch of formal demography which controls the effect of population size and structure on demographic phenomena or to choose one or more variable to see the effect of demography. It also studies the relation between demographic variable and how they interact to form population structure. To understand with comprehensive about population on context of demographic or population studies, the cycle of demographic is the important key to get in to the dynamic of population including the size, structure, distribution, and characteristic of the population, because each country have specific problem or specific determinant factor that had the influence on the dynamic of population, although they are in the same group of developing countries. In relation to increase the quality and quantity of population in a country, the fertility, mortality and migration are three most important demographic components for the dynamic of population. Determinant factors such as social-economics, culture, politic, and

environment also had an influence in analyzing the fertility, mortality and migration in context of dynamic of population.

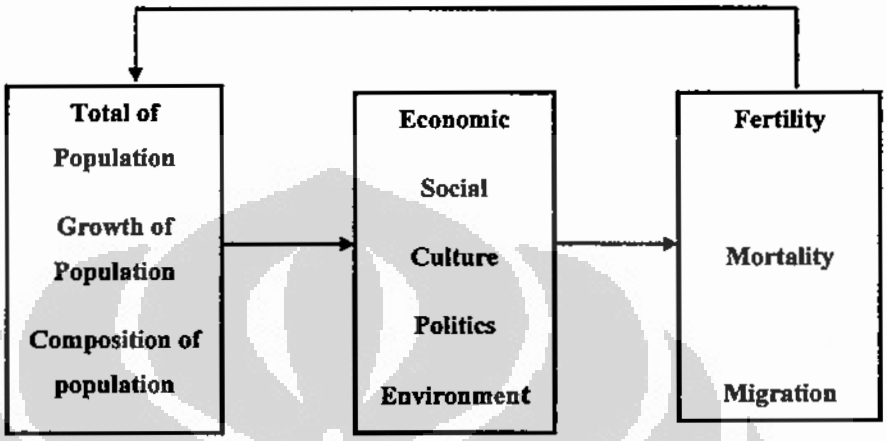


Figure 1.1:
Cycles of analysis demographic

Fertility, mortality and migration, are component determining changes in size, composition and distribution of the population. With the relatively widespread decline in level of mortality and decline of fertility over recent decades, information on the level, trend, differentials and determinants of fertility have become particularly important for planner and policy makers. Most of the country has increasingly recognized population changes and more specifically level of fertility as essential factor for the whole spectrum of socio-economic development. Most governments have formulated explicit population policies and promoted family planning programs, often within the context of promotion of family health and welfare (UN, 1984).

Otherwise Timor-Leste on census 2004, as first census as a new country and specially the situation of population growth have tend to "baby boom" this situation usually get on nation or country that post-conflict situation. Thus situation has similarity with "baby boom" phenomena. Many countries that on post-conflict stage have experience tend baby boom, when was increasing of fertility; as USA 1946 – 1964 post of World War II, France 1946–1974, United Kingdom 1946–1971, Finland 1945–1950, Germany 1955-1967, Sweden 1946–

1952, Denmark 1946–1950, Netherlands 1946–1972, Ireland 1946–1982, Hungary 1946-1957, Iceland 1946–1969, New Zealand 1946–1965 and Australia 1946–1965 (Sharon and Sophia 2005). The baby boom phenomena was signed with ; first increasing birth rate, second decreasing age of first marriage, third depressing economic that prolonger period, four continue with improving economic condition (KAROL J. KROTKI 2000). Second, more than 50% of baby-boom births can be attributed to what demographers call "timing phenomena."

Base on data census population and housing 2004, Timor-Leste as a nation possible enters on those term, definition and real situation of population. But thinks tend or trend of baby boom can we showing on next the census 2010 result. It's important on the research that to getting answering "how many determinant factor that influence on high fertility, and how long high infant fertility variable influence on highest fertility, influence other dominant factor as economic-social variables.

Composition by age and sex and geographical distribution are among the most basic data describing any population or group in the population. Those provide a context within which all other information such as that on labor-force, income, education, health, nutrition, migration, fertility, and mortality can be placed. This data are essential for planning and monitoring any development program, for example age and sex distribution of women aged 15 – 49 years by geographical location and possibly other social economic characteristic is required for health and family planning programmed, the required for health services, facilities and material of family planning can be estimated by number of distribution of population that at risks.

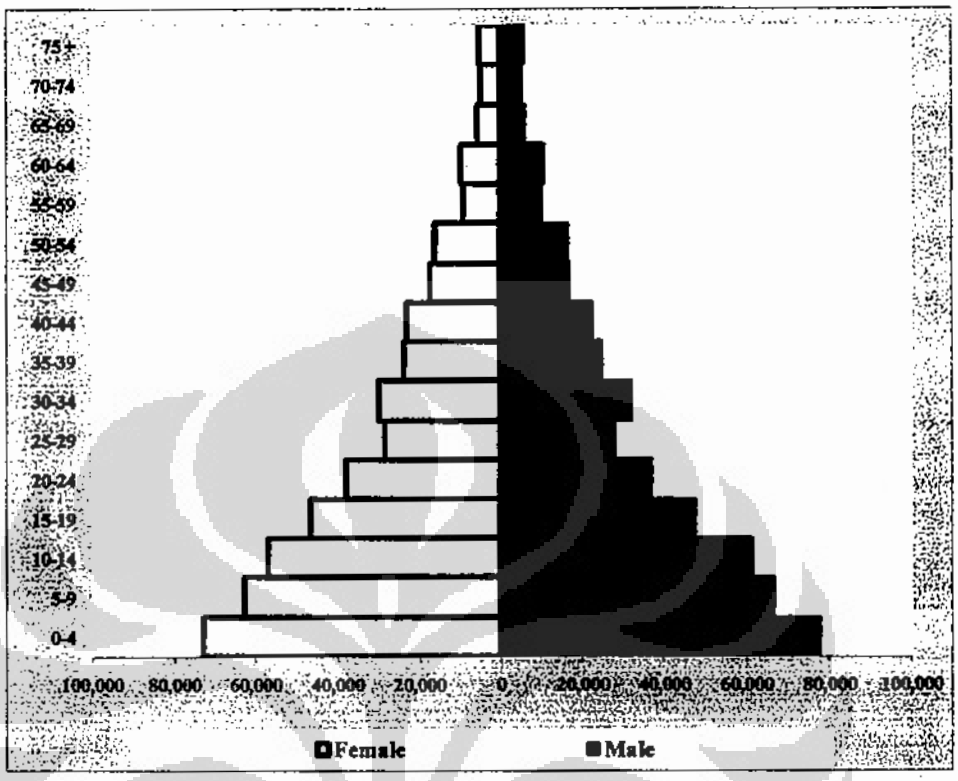


Figure 1.2:
Population pyramid of Timor-Leste based on census 2004 data

The pyramid of population Timor-Leste 2004 has showed the structure population by age groups and difference sex, 43.4% of population still in younger 3.5% older (unproductive) and 53.1 % reproductive age. The proportion was showed a very large proportion of children, a small proportion of elderly. This population pyramid is similar to Uganda's 1991 (Jacob, 2004). It has a broad base and then narrows rapidly to the top. This situation reflected the high level of fertility rate in this country. There are three keys type of population pyramids: (1) Rapid growth shows a triangle shaped pyramid and reflects a growth rate of about 2.1% per annum such as Philippine experience, (2) Slow growth the population growing 1.7% per annum such as USA experience, and (3) negative growth with population growth reduce to -0.1% per annum as Germany experience Rosenberg (2005).

With composition unproductive age young group equal 43.35% and unproductive old group 3.49%, that the dependency ratio (DR) that was resulted from census population 2004 indicates 88.13%. That means dependency ratio in Timor-Leste population every 100 people in their productive age have been responsibility for 88 people in their unproductive age (age 0 – 14 and 64+).

The social-economic status of women specially education, child death and other socio-demographic has been long thought to be associated with fertility, current interesting in using the census 2004 data for measurement fertility outcomes by social-economic status special for this research. In this research, researcher to be trait the education, child death and other socio-demographic such as the role of fertility behavior in examine for census Timor-Leste 2004, with hopefully to catch and get how effect of education and child death for the number of live birth as well fertility of Timor-Leste Women's, with think to get progression on adjustment questioner census Timor-Leste 2010.

The theory of demographic transition assumes that country will move from pre-industrial (agriculture) economic based to an industrial one, with a simultaneous decrease in family size and population growth. The slowing population growth theoretically results from a better standard of living, improvement in health care, education, sanitation and other public services (Population Module-Lesson 2). Those statement fitted the situation in Timor-Leste today as the nation situated in demographic pre-transitional, which is marked with domination of population working on subsistent agriculture and the high level of fertility rate thus increase the family size and population growth. The stage of Timor-Leste population in position as pre-transitional are integrated with long experience history as a nations that living in colonial Portuguese since 1515 to 1975, as changes of authority to Indonesia government 1975 – 1999 during 24 years, until 2000 restoration of independent and as consequences from conflict situation every changes of authority.

Base on trend of TFR the women of Timor-Leste that chat from some reference show in table 1.2 the Total Fertility Rate of Timor-Leste women that have variance decrease and increase by the year of survey or censuses. Marriage

pattern in Timor-Leste vary across the country. The DHS 2003 was indicated the median age first marriage for ages 20 – 24 is 20.5 years. The percentages of women in old 15 – 19, have ever married 28% and women in old 20 -24 have ever married 35% (WHO, fact sheet 2007). The 2004 census population and housing was indicated the teenage fertility rates 59.2 number of live birth per 1000 women between the ages 15 – 19 during 12 month period prior census in July 2004. The teenage fertility rates were very highest 114.5 in Sub-district Tilomar (Covalima Dsitrict) and lowest 34.4 in Sub-district Turiscai at Manufahi District (Census Atlas 2006).

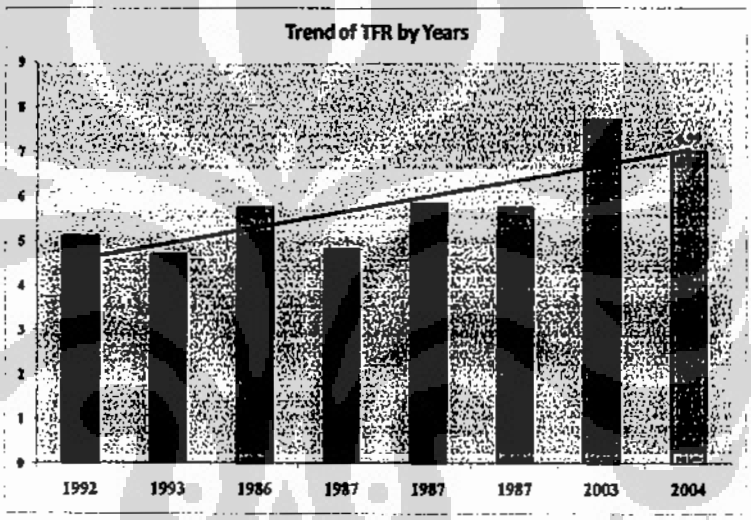


Figure 1.3

Total Fertility Rate trend since year 1992 to 2004 by some sources.

From analysis the singulate mean age at marriage, the teenage fertility rate in Timor-Leste was high at 59.2 live births per 1000 teenager (age 15 – 19 years), this condition show a tendency of an early motherhood, mainly caused by gender inequality and poor maternal health. When a girl have one or two baby at an early age to nurture, she is most likely to be drawn into a life of childbearing and the established family of her own, which tend to make it extremely difficult for her to pursue other option in life (Census Atlas Timor-Leste 2004

Table 1.3

Trend of TFR Timor-Leste by the year and sources of data

| Year | TFR | Sources of Data | Specification |
|---|---|---|---|
| 1992 | 5.10 | UN Pop Division 2007 | |
| 1993 | 4.70 | UN Pop Division 2007 | |
| 1986 | 5.73 | BPS Indonesia 1994 | |
| 1987 | 4.80 | BPS Indonesia 1994 | Urban |
| 1987 | 5.81 | BPS Indonesia 1994 | Rrural |
| 1987 | 5.73 | BPS Indonesia 1994 | |
| 2003 | 7.70 | DHS NSD Timor-Leste | WHO |
| 2004 | 6.99 | Census NSD Timor Leste | |

Although Census 2004 Timor-Leste doesn't have the information about the age of girls or women who enter fertility phase, it is clear that the fertility age in this research is based on the demography culture that women in reproductive age is around 15-54. The principle focus of this research is to measure the fertility level of women in reproductive age 15-54 and have children born alive experience, arguing that the women who have children ever born or children born alive experience is fertile.

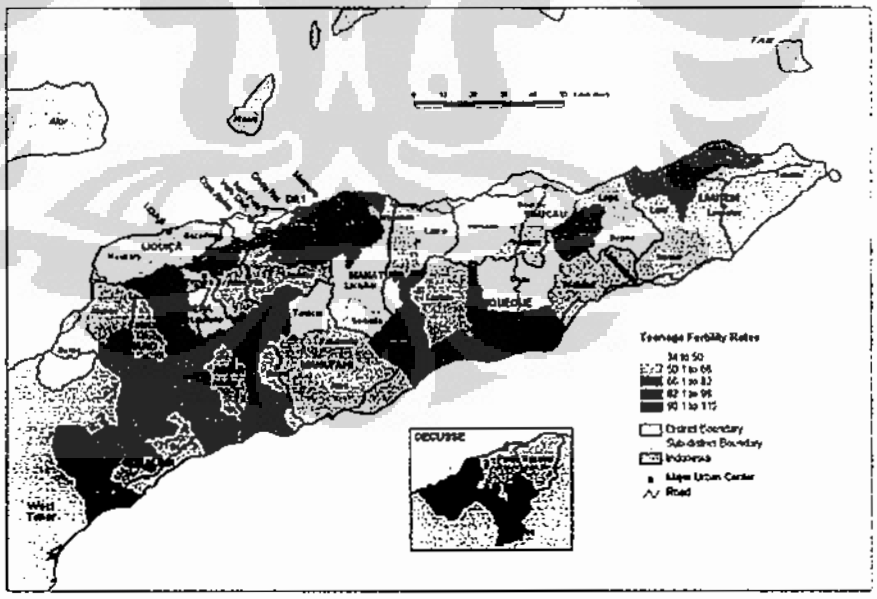


Figure 1.4

Map of Teenager Fertility Rate in Timor-Leste based on Census 2004.

The population census 2004 was publish infant mortality rate (IMR) 98 per 1000 live birth for both sex, 102 for male and 94 for female. Base on level of life table (east model) population Timor-Leste was in level 17.58 for male and 16.56 for female. Thus life expectancy was resulted for male reaching 57.4 years and 58.9 for female. Based on DHS 2003 was reported the value of maternal mortality ratio (MMR) still high to snatch 660 at 100.000 live births.

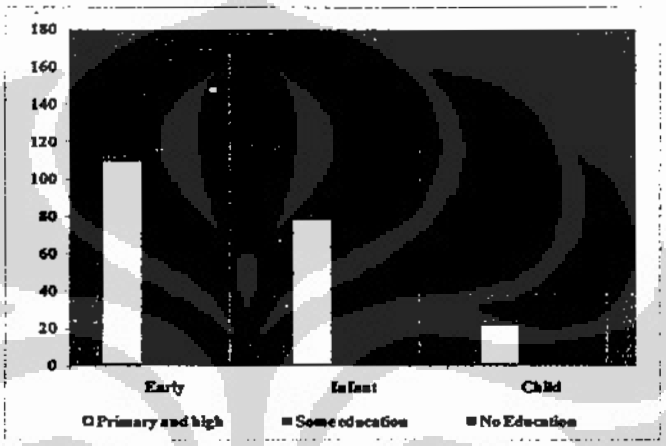


Figure 1.5

The early, Infant, and child mortality by education characteristics, analysis on Timor-Leste Census 2004 data

Since 2002 years the government of Timor-Leste was adopted the several MDGs as well the National Development Plan of Timor-Leste. The National Development Plan of Timor-Leste which serves as the primary guiding document for the country over five years from 2002 until 2007. The objective of the national development plan are framed the backdrop of MDGs, reinforcing the government commitment's to not only making significant improvements in the lives of Timorese, but also contributing positively to the global impact and sustainable development.

As we know, in the restoration of independence in year 2002, Timor-Leste has a constitution that stated clearly of concerning of the taking care and protection of equality of right as respect to humanity value. It means that human were valued on highest by the nation of Timor-Leste. Some paragraphs that proposed about taking care, protection and right respect for Timor-Leste peopics

are paragraph 17 for equality right and duty between women and man in family life, culture, social, economic, and politic. Paragraph 18 proposed care for child; children had right to be protected by the family, society and nation from being neglected, discriminated, from violence, suppression, sexual abuse and exploitation. All children who were born from the legal marriage or non-legal marriage had the equal right of social protection.

Table 1.4

The MDGs and Timor-Leste NDGs

| Millenium Development Goals | | Timor-Leste National Development Goals | |
|---|---|---|---|
| | | 2001 | 2015 |
| 1 | Eradicated extreme poverty and hunger | 21% | 14% |
| | Reducing Poverty Gap | 11.90% | 8% |
| 2 | Achieve universal primary education | 75 % net enroll, 10 % droupout, 25% repetition | 100 enrollment |
| 3 | Promote Gender and equality | net primary enrollment : 74% boys and 75% girls | 100 % ratio of girls and boys in primary and secondary, 100 % ratio of literate women and man the ages of 15 - 24 years |
| 4 | Reducing child mortality | under five mortality 165 per 1000 live births | Under five mortality 56 per 1000 live births |
| | | IMR 126 per 1000 live births | IMR 60 per 1000 live births |
| | | 55% child immunized | 100% child immunized |
| 5 | Improve maternal health | 800 per 100.000 live births | 420 per 100.000 live births |
| | Personal health attendent skilled | 19% | 60% |
| 6 | Combat HIV/AIDS, Malaria and other diseasses | 100% detected cases | 90% detected cases |
| 7 | Ensure environmental sustainablity | 65% urban and 40% rural will have adequate water supply | 86 % urban and 75% rural will have adequate water supply |
| 8 | Develop a global partnership for development | approximately US $ 300 percapita in 2001 | approximately US $ 160 percapita in 2005 |

In year 2004 Ministry of Health developed a policy related to family planning program as it has been published in: Politica Nacional De Planeamento Familiar". The National policy concerning family planning was launched with the assertion that family planning program: first, programs of reproduction health care should provide the most varied range of services. Without any form of coercion all couples and individuals have basic law to decide freely and responsibly on

number of children and the spacing between them, and have the information, training, and ways of doing the family planning program. Secondly in Timor-Leste, the family planning services should be free from any coercion, and only contains of the guidance principles and include the announcement of information, training and counseling and provision of different ways / methods available on term of limiting the number of birth and increasing the space between the births. Thirdly in order to ensure that all couples and individual of the Timor-Leste were well informed about the freedom of choosing the number of children and the spacing of their children's birth, the government was responsible to make sure the family planning services are accessible to all levels of the system of public health. Fourthly public promotion of family planning will take place within the context of safeguarding the health and promoting the health of reproduction in general to the family, emphasizing freedom of choosing. This promotion encouraged the access to information on the counseling of family planning and serviced through qualified professionals.

In 2010 the government of RDTL was consist on increasing of health development sectors with effort are clearly writing at document Timor-Leste Development Partners Meetings 7th April 2010 Background Paper. The National priorities for health sector 2009 was explain as well social protection and social services (NP4) first strengthen the support and management health system at community health, covering improve data reporting and collating process and improve supply chain of medical supplies; second strengthen health services delivery at community level, covering first improve services delivery and quality through increased SISCa covered maternal and child health. The National priorities for health sector 2010 was explain as well social services and localized services delivery (NP5) including: first Improve accesses quality health services, covering strengthened SISCa implementation, and improve implementation of comprehensive packed of maternal and child health and nutrition programs. Secondly strengthened health management and support services, including: first strengthened management capacity of district health services (including community health services and hospital managers) and improve national and M&E system at community level.

Timor-Leste is predominantly Catholic and the government always discussed with religious leaders in the establishment of Family planning services. Catholic Church plays important role in society and has big influence on reproductive behavior. These leaders now view "all parent in Timor-Leste (to) collaborate with God to ensure their child's health and education" (WHO 2005). The Church position on family planning has not been an issue until recently as stated in a letter from Bishop Don Basilio do Nascimento as discussed in the media. The letter said that the Church supports family planning program and follow natural family planning methods and this was not obligatory. The Church also assumed that before proceeding with the program there should be education regarding the advantages and disadvantages of such programmed. According to Director General of Education, Culture, Youth and Sport, the family planning program could be part of the school curriculum, that was first agreed by the Ministry of Health and the Church due to the problem of this sensitive issue, as published by (STL, TVTL) Church Support Natural Family Planning Program; http://www.etan.org/et2005/july/10/dailym12.htm

The UNFPA (2007) as ones of UN agency that concern in effort to decreasing of fertility have many rule and duties specially in Timor-Leste country including: Assist Ministry of Health to effectively manage and priority Reproductive Health Behavior Change Communication (RH BCC) that focusing in 4 component: (1) family planning; women and man on reproductive age should be space their children by at least three years current birth to next pregnancy. (2) Safe motherhood: pregnant women give birth with a skilled birth attendant, mother seeks post natal care 7 days of delivery, and mother seeks second post natal care within 6 weeks. (3) Youth reproductive health: young women delay the age of first pregnancy, adolescent young people delay sexual debut, and youth make informed choices about their reproductive. (4) General reproductive health; single and ever married women/ man make informed choices about their reproductive health.

The United Nation Development and Programme (UNDP) were publish about value and ranked Human Development Index (HDI) every country. The other population problem that relevant to comparing with other countries is very

urgent on population issue such as value or rating of Human Development Index. With definition human development is about putting people at the realizing their potential, increasing their choice and enjoying the freedom to lead lives the value. Since 1990, annual human development reports have explored challenges including poverty, gender, democracy, human rights, cultural liberty, globalization, water scarcity, climate change, and mobility. Related with the concept at above, Timor-Leste as a nation has value at 0.489 and ranked 162 from 179 countries in 2008 -2009. Other countries information as well as comparison for Timor-Leste: Benin (value = 0.492 and rank 161), Cote de Ivory (value= 0.848 and rank 163), Indonesia (value = and rank 109). . Other indicators that was used on measurement of HDI Timor-Leste: (1) life expectancy = 60.7 years (both sex), (2) Percentage of adult literacy rate (age 15 year above) = 50%, (3) combine primary, secondary, and tertiary, or gross enrolment ratio = 63.2%, (4) GDP per capita (Purchasing Power Parity / PPP = US$ 717 per annum). Selected indicator for Human Poverty for Timor-Leste : (1) Human poverty Index HPI 40.8, (2) Percentage Probability of net surviving to age 40 year = 18%, (3) percentage of adult illiteracy rate age 15 years above = 49,9%, (4) Percentage of people that not using an improvement water sources = 38%, (5) percentage of child underweight for child under five = 46%. (http://hdr.undp.org/en/statistics/ ).

The situation that was evaluated with value of HDI comparing with stage transitional of demographic, thus the HDI that low has signed the population of Timor-Leste in pre-transitional stage. Other thinks the change of the HDI value start because of improvement in living standards and the environment, which brought better nutrition, decreasing the number of death from infection diseases, and decreasing of fertility. Many demographer (or economists) believe that the development in economy become the main factor of changes CBR and CDR and they said within the economic development the people gain a better access to birth control and public health, the sanitation also improved.

All the information at there is very interesting to realizing on research that has comprehensive analysis special on the situation based on data census 2004 as well respond ship for those situations. The situation and problem of population

that very special for Timor-Leste as a new country there was find out high fertility rate (TFR average 6.99) ones high infant fertility rate (98 per 1000 of life births. This information very interesting to deep analysis on a research studies of population. With a specially question "what high fertility have relationship with high infant mortality? Or others variable joint to influence result high fertility? It's very interesting to more analysis related with component of demographic analysis as mortality, fertility itself and many social-economic factors. This research have goal to deep analysis use components of demographic and many variables that possible include information on census 2004, the end of the research to get and give many police or recommendation that relevant to implementation on development of population in Timor-Leste.

Some models analysis of population that was tested by researcher that published on journal of population or hand book for population studies on some countries, they were meet determinant fertility that relevant and relationship with their population by level administration area example by district, province or country with specific determinant variables. Dodoo and Temppenis (2002) ware building two conceptual frame works for analysis fertility with focus on fertility preference and contraceptive use. The conceptual frame work make to understand prospect decline fertility in Africa with approach traditional model and enhanced model (joint preference or negotiation of relative gender preference) please read UN workshop on prospects for fertility decline in high fertility countries 2001. Other researcher Bulataõ (1983) that was building model a frame work for the study fertility determinants base on economic theory the fertility regulation as supply and demand, that use some variables include social-economics and environment variables. Mosley and Chen (1983) was building a conceptual frame work model for analysis mortality, but in this model Mosley and Chen take attention fertility factor as ones determinant factor mortality, they found have strong relationship highest fertility with infant mortality and maternal mortality cases.

All of the data that was published are reasons to propose research and have had result of the research with title "THE ROLE OF EDUCATION AND CHILD MORTALITY IN FERTILITY BEHAVIOR IN TIMOR-LESTE; THE ANALYSIS OF 2004 POPULATION AND HOUSING CENSUS DATA"

### 1.2. Research Problems

This research focusing on examination and analysis of education and mortality effect in behavior of fertility related used descriptive and inferential statistics with dependent variable as dummy variable low fertility for the women that have live birth 1 to 3 children and high fertility when the women have more than three live births. For independent variables used demographic factor as age of women, marital status, experience on stillbirth or experience on child death, education, employment status, wealthy or type of housing and mother tongue as proxy for specific behavior on ethnic group. On this research was analysis used regression binary logistic to get answer from the questions how far some independent variables give influence or effect for the level fertility (dependent variables). The regression logistic binary method uses all women that included on measurement for population at risk at fertility special for women in reproductive age that was having children.

From the descriptive and inferential analysis that uses regression logistic binary to be get some effect of each independent variable or value of parameter for analysis of fertility that usefully for studies of population especially compatible with data resources census population and housing of Timor-Leste 2004. Sometimes the model is very simple but problem of population Timor-Leste that ware high fertility and high infant mortality are not simple to get problem solving, usually need many years for changes behavior and main set how many children that ideal per family couple.

The central question on this research: "How the role or effect of the education and mortality give influence for the high fertility in Timor-Leste women's? What is the factor affecting fertility in Timor-Leste? Does the education of women affecting or influence her fertility behavior? How does the

child death experience of women influence her fertility behavior? Do other socio-economic also affect fertility in Timor-Leste?

### 1.3. Objectives of Research

General objective; the study aims to investigate the factor that affecting fertility in Timor-Leste. This research specifically to study effect role of education, mortality and other socio demographic factors an effect of fertility behavior that associated on analysis of fertility for Timor-Leste.

This research specifically to get pattern and differentials of fertility by variables including age, age interaction with level of education, marital status, still birth experience, child death experience, education level, employment status, type of housing and mother tongue in fertility Timorese women. The examination of effects of age, age interaction and level of education, marital status, still birth experience, child death experience, education level, employment status, type of housing and mother tongue using descriptive statistic as bivariate analysis and binary logistic regression as multivariate analysis in fertility Timorese women.

Although pattern of fertility curve as word over inverse "U", started women at age 15 and increasing 20 – 25 years, and turn to 49 – 54 years, what is specific model or pattern fertility of Timor-Leste? The adjusted probability that using in analysis can help to get pattern of fertility with using interaction by age and level of education. Other the explain the role of education and mortality such as the dominant factor that give effect and influence on fertility Timor-Leste women was evaluated too the effects other socio-economic factors on fertility in Timor-Leste.

### 1.4 Benefits of Research

With this research can take opportunity in consideration some benefits, give more opportunity, appreciate and value of education and effort to decreasing infant mortality as importance sector to increase quality of the population and to decrease growth of population of Timor-Leste.

Benefits of research its hope the result of study will be usefully for the government in the formulation of population policy in Timor-Leste. Other benefits for academic purpose, it's expected that results of study will add

reference on demographic analysis and techniques in Timor-Leste. This research to be contribution as a reference population study particularly studies for fertility and to be richer knowledge on demographic issue related with demographic and population Timor-Leste.

## 1.5 Organization of Research

The organization of the research report was consisting in five chapters including:

- Chapter 1: covering background, research problems, and objectives of research and benefits of researcher.
- Chapter 2: covering theoretical reviews, previous study, analytical framework and hypotheses.
- Chapter 3: methodology research covering data source and analysis unit, variables definition, design analysis, model of research, and hypothesis testing.
- Chapter 4: covering result of analysis result as well "Pattern on Differentials and Determinants of Fertility in Timor-Leste"
- Chapter 5; closing covering on conclusions, recommendations and limitations of study.


Figure 1.6
Logo of Census Population and Housing Timor-Leste 2004
(In version Tetum language)

# Chapter II

# LITERATURE REVIEW

## 2.1 Theoretical Framework

The transition in fertility was characterized into five stages, including the pre-transitional stage when the Total Fertility Rate (TFR) is above 5 children per woman and was very weak or had no signs of declining. The early stage was when the fertility declined from the maximum level recorded to 5 children per woman. This stage has the characteristic of fertility level between 5 to 3 children per woman, but has higher replacement level which is 2.1 children per woman. It will be a post-transition stage if the score for replacement level was lower than that. For the examination purpose, the fertility transition countries may be grouped according to whether the fertility has started to decline or not, the level of fertility reached in a specified period, and the stage of the fertility transition the country recently went through. (UN Population Division, 2001). Based on the UN statement above, Timor-Leste as a developing country has the characteristic of pre-transitional stage with the TFR 6.99 children per woman based on data census 2004 (National Statistics Directorate, 2006).

Henri in Caselli, et al (2006) proposed in "Natural Fertility, Controlled Fertility Levels and Models" that some variables has to be taken into consideration in analyzing the models of fertility, recombining the intermediate variables and social-factors: (a) the intermediate variables including biologic capability, conjugal regime, other socio-culture and regulation of fertility, (b) socio-economic status variables, (c) the environment variables, (d) psycho-sociology variables which is influential for fertility. Recombining the intermediate variable with socio-economic or socio-demographic in fertility research depended on the response of demographer in measuring or describing the situation of natural fertility. In many countries the process of reproductive is largely dominated by behaviour variables (desire to have children, number of children wanted, uses of contraception, etc) as to draw sociology and economic theory to explain the fertility behaviour.

Dodoo and Tempenis (2002) offered two options to examine the preference of women using contraception with intention to stop and give more space in child births. This examination was based on two approaching methods: (1) conventional or traditional model without taking in the gender aspect and (2) advanced or enhanced model with the gender aspect. Becker (1981) and Dodoo and Tempenis (2002) said that the traditional framework model is the typical model to study fertility, examining the related women fertility behaviour. Measuring of fertility used (1) supply factor with family planning access, (2) control factor including religion, province, and ethnic, (3) demand factor covering education, age, and parity to stop, space or now and the intention to use contraception as a goal. In contrary Beckman (1983) and Hollerbach (1983) proposed the measurement of women, autonomy and fertility using the advanced framework model of fertility analysis using negotiation between the wife and the husband as a couple in deciding the number and the timing, when to stop or to space the childbearing. This is within the enhancement of our understanding of the relevant autonomy, status, and power for women as well as for men.

Davis and Blake (1956) proposed that the effect of fertility listed in 11 critical variables of fertility included (1) age of entry into a union, (2) permanent celibacy (the proportion of women never entering unions), (3) the amount of the reproductive period spent out of unions (through divorce, separation, and death of the husband), (4) voluntary abstinent, (5) involuntary abstinent (impotent and illness), (6) coital frequency, (7) fecundity or in-fecundity from involuntary causes, (8) used or not-used of contraception, (9) fecundity or in-fecundity from voluntary causes, (sterilization, medical treatment), (10) foetal mortality involuntary causes (miscarriage), (11) foetal mortality through involuntary causes (induce abortion).

Bongaarts (1978a) proposed and organized 11 variables of Davis and Blake (1956) into three groups including (1) factors affecting exposure to intercourse (represented by the proportion of women in reproductive age that are married union), (2) deliberate marital fertility control factors (represented by two variables: use of contraception and recourse to abortion), (3) natural marital

fertility factors (represented by five variables: lactational, infecundability of intercourse, sterility, spontaneous intrauterine mortality, and duration of the fertile period).

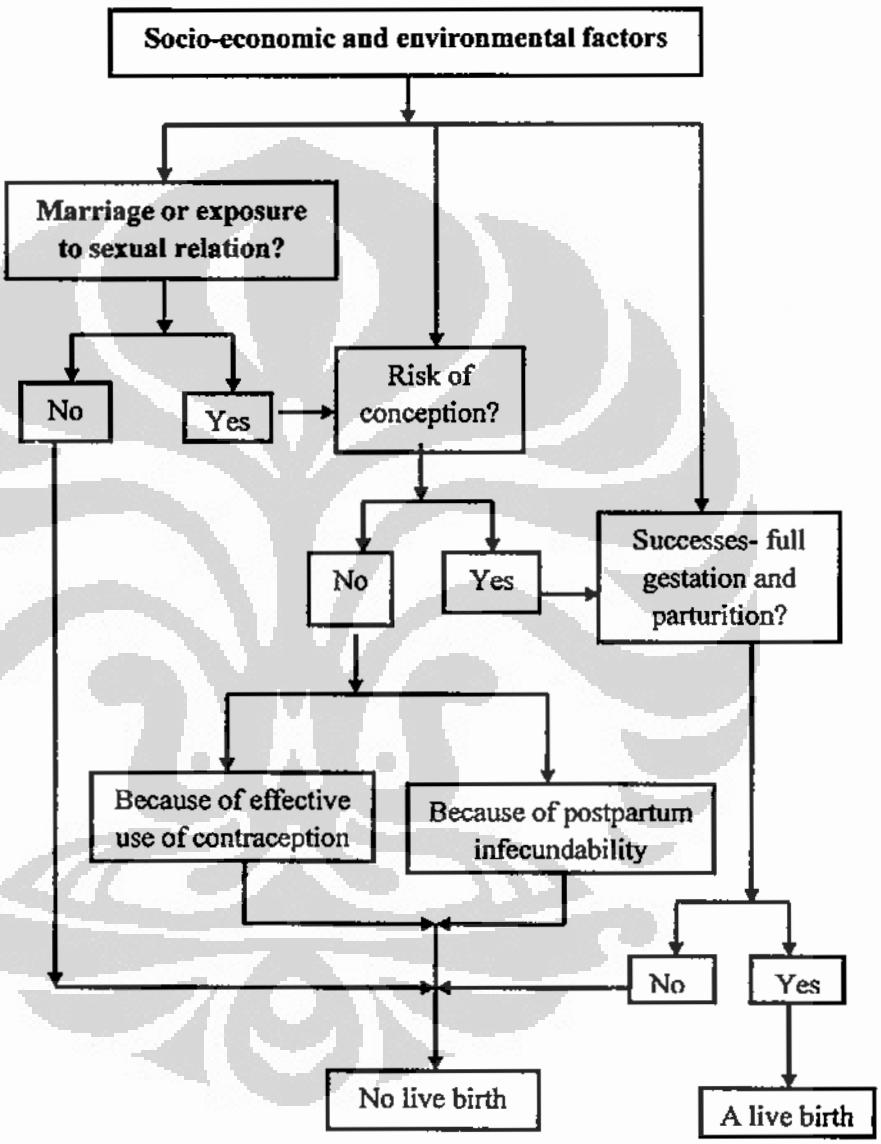


Figure 2.1
Proximate Determinants of Fertility Model by Davis and Blake (1956), also used by Bongaarts (1978) and Bravo and Casas (1976).

Caselli, et al (2006) proposed the traditional approach focusing on the fertility differentiation that the union formation (cohabitation) has created between the individual in relation with the marital status: marriage, dissolution, widowhood, separated, including the remarriage event. This is useful to gauge the influence of nuptuality pattern on fertility trend. In this case the object is usually women, since fertility is most often measured in relation to women.

World Fertility Survey (1987) reports WFS that was conducted in 38 developing countries in mostly taken in late 1970s was conducted measuring fertility in two parts. The first part covering fertility levels and trends, fertility preferences, nuptiality, breastfeeding and postpartum reproductive behaviour, contraceptive practise and the relative impact of the major proximate determinants to fertility. The secondly part included impact by urban/rural residence, education, and women employment, and the situation in developed countries. The examination was founded three proximate determinants including; late marriages and breastfeeding are estimated to responsible for a greater reduction in fertility rates from their potential level than contraceptive use. The countries that stronger family planning programmes experience a more rapid fertility decline.

Henri on Caselli, et al (2006) proposed that to look further into the measurement of fertility, researcher has to consider two important points: the biological condition related with fecundity and are social factors related to individual or to a couple. The effects of fecundity and social factors were usually called the proximate determinants of fertility, but when it is controlled by the individual or couples, it is called natural fertility.

Bravo (1997) proposed that the study of the determinants of reproductive behaviour may focus on the influential socio-economic, cultural and environmental factors. Reproductive behaviour was examined using the intermediate variables and this behaviour has also influenced by other joint-factors. For example, the established variable included the abundant and solid studies of male and female role in education, income level, employment, and the costs of children.

Rowland (2003) proposed the fertility control as a response to large family size, which become a social handicap, disadvantaging the parent's goal to give their children a better education and employment opportunity. Secularism reduced the influence of traditional religious teaching and caused the couples to do a family planning.

Rowland (2003) proposed the analysis of age composition in a population as an essential concomitant to other variables as well to investigate some demographic studies. In an aggregate level the age variable, which engaged with certain behaviour, interest the demographers and other social researchers enough to use it on their research. The calculation for women based on the age was used to see the relation between women age and the period when they are moving from the house, marrying, having baby(s), purchasing product or using services. These were vital to explain the social trends, the targeted markets, and the future planning. The age composition in a population has also become the main factor to understand the natural function of societies.

Henri in Caselli, et al (2008) on "Biological and social factor of fertility an Overview" proposed a clear definition of the reproductive time of women, started from puberty to menopause period and on physiology term started from the menstruation and ended at the end of ovulation period. Furthermore, based on DHS of some countries, Tunner and Becker (2008) found that women in poor countries tend to have their first menstruation when they reach the age of 17-18 and have the menopause period around the age of 43-44, while the women on a better countries such as European countries have their first menstruation on younger age (around 13 years) and the menopause period when they are around the age 50-51.

The traditional approach used union formation as well as precondition to measure the fertility in differentiation. The segmentation between married and non-married or without couple was used to measure the influence of fertility pattern or trends towards women. Previously Caselli, et al (2006) has proposed the traditional approach focusing on married women, but now it also has to consider the women who have different marital status such as: divorced, dissolution

divorced, widowed, separated or remarried. This measurement is to get the fertility trends and the influence of marital status towards fertility.

Patrick in Caselli, et al (2006) insisted that marriage is not a demographic event like fertility, mortality or migration, but marriage was essential to family formation and childbearing. In term of demography, technically marriage is the first intermediate variable of fertility, or in other word marriage is most likely be an influential factor to the risk of birth. The impact of divorce was not as much in individual as it did a couple.

Frank (2008) proposed in demographic term that biological constrain on fertility as well "the number of live born children include not only the time actually lost during pregnancy(ies), but also time lost after delivery before fecundity resumes (postpartum infecundability), the time to conception, the time lost because of naturally occurring intra-uterine mortality, and time lost because sterility arising naturally with age or induced by a pathological condition, which varies the most widely of all biological determinant because of the variability of associated sexual behaviours. On average, assuming the risks spread out over all women, in addition to 9 month of pregnancy, postpartum infecundability adds 1.5 month, the waiting time 7.5 months, intra-uterine mortality 2 months, and sterility a further, variable period to interval between two births. Together, the biological constrains lower the maximum feasible fertility from 35 births to about 15, which called total fecundity or the limit in physiological capability of childbearing". Following up, Frank (2008) also proposed in term of demographic that "behavioural constraints on fertility that the number of children borne by a women in the extent of exposure to the conception, i.e, the time spent married and/or having sexual relations, as well as the extent of practice of breastfeeding, which prolongs post partum infecundability, of a contraceptive method, whether tradition or modern, and induced abortion. Together, behaviour constrains lower fertility to the levels of total fertility we currently observe – about two children per women in industrialized countries, or that we have heard of for example, a family size range of five or seven or eight children in Africa. The most important single determinant of differences overall has come to be the practice of contraception: consequently,

in contemporary societies, fertility has become largely determinant by behaviour, and by choice through voluntary regulation".

Salvini and Santini in Caselli, et al (2006) proposed that marriage is not a natural prerequisite on human reproduction, that marriage is not a demographic event. But on the beginning of demography, marriage was an interesting issue to study in a relation of human fertility, as well to study the characteristics of demography. The characteristic of marriage has distinction between the procreation in and outside marriage. Marriage is a natural way for a social contract or law contract to come between couples with the social instrument. Marriage event enter the demography area because it has the reproduction function in all cultural society. For example, the "Malinowski Principal" in European culture gave the male and female a power to get into reproduction stage even without the marriage. The women that never married or married in an old age most likely have fewer children, but marriage plays a key role in fertility and become fundamental demographic event for the population dynamics.

Bulatao and Lee (1983) proposed that socio-culture factor influenced the demand, supply, and regulation cost for marriage or the pattern of sexual union, although generally the marital status influenced the distribution. Sexual union has three important characteristics in relation with the fertility analysis: (1) the women with a stable marriage tend to have more children, (2) the women related to the type of marital status such as monogamy or polygamy, usually the women in a polygamy marriage has fewer children than the women in monogamy marriage, this was caused by the minimal intercourse they have, (3) the women with a divorce or separated status have the probability to remarry and add more child, thus increasing the total number of child. The women who married in their old age showed lower risk to have children more than the one who married in younger age. It was natural to have the population increased along with the increase of marriage in younger age. The analysis framework of Bulatao and Lee (1983) is in figure 2. 2. The weakness of Census 2004 Timor-Leste was that it didn't have the information about the type of marital status such monogamy,

polygamy, disolved and remarried. The dummy variables developed for marital status was based only on what were published in Census 2004.

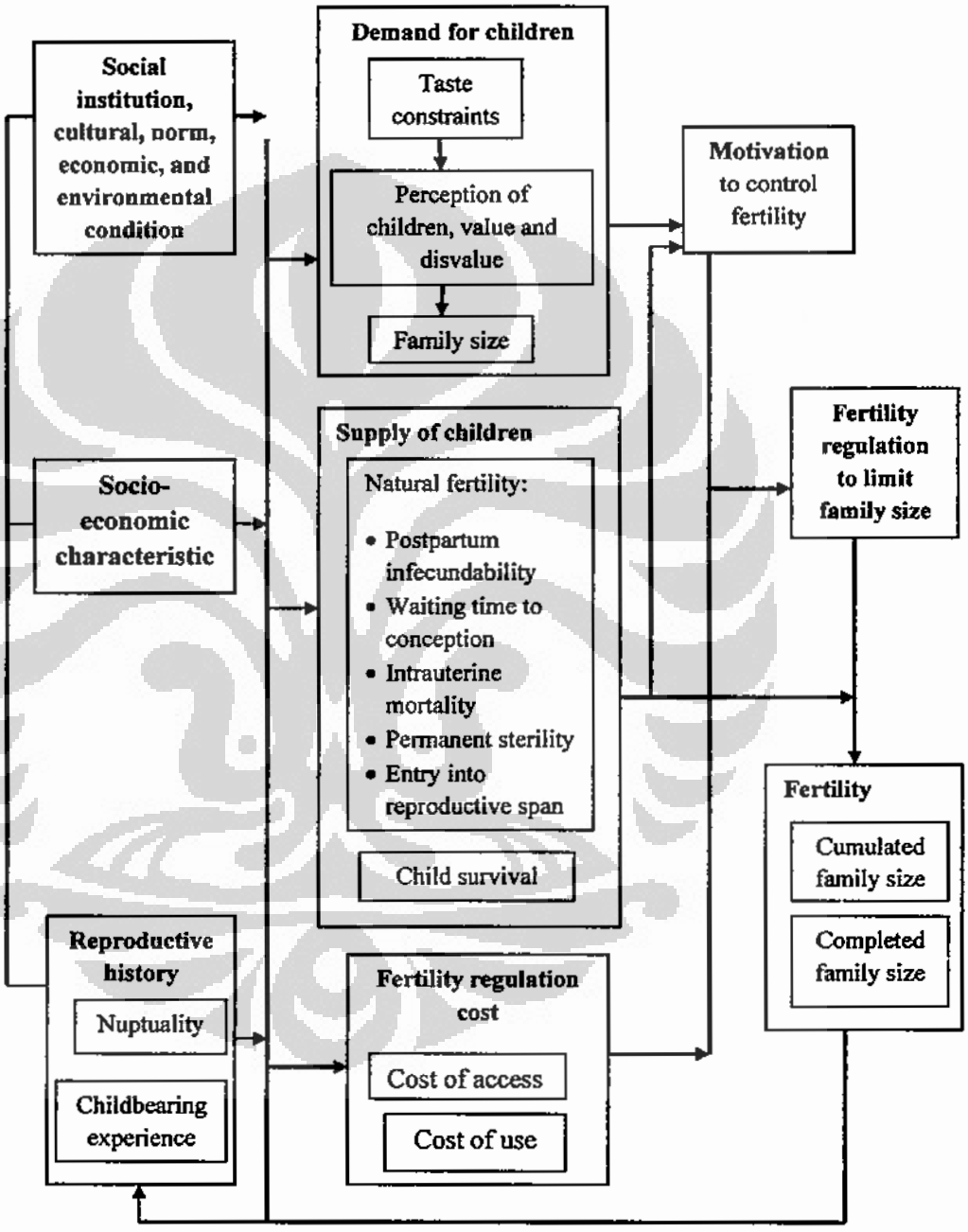


Figure 2.2:

A framework for the study of fertility Determinant (Bulatao and Lee, 1983)

Pinelli (2006) in Caselli, et al proposed that foetal mortality varies, usually in consideration to the over reproductive mother. Conventional characteristics of age and parity have a role in varying the risk of foetal mortality, which made them possible to examine. The impact of maternal age in relation to the foetal mortality risk is low (around 11 per 1000) when the mother's age is around 20-24, and the risk doubled if the age is around 20-40. Harvey and Gourbin (2006) in Caselli reported the risk of foetal death before the gestation reach 28 weeks will multiplied by three times for the women with age 45 in comparison to woman with age 20. A similar study has described the profile of foetal mortality by gestation duration, reporting the risk of foetal mortality after 28 weeks of gestation will multiplied by four times for women with age over 40 than to women around their 20-24, and the risk will multiplied by six times between 8-11 weeks of gestation.

Demographic Health Survey (1994) was conducted comparative study between DHS and WFS on 25 recent results fertility on impact upon child survival. The study addressing risk of child mortality associate with too early childbearing ( it indicates childbearing among mother less than age 18 years associate with excess child mortality. It also fertility have relationships with impact other variable such as parent's education, father's occupation, and place of residence. The study was found that mother's education and child survival such as powerful and pervasive correlated with fertility. Other concluded from this study increasing maternal education was improved child health.

Parity in relation to the risk of foetal mortality was slightly higher for the primiparour women. The parities went down to two or three birth and then rise steadily. (Pinelli (1984), Gourbin (2006) in Caselli). Some study claimed that the risk doubled for the sixth birth. Mosley and Chen (1983) in "Population and Development Reviews Child Survival Strategies for Research" proposed the key to this model is a set of identification of proximate determinant or intermediate variables that had a direct influence to the morbidity and mortality risk. All social and economic determinants used to measure the affect of child survival have five categories: maternal factor, age, parity, birth interval, others. Maternal factor

(maternal health) was shown using an independent influence on pregnancy outcome and infant survival. The synergism also existed between the maternal variables, for example: the short birth spacing combined with the young maternal age. Davis and Blake (1956) also used the proximate determinants approach to study the child survival parallel to develop the study of fertility.

United Nations (2003) has published in MDGs 14 (reduce infant mortality) and 13 (reduce under-five mortality) As Goals 4: to reduce child mortality by two thirds between the year 1990 – 2015. The rational indicator which directly relate to the target was used to measure the child survival; it also reflects the socio-economic and environmental condition, and the quality of life, including the health care.

Rut Mace (1997) found a theory that, historically, life is related to the birth schedule and the investment level that parent have. The demographic expert is focusing on fertility changes, least of measurement that is not easy to do in relation to fertility analysis, but the child mortality has a great influence in the research. Rut's model showed the decrease of mortality and the decrease of fertility, with goal to increase the investment from the parent to the next generation.

Stillbirth and child death experience were important issues to do cross examination on women fertility analysis model in Timor-Leste. These variables were also important to recommend an improvement for the maternal health and child health issues. How significant is the correlation of stillbirth and child death with the average rate of child born alive in affecting the high fertility? Stillbirth and child death experience were usually used on traditional model, which is very compatible with the condition and situation population of Timor-Leste as least developing country.

This research was using some combining variables between the intermediate and socio-economic factor variables, which was taken from Census 2004. This research has chosen only one intermediate variable: intrauterine mortality, commonly known as stillbirth experience. The stillbirth experience was measured using independent variables such as biological capability factor. Other variables such as child death experience, age of mother, marital status, education

level, employment status, type of housing, and ethnicity were established by examining them using the inferential test.

In additional the collected information is important to supply information of other socio-economy characteristic in population. The most important socio-economy characteristic was commonly covered in conjunction with demographic topics including: education, literacy, economy activities, income, ethnicity, language, housing condition and amenities, and socio-economic data at the community level (UN, handbook of survey and census 1984).

Kohler (2000) proposed to measure fertility event not only from the perspective of personality problem but also the society problem. The interaction of some variables was an important issue to understand the society of developed countries. The changes or fluctuation level of fertility showed the behaviour of person depending on the micro and macro socio-economic condition, cultural institution, wealth level, labour market. Those variables were determinant factors for the women groups. UN Population Statement 2001 said that socio-economic development is one of the major driving forces of fertility transition. But the tempo and speed of the transition was difficult to predict because the country development was measured by income per capita. In reality poor countries tend to have a higher level of fertility than the rich countries. Cross country examination has found a correlation between TFR and GNP per capita. GNP per capita or measurement of incidence of absolute poverty and percentage of the population living on less than one dollar a day were weakness although statistically significant changes and transformation of lifestyles implicit to modernization, of which economic growth is but one of component.

Geographers, whom have studied the population in less developed countries, found the evidence of how the social, cultural, and economic factors also influence the level of fertility rates. For example: people can found in many Africans countries that many Africans choose to have a big family because in their view, child is essential in connecting the past and the future. The high level of infant mortality situation push the parent to have more children in hope to have some of them survived and grown to be adult. (Kalipeni, 1995).

Lucia and Esther (2002) proposed the role of male and female education on fertility and human capital formation as the main question for the economic development and policy maker. Large increment in the education of women as well men resulting the increase in income, also lowering the marriage age, the number of very early birth and the level of child mortality. The parental education has a great effect on reducing the level of child mortality.

Anne (2003) reported that to estimate fertility and mortality for the base year with differential level of education have to be based on census or survey data. The fertility level often had to be adjusted by combining the female population by age 15- 49 with the education factor. The task consisted estimating the transition rates between education categories in a hierarchical ways: (a) from no education to primary education, (b) from primary education to secondary education, (c) and from secondary to tertiary education.

Bravo (1997) found the principal related to education is inversely correlated with fertility level. Aggregate data at the country level have shown that the lower levels of fertility are associated with high levels of education (UN, 1973 and 1989). WFS data showed that women with seven or more years of education would have had 3,9 children at the end of their reproductive life; in contrast, those with no schooling would have 6,9 children, which is 80% more (UN, 1987).

Moreover even the relationship between women's education and fertility was linked to the empowerment status, and fertility appeared to be somewhat complicated. Jejeebhoy (1992) and Martins (1995) proposed that although it has been long established that educated women have fewer children than the uneducated one, there is also a growing evidence that it is not a simple relationship between education and fertility, but one which also interact with the level of economic development, culture, and other variables. Finkle and Mc Intosh (1996) proposed and suggested that education, employment status and empowerment for women are not highly desirable objectives that should be pursued by themselves, however, it did mean that those values is yet to be established as instruments of population policy.

Cray and Royer (2006), in consideration to all first-time native, proposed that the school entry policies were influential to age of woman at the first-birth. School entry policies to fertility meant that either women gave birth before or after they go to school. The lack impact of school entry policies to fertility outcome indicated a limited causal role for education in women's fertility planning. For women who desired to have a family young enough, schooling is potentially a binding constraint to age of woman at the first-birth. The estimated value for the discontinuity is small and statistically insignificant, or in summary the school entry policies affect the probability of motherhood and the age at first-birth. Substantively, this result is consistent to a biological model in which age of menarche, not educational attainment, has determined the sexual activity and the random use of contraception, which is essential. Callister and Didham (2007) said that by women investing themselves in education and careers have also had an indirect benefit for men, there is a great opportunity for men to directly involve in child-rearing (or lowering fertility level).

Hoem in Borris, et al (1986) proposed that the timing of childbearing was an important factor in influencing the fertility outcome. But distinguished education was increasingly perceived as incompatible with childbearing, thus resulting in postponing the family formation and childbearing. Women that have higher education attainment are more likely to have a professional career and the consequence of having no child in the family formation.

Ronald, et al (1980) proposed that the relationship between education and fertility significantly influence the women occupation, with the women life cycle length time to spend in these roles. Education is another primary factor conditioning female role and expected that role as an important value, to aspire and encourage skill, and other fertility non familiar roles. Fertility and education is related to the age of woman at the first-birth, the timing of subsequent birth, and the interval of birth, but the role of education is differing for people who wanted small family size.

Cadwell (1980), to explain the socio-economic development and fertility decline, reviewed some of theoretical approach has said that education has an indirect effect to fertility by five mechanism: (1) education reduce the child

number for women that have potential work, (2) education increase the cost of children beyond immediate costs for attending school, (3) education make children more costly and less productive because parents were expected to educate their child as an investment and resources for the future, (4) education speed up the cultural change, and (5) the educational system serves to propagate Western middle class, usually in developing countries.

Based on the relationship between fertility and education level, this research consider education as an important independent variable to answer the question: "How far education level affect the fertility pattern?" This research will use the education variable which was provided in the Census 2004 Timor Leste. By adjusting the previous study examined by other researcher on other countries, that also used education variable, to invent the ideal model in study of population to explain the fertility of Timor-Leste women in relation to education.

The category of person is substantial, it should be identified separately as employed or unemployed, and which sector were they employed. In relation to the high or low level of female fertility in each household, as well as a group of women in an area or country, the condition of being paid or not is very important to analyze. The occupation referred to the type of work, trade or profession performed by the individual during the specified period, irrespective of the industry or the employment status of the individual.

UN Population Statement (2001) proposed that employed or working women also included all people who have actually worked during the reference period. This may involve a number of question in the questionnaire to ascertain whether the person who reported to housekeeping or studying as main activity during the reference period did not, in fact, also do some work for family gain or pay or profit during specified period. Or they has a job but is not at work, this includes person who had a job but were temporarily not working during the reference period because of personal or technical reasons, such as being temporarily absent with pay, bad wealth, industrial disputes, vacation, illness, family or other reasons. If a long reference period was used, it also included person who is usually engaged in agriculture and related activities but is not working during the off-season.

Lesthagle and Van de Kaa on Rowland (2005) proposed the second transition of demographic defined the fertility decline of fertility below the replacement level, generally is a result from the changes of gender value in labour market, that women have same opportunity to get job and employ with paid and strongly combined to the histories of increasing access to fertility and birth control. This changes in patriarchy have the men to help in childbearing and the women have an autonomous and independent economy, thus indicating cultural and ideology changes. It continued in demographic transition and is answering the question of: "How big the changes in socio-economic influenced the process and value of male and female relationship in a family formation, also how this also affects the fertility pattern?" In relation to fertility, the stages of the demographic transition are usually broken down into four major TFR groups: **I: > 6.0, II: 4.5-6.0, III: 3.0-4.5, IV: < 3.0** (UN, 1989).

Based on the relationship between fertility and employment status as explained above, this research consider the employment status as an important independent variable to answer the question: "How the employment status and occupation differences affect the fertility pattern?

Bongaarts and Frank (1984) and Anne Genereux (2007) proposed an argumentation processes increasing fertility, which is different in Sub Sahara, with other area have been influenced by lower development socio-economic experience, including the low situation, the rate of accessibility for health facility, contraception and according to Mason (1997) more than depressing was that problem of poverty, transformation and communication as a big factor that explained the African high fertility cesses.

UN 1989 in the Handbook of Social-Economic Indicators proposed that list of fields and topics about human settlement and housing geographical, which is related to distribution of population including: geographic distribution of population and changes distribution, land use, stock of housing and addition of stock, the tenure and expenditure of housing, water and sanitation, energy consumption, transportation, and climate, is an important issues.

The definition of housing is based on the concept of rationality and measurement of housing from MDGs 32th, in which it proposed the proportion of household with accesses to secure the tenure. The secure tenure is referring to UN-Habitat Organization (2003): "secure tenure refers to households that own or are purchasing their houses, are renting privately or are in social housing or sub tenancy. Housing without secure tenure are defined as squatter (whether or not they pay rent), homeless, and household with no formal agreement. UN-Habitat then continued to define slum household as a group of individual living under the same roof, who lack one or more (in some cities, two or more) of following condition: security of tenure, structural quality and durability of dwelling, accesses to safe water, accesses to sanitation facilities and sufficient living area. This indicator has the intention to provide an overview of the share of urban population living in condition of poverty and physically and environmentally deprivation.

Although the provided data of Census 2004 in Timor-Leste is difficult to be taken as a variable to approximate the level of wealth in relation to the high level of fertility, but type of housing is an important indicator, as it was part of human settlement, in which it related to the distribution of population, thus also related to the rapid increasing of population. Since the data are about income, water and sanitation facilities, firewood or other fuel for kitchen, food storage facilities, the approaching method for wealth is known to be very difficult to collect, particularly in the developing countries such as Timor-Leste. This kind of problem might consist rough estimation of monthly expenditure, but also ownership of housing, type of material housing as important durable goods, life-stock and seasonal and permanent plantation as explained, and land use as available on Census 2004 data to analyze.

This research is using approximation with establish a variable independent type of housing to measure the wealth level. Type of housing as a variable means that it will be classified into a proper or not proper type of housing, and it will also be used as indicator to examine the relationship between it and the women fertility. Based on Census 2004 Timor-Leste, the dummy variables for the proper type of housing are the private ownership of house, with concrete wall and roof,

zinc and tiled- or concrete floor tile. Without those dummy variables the house was classified to not proper. This research has a goal to examine and explain just how far type of housing as an independent variable affects the women fertility and also to get the fertility pattern of women in relation to it.

UN 1989 in the Handbook of Social-Economic Indicators listed some socio-economic indicators recommended to chat in censuses and surveys in developing countries. One has pointed to use established variable in this research such as leisure, culture and communication with topics such as: the equal participation of various nationality and ethnic groups in economy and social activities, and the distribution of living and social benefit among the groups. The most important socio-economic characteristic according to UN 1984 usually covered the conjunction of demographic topics, including literacy, education, ethnicity, language, economic activities, income, housing condition and amenities, and socio-economic data at the community level.

Kohler (1997) proposed that linguistic diversity and social interaction, to large extent, is based on share languages, and it is important to supply such information as one of the socio-economic characteristic. The geographical location of these communities is much less important to understand the further analysis and the diversity in demographic behaviour has simultaneously diminished the development of national media and more national form of interaction that extended individual exposure to ideas and information within the local contexts.

Abanihe (1994) proposed on the multivariate analysis that showed the Igho ethnic as one that has the highest family size among all the ethnic groups in Nigeria. This is certainly related with the dominant culture of strong patriarchy and the patrilineal system, the preference of having sons children, and an observation of ceremonies in honour of women who maintained high fertility norms.

Michael (2008) has proposed the association between female education and fertility was likely to be least partly causal. Educated women may be able to

obtain higher wage, increasing the opportunity cost of time spent rearing children. Education meant changes of knowledge and attitudes towards the use of modern contraception. The effect of higher secondary schooling (11 years of schooling) was 2 – 4 times more on lowest fertility comparing to women with lower secondary schooling. They may also have preference to educate children more, making it more expensive in large families.

One of the most fundamental decisions a couple makes is either when to have their children or how many children they want. The rigid social and cultural constraints in the past formed the childbearing behaviour, and due to the high of under-five years old mortality, a high fertility level was necessary for society's survival. These requirements become ossified in strict behavioural norms favouring numerous and closely spaced births (The State of World Population 2008).

In relation to the data availability in Census 2004 Timor-Leste, mother tongue topic is important to analyze. The Census 2004 reported that based on mother tongue (first language), there is a use of 36 local languages and 5 international language including Portuguese, English, Indonesian, Malayan, Chinese and others. Mother tongue is a recommended indicator to get the census or survey in developing countries. This research is using mother tongue as a dummy variable to adjust the socio-economic indicator. The goals by using this variable is to examine how mother tongue affects the women fertility and to explain the result based on theory and also to get the fertility pattern of women in relation to it.

## 2.2 Previous Studies

UN Statement (2001) get the relationship between ages structure and fertility, specifically in demographic transition, fertility often decrease more at older age than at younger age. At the start of the transition, the decline in fertility for younger age is due to the increase of marriage age and the decline among older women who wish to stop childbearing. The result found the age profile of fertility period rejuvenated and found that this situation was most likely happened in developing countries, particularly those in Asia. While it was difficult to generalize the cultural, socio-economic factor underlying the differences in age pattern of fertility transition, these differences have important implication for population policies. (UN Population Workshop, 2001)

Kohler (2000) found that the European women in the 19th century, with characteristic TFR average number of children per women decline to less than two children, have decreased the mortality level and increased the life expectancy at birth from 25-35 to 75-80 year old. Davis at Kohler (1997) explained the voluntary fertility control within marriage is a decisive behaviour factor in changing reproductive pattern. Hence it received the attention in discussions of the demographic transition and in theories of demographic behaviour.

UN Population Workshop (2001) published that in almost high fertility countries the women by age 50 (age group 45-49) are married and at their end of childbearing. The remaining percentage of marital status as a single was about 2 percent average. Moreover a very early marriage is normal for the great majority of these countries. In 21 of 34 countries, the percentage of married women at age 15-19 is 30 percent or higher. In only 5 countries such as Burundi, Comoros, Rwanda, Namibia, and Saudi Arabia are this percentage lower than 15 percent. This early entry into union is also evidence by the age at marriage.

Jejeebhoy (1995) on the study "Women's Education, Autonomy and Reproductive Behaviour Experience from Developing Countries" has found relationships as a direct effect of education on fertility, as well as the impact through the intermediate variables (age at marriage, breastfeeding, abstinence, and contraception) on fertility. Fertility reduction is a consequence from improvement

in education and also a consequence of the changes in women's autonomy. The predominant effect of education went through delayed age at marriage rather than it went through the deliberate limitation of fertility after marriage.

Hayford (2008) on the previous study entitled "Fertility after a Non Marital First Birth" used Cox-Regressions with hazard function to get the differences within women who have non marital status and women in marital status marriage in fertility rates. The result has found that those study birth hazard for the first birth of women with non marital status was lower than birth hazard for the women with marital status for about five years after the first birth. These findings have implication in family composition and population dynamics; first birth of women with non marital status was less than likely to have second child than married mother. Continuing her previous study, the research showed that marital status at first birth had no relationship to the likelihood of having a three child condition on second birth.

Battacharya (1995) proposed that the age of female at marriage is identical to the onset of exposure to the risk of childbearing, and this was an important principal to determine the number of births she will be having.

In comparison to Hayford's researches, there were differences in statistics methodology, but it has the same dummy variables such as two different marital statuses: first marriage variable covering women who married, divorced, separated, and widowed, and second for women who have non marital status or never married. The result of this research is a different high fertility level in relation to the different of marital status.

Bongaarts (1978b) in the research entitled "A Framework for Analyzing The Proximate Determinants of Fertility" that used Korean and US data to illustrate model has resulted the intermediate fertility variables like biological and behaviour factors through socio-economic, culture, and environmental variable which affected fertility. The fourth intermediate variables including: nuptuality, lactation, contraceptive practice and induced abortion have affected the fertility model.

Satyajeet (2005) in the research entitled as "Cultural Determinants of Human Fertility, A Study of Tribal Population in Orissa" found that since human fertility is mediated by life style behaviour, hence the society has set up many terms of norm and culture traits that have major impact on it. Child loss is a factor that has a dual effect on fertility such as replacement as well as insurance effect. Insurant effect is that when there is a higher prevalence of child loss in a family, more children have to be given birth to meet the desired family size and find the relationship between child loss variable and fertility with cultural approach.

Gourbin in Caselli, et al (2006), with the study from Czech and Hungarian data, found that there is a higher risk for fetal mortality from women with low education attainment. The education level of mothers and their income associated with different occupation are indicator to her ability to adopt health promoting behavior during pregnancy, make an effective use of prenatal care services and household.

This research has consistently been taking stillbirth and child death experience (similar with child loss) as independent variables on mortality component, although the model of examination is using the same binary regression logistic analysis. We have different point of view for to take an analysis of stillbirth and child death experience (such as similarity with child loss) variables. This research is covering all women from age 15 to 54 that have experience on stillbirth and child death and hopefully this will be having differential of the high fertility in relation with the differential of stillbirth and child death experience.

Akim (2001) on DHS research 1991-1992 entitled: "The Determinants of Birth Intervals Among Non-contraception Tanzanian Women" examined the factors that have influence on fertility analysis. The fertility analysis have used five categorical variables: (1) without of education, (2) below primary education, (3) above primary education, (4) secondary education and (5) above of secondary education.

The partnership in improving reproductive health (2003) examined the data with research entitled "Proximate Determinants of Fertility in Oromia Region, Ethiophia: An application of Bongaarts Model" found that Non Marriage

(due to either delayed marriage or the exit from marriage) and prolonging of breastfeeding are two most important factors that keep fertility low. The research has found in urban area that delayed marriage play an important role in keeping fertility down and the breastfeeding period is equal to using contraception in term of inhabiting effect on fertility.

Joshi and Davis at Caselli (2006) explained that educated mother will increase their study period and will be more rational with their decision about the family size and the desired sex composition for their children. Another mechanism is increasing the education and autonomy of women, to give women more control of her own fertility, and persuaded their motivation to bear children in childbearing time.

With the title "Fertility-Mortality Various on Some LCDs Countries", the research done by Singh RD (1994) was using variables such as education level, participation on labour force and contraception use of women at reproductive age. The result is 68-81% illiterate women using no contraception have more varied fertility level. On the other hand, the consistent and stabile main variables such as consequences of child mortality explanation were being influenced by the women's education level and labour force.

Lucia and Esther (2002)'s study was to examine and estimate the effect of education comparing male and female. The effect was related to the influenced age to enter the first marriage. The result was the education level affected the first-married female within age 15-25 in decreasing the infant mortality. The effect of education for women fertility is related to the term and framework of: always to be a mother of many children, some children that possible to birth, choice time to birth and space time for birth. The study realized this had occurred in Indonesia from 1973 to 1978.

Boris, et al (2008) with the study in Slovakia was comparing the women fertility between tradition and modernity. The study resulted that cohort women born in 1960 have distribution of 2.6% women with primary and secondary education, and 4% have university education. 30% of women with primary and

secondary school have three children, and 15 % among the women with university degree have only one child or no child.

The education level that was established as a dummy variable for this research has a goal to estimate the probability of women getting high fertility. Education level that also interacted with age of women was established as interaction variable that will be used to examine the probability and to get the pattern of women fertility in Timor-Leste.

Henriette, et al (2004) proposed the result of the research as an interpretation parameter of the relationship between fertility and participation of women in labour force, although this might be only a feasible option. Their research were used and had been applied to vector error correction models (VECMs) to examine the relationship on macro level time series with Granger causality test.

Lu Y (1980) on research entitled "Economic Development and Married Women's Employment in Taiwan: A Study of Female Marginalization" found that the married Taiwanese women that were usually working or being employed on informal sector and family business (especially for the women that have new children or is a younger parent) in this condition as a marginalization for women in labour market and labour force participation.

Akim (2001) with the research "Fertility Levels and Differentials in Tanzania" found the position of women depended on how women viewed their position while responding to questioner. They were classified into an unemployed group if they claimed to be a housewife only and were in an employed group if they were working on agriculture, manual souvenir worker, office-working, and all other position depended from their answer. The research obtained that statistically the women whose working at modern sector have decrease the risk of conception to 56% in comparison to women that working in agriculture. But those unemployed women or working on manual souvenir, reported to not have the same risk with women that working in agriculture. On the other hand, the research reported that we must be careful to interpret the situation because the number of women working in modern sector is very few.

Miah and Mizan (1992) with their research entitled "Labour Force Participation and Fertility: A Study of Married Women in Bangladesh 1976" and the Bangladesh Fertility Survey used methodology of multivariate analysis with variables such as births, deaths, nuptiality, and family planning knowledge and practice. Those researches have covered 5,772 currently married women and 6,513 ever married women, with the reproductive age under 50 years old. The result was women that have a modern and or traditional occupation, also showing the tendency of having high fertility level. It also found a significantly positive effect from women that have reached their end of reproductive age, was Muslim and have been using of modern contraceptives and have husband occupied in transitional and modern sectors to the low fertility level.

Rindfuss, et al (1987) on their last study exploration of the role of intermediate variables in births spacing in the Philippine, Malaysia and Indonesia has used hazard model and full model. They used socio-economic variables in full model, while other variables were used in hazard models to analyze the matter focusing in the effect of breastfeeding and contraception in fertility. The study has resulted that in several country the specific ethnic, geographical, and five socio-economic variables, including level of female education, husband occupational, residence place, and whether the wife is working away from home or not, has significantly coefficient each other.

Sarkar D (2006) in the study entitled "The Relationship between Fertility and Socio-Economic Development in Selected Stated of India" has found connection between female education and fertility in India. The multivariate approaching method has clearly explained the various indicators of overall development and modernization such as male literacy, urbanization, poverty, female education, and women employment status, are influential to fertility.

Hyatt and Milne (1991), in their study entitled "Determinant of Fertility in Urban and Rural Kenya: Estimated and Simulation of Impact of Education Policy" that used probit model, has resulted the variables of economic, biological and social or culture through determinant on fertility rate of Kenya women. The

result showed that improvement in female education can be resulted in a substantially decreasing number of births in Kenya.

Ruthstaein and Jonson (2004) on their last study based on the DHS data have built the type of flooring as a component to measure the wealth index and its relationship with fertility.

Kulu and Vikat (2007) investigated a study entitled "Fertility Differences by Housing Type: The Effect of Housing Conditions or Selective Moves?" They were analyzing using a hazard regression model and found that (1) the observed of varied relationship of fertility cross to housing type has a significant value; high fertility was found among couples living in single-family houses and was low among the couple living in apartments, (2) elevated fertility levels after coupling tend to change the dwellings, (3) a relatively high risk of having the third birth for single couple living in single-family house several years after they moved.

Definition about housing based on concept, rational and measurement of housing on MDGs 32th was proposed about proportion of household with accesses to secure tenure. Secure of tenure was refer "secure tenure refers to household s that own or are purchasing their homes, are renting privately or are in social housing or sub tenancy. Housing without secure tenure are defined as squatter (whether or not pay rent), homeless, and household with no formal agreement UN-Habitat organization, 2003. Based on those definitions of type of housing as indicators, it was used to monitor the MDGs in relation to the health reproductive of women and to reduce child mortality.

Secured tenure is needed by every family, it also function as shelter for human and also required in social function. Type of housing variable that was also established as independent variable is considering the ownership, type of wall, roof, and floor factors. The important values from secured tenure as an independent variable are to estimate and measure how the type of housing affect the high fertility level of women in Timor-Leste.

Table 2.1

Comparing the DHS reports and Census 2004 Timor-Leste relationship within household issue and facilities of house.

| DHS Report | Census 2004 Timor Leste |
|---|---|
| Type of flooring | Owner of housing |
| Water supply | Type of wall |
| Sanitation Facilities | Type of roof |
| Eletricity | Type of floor |
| Radio, television, Telephone, refrigatro, type of vehicle, person per sleeping room, ownersih of agriculture | |
| Domestic servent, and country specific item | |

Kohler (2000) found and concluded that the European fertility was using cultural factor to explain diffusion regional fertility behaviour. Although there has been a widespread agreement to use previous factor and many theories had argued that modernization in socio-economic factors has become an underlying factor in the demographic transition, and that diffusion and culture merely explain the details in its time or pace for instance. The Swedish fertility change was more consistent with diffusion interpretation or adjustment theory in which fertility behaviour responds to new socio-economic condition.

The mother tongue as part of culture have came and get increasing attention as a variable affecting fertility level in a society. Saikia, et al (2001) in their study entitled "Culture, Religion, and Reproductive Behaviour in Two Indigenous Communities of North-Eastern India: A Discussion of Some Preliminary Findings" has found that culture, religion, and autonomy of female was significant in relation with fertility behaviour of women.

Other researcher, Breda (1978), from their project research using censuses data on subject term fertility has found fertility determinants such as Ethnicity, Ethnic Groups, Cultural Factors in South East Asia: Indonesia, Malaysia, Singapore and Thailand. He has found that fully examined ethnic diversity and

other social behaviour dimensions have influenced the fertility. The study was focusing on several dimensions of ethnic including self-identification of ethnic groups, language proficiency, language of education, and language used at home. The research found that more than any variable, ethnicity was a significant factor in fertility pattern.

This means the mother tongue variables with language as approaching for part of culture is an important factor to understand the fertility pattern in study of human population. This research was establishing mother tongue variable as part of cultural dimensions to get the relationship between fertility with ethnic groups, it is also used as an independent variable to examine the probability of fertility and the fertility pattern of women in Timor-Leste.

## 2.3 Analytical Framework

This research has combined the models from Bulatao and Lee (1983) and Davis and Blake (1956) that was shown at figure 2.2 and figure 2.3 to analyze and examine the fertility level. This combination was also modified to accommodate the condition in Timor-Leste.

The Timor-Leste models that have been built in this research were based on explanatory models theory provided by Cuicci and Georgi (2007). They proposed the hypothesis for fertility forecast (1), the model based on explanatory approach (2), to measure fertility using result of regression analysis of the time trend in variation of fertility and other variables, particularly economic ones (3). In general the fertility variable is not solid in basic theoretical, even if there is no logical association between variable or that it appears to be correlated with the accepted fertility level. Gourbin at Caseli (2006) explained the determinant factor in behaviour was social-culture, including education, income, social-class and religion. Henri (2006) proposed the process of reproduction is mostly dominated by behaviour variable, marriage behaviour, and other intermediate variable. The behaviour variable can be observed using sociology and economic theory.

In this research the definition concept of health issues is using the approximation data of still-birth and child death experience. The reason to choose education and child mortality factors as dominant variables that highly influenced the analyzing of fertility is that the interaction from the chosen variables were based on the correlation between each independent variables, in which it has given a strong or moderate value.

All the objectives of this research are to answer the main question: Are roles of education, child mortality, culture, and other socio-economic and demographic factors affecting the fertility of Timor-Leste?


Figure 2.3

A framework analysis of fertility Timor-Leste women based on Census 2004 Data

# CHAPTER III
# RESEARCH METHODS

## 3.1. Data Source and Analysis Unit

The importance of population and housing census lied on its universal coverage, the wide range of data collected, the well tested, naturally well documented classifications used and the wide range of possibilities for geographically cross-classifications and according to the characteristics of selected population.

This research used primary data from the 2004 Timor-Leste Census Population and Housing. The Population and Housing data was rich with opportunity for getting some variables to be treated on description and inferential analysis. Census Population and housing 2004 Timor-Leste collected data from all of population that live in Timor-Leste, covering 13 districts, 65 sub districts, and 442 *sucos*, in 2004 and with hope less on error. The unit of analysis for this research covered all women age 15 – 54 years, who had a life birth and lived in a household based on census Timor-Leste 2004. The unit of analysis didn't cover the women who didn't have life birth experience while they were in reproductive age 15 – 54 years.

## 3.2. Variable Operational Definition

All variable chosen for analysis in this research were considered and based on definition and questionnaires of census 2004. The concept and definition of variable that were used in Census 2004 Timor-Leste had been adjusted with hand book of household surveys that was published by United Nations from Department of International Economic and Social Affair Statistical Office 1984 (revised edition) series F No: 31.

This research used tools of analysis Regression Logistic Binary model with dependent and independent variables using dummy variable. The dummy variable was very useful to transform the analysis of qualitative data to quantitative data especially on demographic issues example marital status, sex, age groups, stillbirth experience, and other social-economic variables. The dummy variable was also important to see the regression model and changes on tendencies or jump

on trend time during observation process of the research (Nachrowi and Hardius 2005). This research used dummy variable Y (dependent variable) and X (independent variables).

The census activity collected a wide range of information on basic current and past level of fertility, fertility trend and determinants may be estimated. Basic item included in most population censuses and surveys were the number of children born alive (and number still living) to women population. These data were classified according to the mother's age; these items provide cumulative information or life time fertility on earlier information got by older women.

Information on the number of life birth and still living was normally collected through a sequence of questions: (a) the number of children ever born alive, (b) the number of children living with the mother, (c) the number of children living away, (d) the number of children dead , and (e) the total number of still living children.

Dependent variable (Y variable) was used to measure such as total number children life birth by each women age 15 – 54 years. Y variable was expression of questioner P09Q0C that summarize the respond from questioners (P09Q05T + P09Q05E + P09Q06DF + P09Q06SF) – (P09Q08SE + P09Q08DE) census population and housing 2004.

- P09Q05T = Sons home
- P09Q05E = Daughter home
- P09Q06SF = Son elsewhere
- P09Q06DF = Daughter elsewhere
- P09Q08SE = Sons death
- P09Q08DE = Daughter death

The cleaning data was needed to adjust the data that running in this research must be logical and proper to be continued for testing on inferential statistic. Before the cleaning data was done, distribution of life birth was until 1 to 24 children, presented on table 3.1 with 137.768 women, that had life birth in reproductive age 15-54, distribution (table 3.1), statistics descriptive (table 3.2) and graph of distribution (figure 3.1). The distribution of women who had life birth after the cleaning data process decreased to 133.840 women. Table 3.3, table

3.4 and figure 3.2 showed the distribution and statistics of women that had life birth after the cleaning data process.

The definition of live birth "the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which after such separation, breathes or shows any other evidence of live such as heartbeat, umbilical cord pulsation, or definite movement of voluntary muscles, whether the umbilical cord has been cut or placenta is attached. A live birth is not necessarily a viable birth. Fecundity is ability to produce offspring; fertility. And Fertility is the ability to reproduce" (Family Health, 2008).

Although the mean distribution statistic for number children life birth = 4.56 and it was possible to use cutoff point in number children life birth = 4 children, but in this research dummy variable for dependent variable (Y) used cutoff point of 3 children. The dummy variables for dependent variable, Y = 0 = failed if women who had life birth more than three children, Y = 1 = success if women who had children less than or equal to three children. The reasons for using the cutoff point on life birth as three children, because first, with high respect, the goal of this decline a half value of total fertility rate (TFR) Timor-Leste. Second, the result from this research would be able to be used in consideration as a proper study of fertility, such as to be taken as based for policy maker in solving population problem. Third, cutoff point of three life births would be good goals to start idea or thinking about the ideal number of maximum children for Timor-Leste families, like the tradition of *ahimatan* (three furnaces used for cooking).

Table 3.1

Distribution of women that had life birth before data cleaning process

| Live birth | Frequency | Percentage | Live birth | Frequency | Percentage |
|---|---|---|---|---|---|
| 1 | 17,253 | 12.52 | 12 | 1,139 | 0.83 |
| 2 | 18,342 | 13.31 | 13 | 509 | 0.37 |
| 3 | 17,979 | 13.05 | 14 | 262 | 0.19 |
| 4 | 17,609 | 12.78 | 15 | 111 | 0.08 |
| 5 | 16,292 | 11.83 | 16 | 59 | 0.04 |
| 6 | 14,469 | 10.50 | 17 | 27 | 0.02 |
| 7 | 12,012 | 8.72 | 18 | 12 | 0.01 |
| 8 | 9,224 | 6.70 | 19 | 5 | 0.00 |
| 9 | 6,269 | 4.55 | 20 | 3 | 0.00 |
| 10 | 4,018 | 2.92 | 21 | 1 | 0.00 |
| 11 | 2,169 | 1.57 | 24 | 4 | 0.00 |

Table 3.2

The statistics for women who had life births this data before data cleaning process

| Descriptive Statistics Children Born Alive | | |
|---|---|---|
| N | Valid | 137,768 |
| | Missing | 0.00 |
| Mean | | 4.74 |
| Median | | 4.00 |
| Mode | | 2.00 |
| Std. Deviation | | 2.80 |
| Variance | | 7.86 |
| Skewness | | 0.66 |
| Std. Error of Skewness | | 0.01 |
| Kurtosis | | 0.07 |
| Std. Error of Kurtosis | | 0.01 |
| Minimum | | 1.00 |
| Maximum | | 24.00 |
| Sum | | 652,429 |

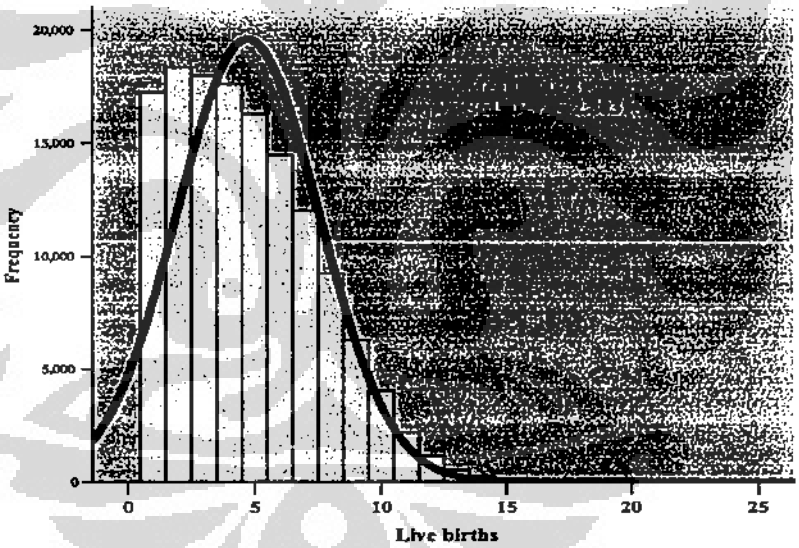


Figure 3.1

Histogram for women that having life births this before cleaning data the processing

Table 3.3

Distribution of women who had life births after data cleaning process

| Live births | Frequency | Percent |
|---|---|---|
| 1 | 17,253 | 12.89 |
| 2 | 18,342 | 13.70 |
| 3 | 17,973 | 13.43 |
| 4 | 17,582 | 13.14 |
| 5 | 16,249 | 12.14 |
| 6 | 14,368 | 10.74 |
| 7 | 11,834 | 8.84 |
| 8 | 9,048 | 6.76 |
| 9 | 5,702 | 4.26 |
| 10 | 3,257 | 2.43 |
| 11 | 1,461 | 1.09 |
| 12 | 567 | 0.42 |
| 13 | 172 | 0.13 |
| 14 | 32 | 0.02 |
| Total | 133,840 | 100.00 |

Table 3.4

The statistics description for women who had life births after data cleaning process

| Descriptive Statistics Children Born Alive After Cleaning Data | | |
|---|---|---|
| N | Valid | 133,840 |
| | Missing | 0.00 |
| Mean | | 4.56 |
| Median | | 4.00 |
| Mode | | 2.00 |
| Std. Deviation | | 2.61 |
| Variance | | 6.83 |
| Skewness | | 0.50 |
| Std. Error of Skewness | | 0.01 |
| Kurtosis | | -0.46 |
| Std. Error of Kurtosis | | 0.01 |
| Minimum | | 1.00 |
| Maximum | | 14.00 |
| Sum | | 610,306 |

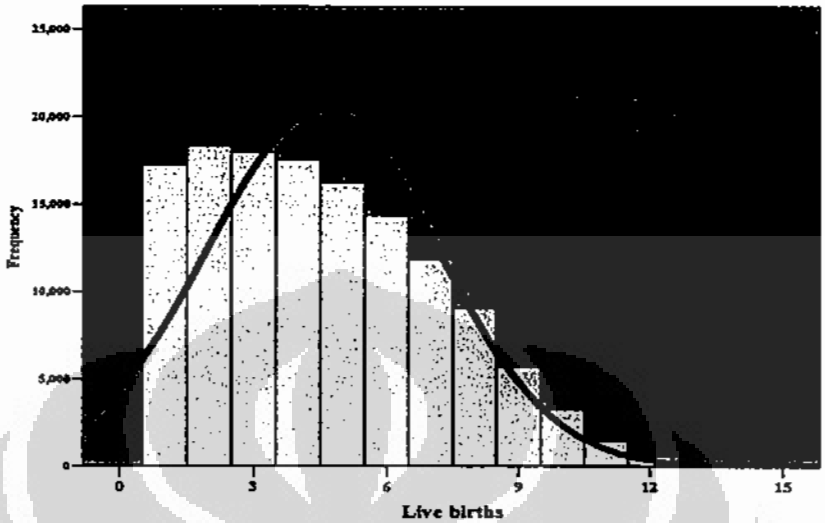


Figure 3.2

Histogram for women who had life births after dat cleaning process

Age groups, age on continuous and age square variables were developed for independent variable with name AGA based on questioner P04Q03 census 2004. Age groups, of the range of five years old for every group, were developed to be used in descriptive analysis. Age variable was developed in the form of continuo data and age square for running in inferential test. The difference in age variable therefore, it was very important to get pattern of fertility Timor-Leste women on many aspects.

In inferential analysis, age variable had interaction with variable of education level. For interaction between age and low level of education variable, the name AGA and EDUC-1 was used, and the name AGA and EDUC-2 was used for interaction between age and middle level of education. This variable was running in inferential test with goals for getting patterns of age and education and its relationship with fertility of Timor-Leste women.

In many societies, childbearing process took place mostly within the contexts marital status, whether legal in state common law or in religious common law. A part form of data only stated the marital status, a demographic survey or census may also collect information about age at marriage, duration of marriage, or even full marriage histories involving beginning and termination outcome of past marriages. Other country elaborated more data that may include societies with more complicated marriage term, such as polygamy or frequently changing or multiple sexual partnerships (UN, 1984).

Independent variable marital status was developed to show how far this variable influenced number of life birth from married women. This variable with name Marital Status (MS) was developed from census questioner part P04Q07 with dummy variable that 1 = never marriage and 0 = ever marriage include marriage with code 2, widowed = 3, divorce = 4, and separated = 5 (all code that covered ever-married used as reference). The dummy variable were developed to evaluate whether the marital status had effect or influence on probability of women to have life births more than three children or to have less than or equal three children.

The data about still-birth experience, children ever born and children surviving were discussed in connection with the estimation of fertility rate and also was used to estimate infant and child mortality. The data of children survivorships were obtained from question on the number of life birth and still living children and was developed from the sum of questioner part of P09Q07SE (Sons born dead) and P09Q07DE (Daughter born dead). And then the proportion of children surviving was calculated and tabulated by the age of their mother. The proportion of children surviving can be converted into probability of dying-to-birth to certain ages by using a set multiplied analysis.

The dummy variable for still-birth experience was developed with name SBE = 1 as a success for women who had still-birth experience, and Non-SBE = 0 as failed for women who had non still-birth experience. By developing dummy variables, hopefully, the pattern and effect from still-birth experience at women fertility based on descriptive and inferential examination would be achieved. In

other word, this variable was developed to examine the hypothesis that was previously built as a part of goals from this research.

Independent variable of child death experience was developed in term of the children born still alive and latter death. This includes infant and child mortality. Those variables were built by summarizing the census questioner part P09Q08SE (Sons died) and P09Q08DE (Daughters died). The dummy variable were built from the recoding process with name CDE with the difference from CDE = 1 = success, if women who had child death experience, and CDE = 0 = failed, if women who didn't have child death experience. By developing dummy variables, hopefully, the pattern and effect from child death experience at women fertility based on descriptive and inferential examination would be achieved. In other word, this variable was developed to examine the hypothesis that was built as part of goals from this research.

Figure 3.3

A mother was breast-feeding her son (Suco Uma Tolu, Lacluta, Viqueque).

Educational qualifications normally refered to the type of qualification of education, for example, degrees, diplomas or certificates which had been acquired by respondents. In some countries, diploma or certificate was given for each level

of the normal school system such as primary school (first level), junior high school (second level), and senior high school (third level) and so on.

Independent variable for level of education were developed using the merger of census questioner part P07Q10 (number of years at primary school), P07Q12 (number of years at high school) and P07Q14 (received university degree or certificate). The level of education was built on three levels such as low education (EDUC 1), middle education (EDUC 2) and high education (EDUC 3). With recode tools, the level of education was developed into three levels for dummy variable of education; basic education (EDUC 1) signified women who didn't have any education and or had primary education certificate. The middle education (EDUC 2) signified women that had number of years at high school and received diploma for high school. And then signified women who got certificate from secondary school, and high education (EDUC 3) signified women who had certificate from high school or diploma from university with categorically 0 or failed as well reference for other level of education. By developing dummy variables for level of education, hopefully, the pattern and effect from education level at women fertility based on descriptive and inferential examination would be achieved. In other word, this variable was developed to examine the hypothesis; whether the level of education had effect or influence on fertility Timor-Leste women.

The population census 2004 Timor-Leste created greater possibility for the researcher to use the data and to examine or measure the part of socio-economic and its relationship with fertility. The core of measurement of the economic activity of this population lies in concept and meaning of work that constitutes economic activity. The census hand book built the concept and defined person at work as those who performed some work for payment or profit during the specified period. Subsequent with United Nation Statistical Commission, the participation in economic activity defined as the supply of labor for production of economic goods and services during the time period chosen for the investigation. The definition of economic goods and services were same as those mentioned in the United Nations Systems of National accounts for integrating economic statistics.

Independent variable of employment status was developed with name (EStat) and built based on census questioner part P08Q03 with code definition the women that work in governmental institutions, including policewomen, armies, and teacher (1), employed on UN organization (2), employed on NGO (3), work on private industry as paid or voluntary (4), working on business itself, paid or voluntary (5), employed in agricultural field, fisheries, or livestock breeding (6), women who seek available job (7). Otherwise who weren't working or were unemployed were identified with codes: Student (8), housewife or working at home (9), pensions, or aging people (10), disability (11), have not working (12), others (13).

The dummy variable for employment status were developed with categorical name Un-Employed = 1 = success, if women who were unemployed (includes code until 8 to 13) and Employed = 0 = failed, if women who had employment (includes code until 1 to 7). By developing dummy variables, hopefully, the pattern and effect from employment status relationship with women fertility based on descriptive and inferential examination would be achieved. In other word, this variable was developed to examine the null hypothesis; does employment status affect or influence on fertility Timor-Leste women? Employment status that was established on dummy variable for this research had goal to estimate probability of women to get high fertility. Differences of employment status that was established and used as independent variable had function to examine probability of fertility, and pattern of fertility Timor-Leste women.

Table 3.5

Women in employment status by number of life births

| Employment Status | Live Births | | |
|---|---|---|---|
| | Live births less than or equal 3 | Live births more than 3 | Total |
| Unemployed | 20,821 | 29,021 | 49,842 |
| Employed | 32,747 | 51,251 | 83,998 |
| Total | 53,568 | 80,272 | 133,840 |

Type of housing was used as one of tools to evaluate the level population wealth or level of poverty. Type of housing as independent variable was built and defined as composition of some variables related with ownership, type of wall, roof and floor based on census 2004 questioner. The variable of type of housing was developed based on questioners P03Q1 (categories of ownership), P03Q02 (primary construction material external walls), P03Q03 (primary construction material roof), and P03Q04 (primary construction material floor).

Table 3.6

Distribution of type of housing classified according to owner, material, walls, roof, and floor.

| Type of Owner and material of House | Frequency | Code | Valid Percent |
|---|---|---|---|
| **1. Residential category of ownership** | | | |
| Individual and/or family owned property | 127,500 | 1 | 95.26 |
| Community or suco owned property | 560 | 2 | 0.42 |
| Government | 5,577 | 3 | 4.17 |
| Church property | 203 | 4 | 0.15 |
| **2. Primary construction material - External Walls** | | | |
| Concrete/brick | 55,126 | 1 | 41.19 |
| Wood | 8,148 | 2 | 6.09 |
| Bamboo | 58,522 | 3 | 43.73 |
| Corrugated iron | 8,186 | 4 | 6.12 |
| Clay | 3,858 | 5 | 2.88 |
| **3. Primary construction material - Roof** | | | |
| Concrete/brick | 1,035 | 1 | 0.77 |
| Wood | 206 | 2 | 0.15 |
| Bamboo | 45,863 | 3 | 34.27 |
| Corrugated iron | 85,175 | 4 | 63.64 |
| Tiles | 289 | 5 | 0.22 |
| Asnestos | 1,272 | 6 | 0.95 |
| **4. Primary construction material - Floor** | | | |
| Concrete or tile | 41,242 | 1 | 30.81 |
| Wood | 1,531 | 2 | 1.14 |
| Soil | 91,067 | 3 | 68.04 |

The dummy variable for type of housing was developed with categorical name ToH = improper = 1 = success, if women lived in improper type of housing, including living in government or church-owned facilities, type of wall: wood, bamboos, clay, and other, type of roof: wood, bamboos or grasses, and type of

flooring: wood, clay. Other type of housing proper = 0 = failed, if women lived in the condition of housing with type of wall tile or concrete, type of roof tile, concrete or zinc, and type of floor tile or concrete. The dummy variable for type of housing was established, hopefully, to get the pattern and effect from type of housing relationship with women fertility. Based on descriptive and inferential examination that was planned in this research hopefully, this will answer the null hypothesis. In other word, the differences for type of housing had effect or influence on fertility Timor-Leste women.

Table 3.7

Distribution of type of housing sorted by life births without dummy variable.

| Live Births | Type of Housing | | |
|---|---|---|---|
| | Improper | Proper | Total |
| 1 | 12,610 | 4,643 | 17,253 |
| 2 | 13,671 | 4,671 | 18,342 |
| 3 | 13,824 | 4,149 | 17,973 |
| 4 | 13,641 | 3,941 | 17,582 |
| 5 | 12,764 | 3,485 | 16,249 |
| 6 | 11,429 | 2,939 | 14,368 |
| 7 | 9,367 | 2,467 | 11,834 |
| 8 | 7,248 | 1,800 | 9,048 |
| 9 | 4,535 | 1,167 | 5,702 |
| 10 | 2,563 | 694 | 3,257 |
| 11 | 1,145 | 316 | 1,461 |
| 12 | 426 | 141 | 567 |
| 13 | 126 | 46 | 172 |
| 14 | 24 | 8 | 32 |
| Total | 103,373 | 30,467 | 133,840 |

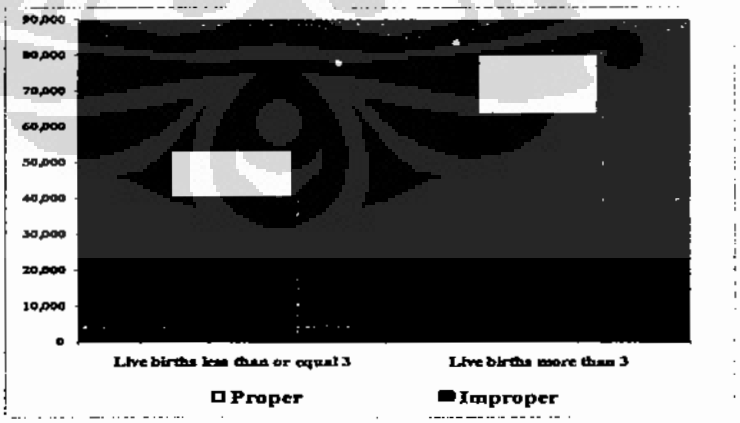


Figure 3.4

Distribution type of housing sorted by number of life births in dummy variable

Figure 3.5

An improper house classification, usually in rural area

Even though ethnic aspects were sensitive approaches, but this variable was important for promoting gender and empowering women. In this research was built a part of hypothesis to examine the effect or influence of the ethnic behavior on women fertility through the approach of mother tongue. The independent variable of mother tongue was developed based on major distribution of languages that women 15 – 54 year usually spoke.

Independent variable of mother tongue was developed in dummy variable with name MT-1 for women that spoke in Tetum langues (includes summary from Tetum with code Tetum=2, Tetum Prasa= 33 dan Tetum Terik =34), MT-2 for women that spoke in Mambai, Bunak, and Kemak languages (includes code Bunak =10, Kemak= 20, and Mambai= 26), MT-3 that for women that spoke in Makasai and Fatuluku languages, (includes code Fatuluku = 12 and Macasai = 24). For women who spoke with other mother tongue were classified in code 4 (other), and in this research, the classification of other languages was used for the reference in inferential analysis. By developing dummy variables, hopefully, the pattern and effect from mother tongue or culture behavior with women fertility would be proved.

Based on descriptive and inferential examination that were planned in this research hopefully will answer the null hypothesis. In other word, the differences of mother tongue had effect or influence on fertility Timor-Leste women.

### 3.3. Data Processing, Design Analysis and Model

#### 3.3.1 Data Processing

This research was done in four steps data processing: first making cross tabulation between dependent variable and each independent variable, secondly selecting the data using the descriptive and inferential analysis with cleaning data processing way. Third using data that was cleaned to started to running test on cross tabulation. And the cross tabulation results level of relationship between dependent and independent variables, or between independent variables and independent variable for getting interaction between independent variable. Fourth, after choosing the interaction variable all data were ready to run test on descriptive and inferential analysis.

The cleaning data process in this research was important and needed to get data that was logical, possible for responsibility, and proper to be continued for running to the other steps. Cleaning of data was much needed with the expectation for minimizing error and bias in variables that was developed in this research. Thus, the clear interpretation was presented in the results of analysis. Other ways cleaning data was important to develop every variable. Table 3.1 and table 3.3 presented the distributions of number of life birth before and after cleaning data processing.

The cleaning data process had been done to give data that was logic and proper to be run in test on description and inferential analysis. On cleaning data process, the data was cut from the data that was not logical and realistic on term of human, especially women fertility. All data that were used in this research consisted of data of women 15 -54 years that had children alive by considering them logically and realistically on term of women fertility. For example, a woman with age 15 years old who had 3 life births, for special cases was possible on condition twin birth but the census Timor-Leste 2004 didn't have information which stated there were women 15 years old experienced twin birth. Other example, the women of 49 years old who had 14 life births is not impossible with reason in every 2 years she had one child times 14 equal 28 years on fertility time, the women starting on fertility time on 11 years old? Thus data was not logical and not realistic on term of human women fertility.

The distribution number of life births that was used as data set on this research from women that have experience on life birth showed on table 3.2 with total number of women who had life birth after cleaning data processing = 133.840 women. The data processing cut the data around 3.928 women who had children on condition not logic or around 2.8% from total women that have life birth before cleaning data.

Figure 3.6
A mother had lunch with the children (Suco Bairo Pite, Dili).

Some steps on data cleaning processing:

1. Run the data using SPSS program based on census 2004 Timor-Leste original, to see the match of the variable Y (number of life birth) and other variable X (age of mother), and crossing with the mother age, mother education, and status of the relationship with age of head of household.
2. The SPSS 13 program was not possible to run those data, because the relation of variable was varied. In this case the data base was run using MATLAB program, to make it easier to get the cross tabulation that was needed in this research.
3. The result from MATLAB was continued to be run in SPPSS program and the data result was copied to EXCEL program.
4. Using EXCEL program was to simplify the classification on the data that was not logic and data that was not needed. Then erasing the data that's not logical

and didn't have good responsibility from respondent or, fault in process of the data entry.

5. First step, cutting data for cleaning the data of women in age groups 15 – 25 years.
6. Second step, cutting data for cleaning the data of women in age groups 26 – 54 years.
7. Number of women that had life birth before cleaning data processing = 137.768 women (table 3.1).
8. Number of women that was having life birth after cleaning data processing = 133.840 women (table 3.3).

### 3.3.2 Design of Analysis

The descriptive analysis was run with the objective to get and show the difference of the statistic value, as basic to develop good variable. The descriptive analysis was simple data analysis using cross-tabulation, frequency, and other value of statistics such as mean, median, modus, variance, proportion, average, maximum, and minimum, distribution in percentage or proportion in each variable that was developed in this research. Agung (2009)was proposed point out of from summary descriptive statistics are one of the best supporting data policy analysis, also in summary tables are presenting illustrative example in selecting specific indicators, factors, or variables to shows causal models.

The result of this analysis was good as basic argument that descriptive summaries had absolute validity and consistency, it means accurate, exactly on time, and also easy to be understood and to be received by all peoples that were interested in this research as a report without treating the background differently (Agung, 2001).

The descriptive statistic was run and resulted correlation value that was achieved from processing cross tabulation between dependent and independent variable, or cross tabulation between independent variables. And then the statistics value coefficient of correlation was used to make sure the association of dependent variable and independent variable or between independent variables to

get interaction variable. And based on the cross tabulation result achieved the data that was used on regression logistic binary.

All variables that were used in this research were run in many steps for the descriptive analysis: first step, the data was run to get level of correlation or association for dependent variable by each independent variables that used type ordinal or categorically data, the evaluation level of correlation using coefficient of Gama and adjusted by coefficient of Somers'd, Kendall Tau B, Kendal Tau C, Spearman R and Pearson R. Every cross tabulation result had coefficient value, with the rank between -1 to +1, the sign negative or positive showed trend arrow of correlation. (Sugiyono, 2005). The Gamma and Somers'd value was used in the cross tabulation with size 2 X 2, and then the value coefficient of Kendall's Tau B was used for explaining the association with size of table larger than 2x2.(info@statisticssolutions.com)

Table 3.8

Distribution value for evaluation based on coefficient Gama, Somers'd, Kendall Tau B, Kendal Tau C, Spearman R and Pearson R for cross tabulation Y and X variables or Between X variable base to get interaction variables.

| Value | Evaluation |
|---|---|
| -1.00 | Perfectilly negative |
| -0.70 | Large negative |
| -0.50 | Moderate negative |
| -0.30 | Small negative |
| 0.00 | No Assosiation |
| 0.30 | Small positive |
| 0.50 | Moderate positive |
| 0.70 | Large positive |
| 1.00 | Perfectilly positive |
| 0.00 - 0.20 | Very Weak |
| 0.21 - 0.40 | Weak |
| 0.41 - 0.60 | Moderate |
| 0.61 - 0.80 | Strong |
| 0.81 - 1.00 | Very Strong |

Second step for descriptive analysis, the hypothesis was used as good basic of evaluation to choose which variable that is proper to be continued running on differential analysis. Hypothesis that was developed for cross tabulation:

$H_o$: Have no relationship between row and column.

$H_1$: Have relationship between row and column.

Basic to take decision using comparing value (Gamma, Somers'd Kendall, Spearman, Pearson's R) stat:

- If value of significant (Somers'd, Gamma, Kendall Tau b, Kendall Tau c, and Spearman, Pearson's R) stat = 0, received $H_o$
- If value of significant (Somers'd, Gamma, Kendall Tau b, Kendall Tau c, and Spearman, Pearson's R) stat ≠ 0, rejected $H_o$

The Regression Logistic Binary (RLB) was one of the tools that were used for inferential analysis in this research. Agung (2001) stated this tool was very useful to analyze the data categorical to measure and estimate the effect independent variables towards dependent variable. The excellence of the regression logistic binary as inferential analysis compared to the descriptive analysis was to examine on hypothesis which was associated to the population that was not precisely known by the researcher (Agung 1994).

Logistic regression entered the classification of regression where in term independent variables were used to predict the dependent variable that was dichotomous (binary) variable. When dependent variable was category variable, it was ranked to ordinal logistic regression (OLS). Table 3.7 presented the dichotomous variable that was built for inferential examining in this research. Logistic regression was used to describe data and to explain the relationship between one dependent binary variable and one or more metric or categorical independent variables. Focusing on the logistic regression analysis, it is the task of estimation the log odds of an event info@statisticssolutions.com.

There are five areas of the function tool of logistic regression:

1. The first category was to establish a causal relationship between one or more ordinal independent variables, and one binary dependent variable (fertility of women who had life births less than three children or women who had having life births more than three children). This analysis assumed that demographic socio-economic independent variables have an effect on dependent variable.
2. Secondly, logistic regression can be used to forecast the outcome event; in this research, the subject will be the women that had probability to get life births more than three children. The resulting logistic regression binary equation can

tell, how high the probability of fertility was and which combination between demographic and socio-economic factor in independent variables.

3. Thirdly, the logistic regression was used to predict changes in probabilities. In this research, it was used to get answer from question: how does the probability each demographic socio-economic variables change at dependent variable. In this case, the changes were predicted by using the measurement from value exponential of intercept, value exponential of parameter, and significance of intercept.
4. Assumptions for the usage of the binary logistic regression: (1) does not need linear relationship between independent and dependent variable, (2) independent variable does not need multivariate normal distribution, (3) does not need homoscedasticity, (4) can handle ordinal categories in independent variables, (5) if dependent variable was metric, variable can be reduce into dichotomous level, (6) require quite large sample size, related with G or -2log likelihood test (info@statisticssolutions.com)
5. Agung (2006) proposed, using the model regression logistic binary, with strong and objective reason to estimate the large of Y proportion in their population, with assumption that the relation was still linear, absolutely for two point of observation, that is when X = 1 (success) or X = 0 (failed). Independent variables that were ordinal variable were treated as numeric variable to categorical variable. Other cases this stamen was useful for other variables such as level of education, expenditure, working hours, and for other observation.

According to the variables that were developed for dependent and independent variables in this research, all respondent that passed from cleaning data was run in inferential analysis using tools regression logistic binary, covered 133.840 women 15 – 54 years who had life birth.

In this research, model regression logistic binary was used with independent variable (age variable) as numeric data. Actually the model regression logistic binary that independent variable ordinal treating as numeric variable had objective to get model or pattern relationship that linear or non linear between independent

variable and dependent variable, other as event to measure or to estimate that event based on independent variables itself.

In this research was used significance test (G test) in cut value α 0.05, and Chi-square test from Omnibus test to the evaluation if it fitted on the model regression logistic binary as tools on inferential statistics test. Decision for evaluation probability that true relationship between variable dependent and independent variables were used G or -2log likelihood test, Cox and Snell R square, Nagelkerke R square and Wald-wolfowitz test with level of significance less than 0.05. Based from thus decision, if value of significant was less than 0.05, it rejected the null hypothesis ($H_0$) that means the independent variable had relationship or affected the dependent variable.

To estimate the parameter on regression logistic binary, value of dependent variable that was linear or not linear with parameter β treated with Wald-wolfowitz test and P-value with level of significance less than 0.05 with way:

- First to be given attention on value Wald-wolfowitz and significance level : however $H_0$ to be rejected if P-value < α 0.05 or $H_0$ to be received if P-value > α 0.05
- Second, the decision to be received or rejected the hypothesis use or based formulation :
  - $H_0 = \beta_j = 0 ; j = 1,2,..., k$, that means, didn't have influence from all independent variables to dependent variable.
  - $H_1 = \beta_j \neq 0 ; j = 1,2,..., k$, that means, have influence from ones of independent variables to dependent variable.

If $H_0$ to be received, it means the parameter $\beta_j$ did not enter on the model, otherwise if $H_0$ to be rejected (received $H_1$) it means parameter βj enter on the model

Table 3.9

Tabulation dependent variable (Y) and independent variables with the dummy categorical

| Variable Name | Description | Categorial / Continous | | |
|---|---|---|---|---|
| **Dependent = Y** | | | | |
| Live Birth | Live births >3 | 1 | | |
| | Live births <=3 | 0 | | |
| **Independent = X** | | | | |
| AGA | 15 - 54 years | Continous | | |
| Age Square | 15 - 54 years | Continous | | |
| Age Interaction and Educ 1 | Age and Educ 1 | Continous | | |
| Age Interaction and Educ 2 | Age and Educ 2 | Continous | | |
| Marital Status | Non Marriage | 1 | | |
| | Marriage, widow, divorce, separated | 0 | | |
| Child Death Experience | Child death experience | 1 | | |
| | Non child death experience | 0 | | |
| Still-birth Experience | Still-birth experience | 1 | | |
| | Non Still-birth experience | 0 | | |
| Education Level | Educ 1 = Low | 1 | 0 | |
| | Educ 2 = Middle | 0 | 1 | |
| | Educ 3 = High | 0 | 0 | |
| Employment Status | Un-employment | 1 | | |
| | Employment | 0 | | |
| Type of Housing | Improper | 1 | | |
| | Proper | 0 | | |
| Mother Tongue | MT 1 = Tetum | 1 | 0 | 0 |
| | MT 2 = Mambai, Bunak, Kemak | 0 | 1 | 0 |
| | MT 3 = Makassi, Fatuluku | 0 | 0 | 1 |
| | MT 4 = Other | 0 | 0 | 0 |

The most important to take in consideration in the interpretation that were resulted from descriptive and inferential analysis includes intercept, slope or value of estimated from each parameter based on the theory and frame-work analysis, as discussing for getting evaluation, and summaries of the research. The data processing and analysis was finished, if it resulted some recommendations that defined variables determinant according the model or design that was passed on analysis.

### 3.3.3 Model of the research

Based on the result of the discussing from resulted seminar, had been found the decision for a model that was proper for this research. The model was developed to examine how the effects of independent variables influenced dependent variable (Y) as explained in the following equation model:

Overall equation for binary logistic model based on Nacrowi and Hardius (2005).

**E (Y|X) = (Yi = 0. P(Yi=0 | Xi) + (Yi = 1. P(Yi=1 | Xi)**

**= P (Yi = 1 | Xi) = Pi.....** (Equation 2.1)

**E (Yi | Xi ) = $b_1 + b_2 X_1$ = Pi.....** (Equation 2.2)

The consequences Pi as value of probability, that 0 < = Pi < =1 other than:

**0 <= $b_1 + b_2 X_1$ < = 1 .....** (Equation 2.3)

In this research was developed a fitted model that running in analysis regression logistics binary with interaction between variable of age and education level, and age variable as continuous data that running in square equation.

The equation model for this research:

**logit (p1) = ln ($p_1/1 - p_1$) = $b_{10}$ + $b_{21}$AGA + $b_{22}AGA^2$ + $b_{23}$Age and Educ1 + $b_{23}$Age and Educ2+ $b_{31}$Non-M + $b_{32}$Married + $b_{41}$NonSE + $b_{42}$SE + $b_{51}$Non-CDE + $b_{52}$ CDE + $b_{61}$ Educ1 + $b_{62}$Educ2 + $b_{63}$ED3 + $b_{71}$ UE + $b_{72}$ Em + $b_{81}$ Im-P + $b_{82}$Pr + $b_{91}$Tetum + $b_{92}$MBK + $b_{93}$MF + $b_{94}$Other + €..... (Equation 2.4).**

### 3.3.4 Hypothesis of Research

The hypothesis that was developed was very useful to fix based on the frame work of analysis and the model. This research was treated by examining the hypothesis as influence or effect of independent variables on dependent variable that has been developed for this model. Other function of hypothesis that was built on this research to be used for a variable or some variables, for each parameter of independent variable using value of probability to test with significance 5%, that was basic to reject or agree with the hypothesis for this model.

The hypothesis was developed to answer the problem and focus the set of research. Otherwise hypothesis was developed based on objective of the research to make it easier on decision making to plan or to take some recommendation that was realistic for the implementation on Timor-Leste as locus of the research study of population.

Hypothesis for this model:

$H_0$: $\beta_j = 0$ (Age, marital status, still-birth experience, child death experience, education level, employment status, type of housing, and mother tongue; has no effect on probability of having more than three life births).

$H_1 : \beta_j \neq 0$ (Not $H_0$)

Figure 3.7

A Grandmother gave traditional medicine using candlenut fruits (*Aleurites moluccanna*) for them grandchild (suco Bekari, Viqueque District).

# CHAPTER IV
# PATTERN ON DIFFERENTIALS AND DETERMINANTS OF FERTILITY IN TIMOR-LESTE

## 4.1. Fertility Patterns and Differentials in Timor-Leste

All variable used in this research was run in many steps for the descriptive analysis: first step the data was run to get the level of correlation or association for dependent variable with each independent variable. The evaluation level of correlation or association used coefficient of Gama and was adjusted through coefficient of Somers'd, Kendall Tau B, Kendal Tau C, Spearman R and Pearson R. Every tools of coefficient have value range between -1 to +1, usually the sign negative or positive to show trend tendency of correlation. The summaries of relationship between dependent and independent variables can be read on table below (table 4.1). The interaction of variables was developed based on cross tabulation between independent variables, the evaluation for value of association or correlation was done using the procedure value of Kendall's Tau B, C, Gamma, Somers'd, Spearman and Pearson's R.

Table 4.1

Cross tabulation Y variable by each X variables

| Crosstabs Y by X | N | % | Somers' d | | Kendall's Tau-b | | Kendall's Tau-c | | Spearman | | Gamma | | Pearson's R | | $H_0$ | | Gamma association | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Value | Sign | Value | Sign | value | Sign | Value | Sign | Value | Sign | Value | Sign | Receive | Reject | Rank | Trend + or - |
| AGA * CBA3 | 133,840 | 100 | 0.404 | 0.000 | 0.410 | 0.000 | 0.468 | 0.000 | 0.438 | 0.000 | 0.652 | 0.000 | 0.446 | 0.000 | | Reject | strong | Positive |
| MS * CBA3 | 133,840 | 100 | 0.050 | 0.000 | 0.103 | 0.000 | 0.025 | 0.000 | 0.103 | 0.000 | 0.715 | 0.000 | 0.103 | 0.000 | | Reject | strong | Positive |
| SBEx * CBA3 | 133,840 | 100 | 0.123 | 0.000 | 0.127 | 0.000 | 0.094 | 0.000 | 0.127 | 0.000 | 0.353 | 0.000 | 0.127 | 0.000 | | Reject | weak | Positive |
| CDEx * CBA3 | 133,840 | 100 | 0.436 | 0.000 | 0.437 | 0.000 | 0.425 | 0.000 | 0.437 | 0.000 | 0.768 | 0.000 | 0.437 | 0.000 | | Reject | strong | Positive |
| Emplo * CBA3 | 133,840 | 100 | 0.005 | 0.070 | 0.005 | 0.070 | 0.005 | 0.070 | 0.005 | 0.067 | 0.009 | 0.070 | -0.001 | 0.699 | Receive | | *Tend no association* | Negative |
| EDUC * CBA3 | 133,840 | 100 | -0.177 | 0.000 | -0.195 | 0.000 | -0.120 | 0.000 | -0.195 | 0.000 | -0.555 | 0.000 | -0.196 | 0.000 | | Reject | moderate | Negative |
| ToH * CBA3 | 133,840 | 100 | -0.046 | 0.000 | -0.046 | 0.000 | -0.038 | 0.000 | -0.046 | 0.000 | -0.131 | 0.000 | -0.046 | 0.000 | | Reject | *Tend no association* | Positive |
| M * CBA3 | 133,840 | 100 | 0.047 | 0.000 | 0.048 | 0.000 | 0.057 | 0.000 | 0.053 | 0.000 | 0.081 | 0.000 | 0.045 | 0.000 | | Reject | *Tend no association* | Positive |

Table 4.2

The results cross of tabulation for dependent variable and independent variables.

| Independent Variables | Evaluation base on Gama |
|---|---|
| Age | **strong +** |
| Marital satus | **strong +** |
| Still-birth Experience | **weak +** |
| Child death Experience | **strong +** |
| Employment occupation status | *Tend no association* - |
| Education level | **moderate -** |
| Type of Housing | *Tend no association* + |
| Mother tongue | *Tend no association* + |

Table 4.2 presented the result of evaluation with cross tabulation for dependent variable (Y) and independent variables (X), which showed variable of age, marital status, and child death experience, had positive and strong association with a risk that the women have live birth more than three live birth. Even though the variables employment status, type of housing, and mother tongue evaluation showed an interaction that tend to have no association, these variables were very important to understand and answer the question of how these variables played a role in and affect the Timor-Leste's women fertility.

The statistic description that showed the pattern and differentials on percentage of having live birth more than three children was based on the background of the characteristic of independent variables. The women of Timor-Leste have specific pattern in fertility sorted by age groups, marital status, still-birth experience, children death experience, level of education, employment status, mother tongue, type of housing, and interaction age by education level. The percentage of characteristic of independent variables was shown in table 4.3. Descriptive analysis resulted the percentage of having more than three live birth higher among women who had in reproductive age until 30 – 40 years, married, have still-birth experience, have child death experience, low level of education, employed, living in improper house, and spoken in mother tongue Mambai, Bunak, Kemak.

Table 4.3

Percentages and number of women who had live birth based on the characteristics of dependent and independent variables

| Parameters | | Women Live birth less than or equal 3 | Percentage | Women Live birth more than 3 | Percentage | Total | Mean of Live Births |
|---|---|---|---|---|---|---|---|
| Age Groups | 15 - 19 | 2,724 | 98.41 | 44 | 1.59 | 2,768 | 1.4 |
| | 20 - 24 | 15,579 | 87.85 | 2,154 | 12.15 | 17,733 | 2.1 |
| | 25 - 29 | 12,525 | 58.77 | 8,788 | 41.23 | 21,313 | 3.3 |
| | 30 - 34 | 8,448 | 34.60 | 15,970 | 65.40 | 24,418 | 4.4 |
| | 35 - 39 | 4,444 | 22.48 | 15,326 | 77.52 | 19,770 | 5.3 |
| | 40 - 44 | 3,740 | 18.93 | 16,018 | 81.07 | 19,758 | 5.9 |
| | 45 - 49 | 2,972 | 20.30 | 11,671 | 79.70 | 14,643 | 6.1 |
| | 50 - 54 | 3,136 | 23.34 | 10,301 | 76.66 | 13,437 | 6.0 |
| Marital Status | Non Married | 1,709 | 79.64 | 437 | 20.36 | 2,146 | 2.3 |
| | Married | 51,859 | 39.38 | 79,835 | 60.62 | 131,694 | 4.6 |
| Still-birth Experience | Non Still Birth Experience | 47,468 | 42.87 | 63,265 | 57.13 | 110,733 | 4.4 |
| | Still Birth Experience | 6,100 | 26.40 | 17,007 | 73.60 | 23,107 | 5.3 |
| Child Death Experience | Non Child Death Experience | 44,190 | 58.99 | 30,715 | 41.01 | 74,905 | 3.4 |
| | Child Death Experience | 9,378 | 15.91 | 49,557 | 84.09 | 58,935 | 6.1 |
| Education Level | Low | 43,594 | 36.65 | 75,344 | 63.35 | 118,938 | 4.8 |
| | Middle | 9,192 | 65.79 | 4,779 | 34.21 | 13,971 | 3.1 |
| | High | 782 | 84.00 | 149 | 16.00 | 931 | 2.3 |
| Employment Status | Unemployed | 20,821 | 41.77 | 29,021 | 58.23 | 49,842 | 4.5 |
| | Employed | 32,747 | 38.99 | 51,251 | 61.01 | 83,998 | 4.6 |
| Type of Housing | Non Proper | 40,105 | 38.80 | 63,268 | 61.20 | 103,373 | 4.6 |
| | Proper | 13,463 | 44.19 | 17,004 | 55.81 | 30,467 | 4.3 |
| Mother Tongue | Tetum | 17,524 | 47.75 | 19,178 | 52.25 | 36,702 | 4.1 |
| | Mambai, Bunak , Kemak | 15,087 | 34.63 | 28,483 | 65.37 | 43,570 | 4.9 |
| | Makasai.Fatuluku | 8,232 | 37.64 | 13,639 | 62.36 | 21,871 | 4.7 |
| | Other | 12,725 | 40.15 | 18,972 | 59.85 | 31,697 | 4.5 |

### 4.1.1 Age of Mother Interaction with Level of Education

The percentage of women who had live birth more than three was more than 41% starting in age groups 25 – 29 years and growing up until at women in 40 - 44 years old. Table 5.10 showed that in Timor-Leste it is unique that the women with age near the end of reproductive age still had more number of children. Table 4.4 and figure 4.1 showed that Timor-Leste women tend to have live birth more than three children, starting from age 25 years old, and reach the top point of high fertility in age 35-39 years old and 40-44 years old. But the top point for women that have less than or equal three live birth at age 20–24 years old is dropping down as an impact of increasing age of women.

The figure 4.1 showed the critical point of women in age group 20–24 years old of making decision whether they would have more children or stay with the number of children that their family already had. The government has an opportunity to advocate the women to reduce number of child for every couple. This advocating in order to reduce the number of children or the family size could be effective and efficient if the women's or the wife's at the age group younger than 20–24 years old used the formal and non formal education both for women and men, for young couples, and all society. When the women and girls were delaying the time period of childbearing, they were contributing in reducing years of childbearing period and automatically reduce the number of children that they have.

Table 4.4

Distribution women in low level of education by live birth, age groups and mean of live birth.

| Age Groups | Women Live birth less than or equal 3 | | Women Live birth more than 3 | | Total | Mean of Live Births |
|---|---|---|---|---|---|---|
| | Number | Percentage | Number | Percentage | | |
| 15 - 19 | 2,562 | 98.35 | 43 | 1.65 | 2,605 | 1.4 |
| 20 - 24 | 12,825 | 86.48 | 2,005 | 13.52 | 14,830 | 2.1 |
| 25 - 29 | 8,976 | 52.95 | 7,977 | **47.05** | 16,953 | 3.3 |
| 30 - 34 | 6,139 | 30.03 | 14,306 | **69.97** | 20,445 | 4.4 |
| 35 - 39 | 3,629 | 20.42 | 14,139 | **79.58** | 17,768 | 5.3 |
| 40 - 44 | 3,521 | 18.59 | 15,423 | **81.41** | 18,944 | 5.9 |
| 45 - 49 | 2,862 | 20.16 | 11,337 | **79.84** | 14,199 | 6.1 |
| 50 -54 | 3,080 | 23.34 | 10,114 | **76.66** | 13,194 | 6.0 |

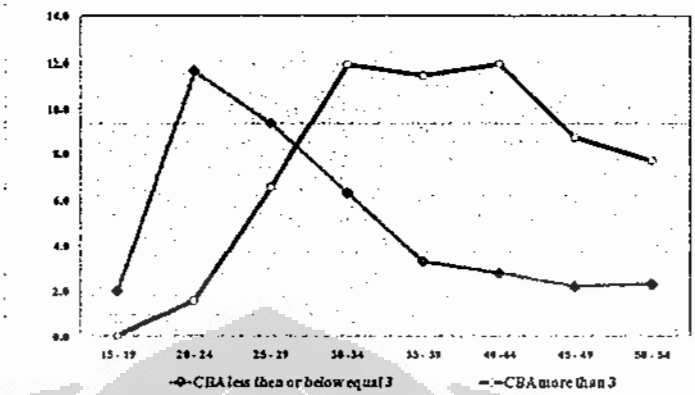


Figure 4.1

Pattern of live birth categorized by age group of women

The figure 4.1 was also adjusted with the theory explained by Henri in Caselli (2006), that women's age as women's biological factor has effects on the reproduction of human, the reproductive age from women started from puberty period and ended at menopause time. The women's age was also used as intermediate variable to explain the analysis of human fertility.

The BKKBN Indonesia (2007) published the high risk of pregnancy in women there is "4T" is: first too young, age < 20 years, second too old > age 35 years, third too close of pregnancy distance (the distance between the pregnancy, 2 years), fourth too much labour (number of children> 3 children), including all the effects of risk that's going to happen if a woman cannot prevent high-risk pregnancies.

Figure 4.2

A younger woman 15 years with her first son in old 1 year and 8 months old

### 4.1.2 Marital Status and Women in Live birth

The table 4.5 showed the percentage of women who had more than three live births among married women was higher than non-married women. The percentage of non-married women who had more than three live births is 20.36 %. This table presents 20.36% Timor-Leste women who had more than three live births assorts themselves as "living together" (cohabitation). This situation was unsafe for the women and the child, because they have difficulty to register their child in church or and in legal system of the country and to get law protection.

Table 4.5

Distribution and percentage of women in live birth by marital status

| Parameters of Marital Status | Women Live birth less than or equal 3 | Percentage | Women Live birth more than 3 | Percentage | Total | Mean of Live Birth |
|---|---|---|---|---|---|---|
| Non Married | 1,709 | 79.64 | 437 | 20.36 | 2,146 | 2.3 |
| Married | 51,859 | 39.38 | 79,835 | 60.62 | 131,694 | 4.6 |

The descriptive analysis showed result the women who had married, 60.62% of them had live birth more than three children. According to table 4.5, the marital status variable had an effect to women that had live birth less than or equal three children and more than three live births. The couples that weren't legally married at church, traditional, or civil registration, usually lived in an unsteady economic situation, thus they were more careful to get children more than three. This condition fitted the theory explained by Hinde (2005), which is about the effect of marriage in fertility: "In almost all population, the fertility of married women is higher (usually much higher) than fertility of single, widowed or divorced women. Because the majority of children are born to married women in most populations, much analysis of fertility only considers fertility within marriage, or *marital fertility*." Hinde also said that women with single-widowed or divorced marital status spend parts of their childbearing period during this status, which also reduce the chance of having sexual intercourse, but the impact of divorce and widowhood in fertility is not as great as the never married one. Abanihe (1994) explained that marital pattern had effect on fertility because of the level of sexual activity within the marriage.

### 4.1.3 Still birth Experience and Women in Live birth

Still-birth means that the women lost their children before birth, and child death means that the women lost the child after the birth. The Millennium Development Goals (MDGs) launched by UN had two statements: MDGs 5 about Improve Maternal Death, which had strong relationship with the women that have still-birth experience. Based on DHS report conducted in 2003 Timor-Leste had experience maternal mortality ratio were 800 -660 per 100.000 births, and on the National Development Goals Timor-Leste that was adopted from MDGs can improve of maternal health in 2015 reaching to maternal mortality ratio reduce should be less than 30% or around 420 deaths per 100.000 births, with the proportion of births attended by skilled health personal should be increasing from 19% to 60%.

From table 4.6 the descriptive analysis was found the percentage of women who had still-birth experience and had more than three live births was higher compared to women who had non-stillbirth experience.

Table 4.6

Distribution and percentage of women in live birth with still-birth experience

| Parameter of Stillbirths Experience | Women Live birth less than or equal 3 | Percentage | Women Live birth more than 3 | Percentage | Total | Mean of Live Birth |
|---|---|---|---|---|---|---|
| Non Stillbirth Experience | 47,468 | 42.87 | 63,265 | 57.13 | 110,733 | 4.4 |
| Stillbirth Experience | 6,100 | 26.40 | 17,007 | 73.60 | 23,107 | 5.3 |

The Timor-Leste women who had live birth more than three children 73.60% was more than women who had live birth less than or equal three children around 26.40 %. It might be because it had relationship with endogenous and exogenous factor from the mother self who had bad health condition, anaemia, lack of nutrition, malaria, frequency visiting to health services (hospital, health post and SISCa), and early or older age of pregnancy. UNFPA publication about 'Beijing at ten' explained why sexual and reproductive health, and reproductive right matter were very important because the reproductive health and right are central the fulfilment of some of the most basic human desire, for rich and poor alike.

Table 4.7

Distribution and percentage of women in still-birth experience by age groups and live birth

| Parameter age and number of live births | | Non Stillbirth Experience | Percentage | Stillbirth Experience | Percentage | Total |
|---|---|---|---|---|---|---|
| Live births less than or equal 3 | 15 - 19 | 2,625 | 96.37 | 99 | 3.63 | 2,724 |
| | 20 - 24 | 14,595 | 93.68 | 984 | 6.32 | 15,579 |
| | 25 - 29 | 11,244 | 89.77 | 1,281 | 10.23 | 12,525 |
| | 30 - 34 | 7,311 | 86.54 | 1,137 | 13.46 | 8,448 |
| | 35 - 39 | 3,752 | 84.43 | 692 | 15.57 | 4,444 |
| | 40 - 44 | 3,029 | 80.99 | 711 | 19.01 | 3,740 |
| | 45 - 49 | 2,388 | 80.35 | 584 | 19.65 | 2,972 |
| | 50 -54 | 2,524 | 80.48 | 612 | 19.52 | 3,136 |
| | Total | 47,468 | 88.61 | 6,100 | 11.39 | 53,568 |
| Live births more than 3 | 15 - 19 | 42 | 95.45 | 2 | 4.55 | 44 |
| | 20 - 24 | 1,910 | 88.67 | 244 | 11.33 | 2,154 |
| | 25 - 29 | 7,522 | 85.59 | 1,266 | 14.41 | 8,788 |
| | 30 - 34 | 13,153 | 82.36 | 2,817 | 17.64 | 15,970 |
| | 35 - 39 | 12,074 | 78.78 | 3,252 | 21.22 | 15,326 |
| | 40 - 44 | 12,088 | 75.47 | 3,930 | 24.53 | 16,018 |
| | 45 - 49 | 8,708 | 74.61 | 2,963 | 25.39 | 11,671 |
| | 50 -54 | 7,768 | 75.41 | 2,533 | 24.59 | 10,301 |
| | Total | 63,265 | 78.81 | 17,007 | 21.19 | 80,272 |

Table 4.7 showed the result from cross tabulation between still-birth experience, age of mother and number of live birth s. It showed the percentage of Timor-Leste women who had number of live birth more than three children and stillbirths experience higher in age groups until 30 – 34 years to 44 – 49 years old, more than 15% was experience on still-births. This number as well condition that reflecting from the high risk of women that pregnancy at older age, short time between pregnancies, more often of deliveries.

### 4.1.4 Child Death Experience and Women in Live birth

Child death experience means that the women lost the child after the live birth. The Millennium Development Goals launched by UN issued two statements: MDGs 4 about 'Reduce Child Mortality', which had strong relationship with the women that child death experience. Based on DHS report conducted in 2003, Timor-Leste had under-five mortality rate was 165 per 1000

live births, and on the National Development Goals Timor-Leste in 2015 targeted to reduce under-five mortality should be less than 56 deaths per 1000 live birth.

Table 4.8

Distribution and percentage of women in live birth by child death experience

| Parameter of Stillbirths Experience | Women Live birth less than or equal 3 | Percentage | Women Live birth more than 3 | Percentage | Total | Mean of Live Birth |
|---|---|---|---|---|---|---|
| Non Child Death Experience | 44,190 | 58.99 | 30,715 | 41.01 | 74,905 | 3.4 |
| Child Death Experience | 9,378 | 15.91 | 49,557 | 84.09 | 58,935 | 6.1 |

The table 4.8 presented the descriptive analysis that showed the percentage of women who had child death experience and had more than three live births was higher compared to women who had non-stillbirth experience. The Timor-Leste women who had have live birth more than three children 84.09% was more than women who had live birth less than or equal three children around 15.91 %. It might be because it had relationship with pattern of child care factor from the mother (parents) self that have bad health condition, anaemia, lack of nutrition, malaria, frequency visiting to health services (hospital, health post and SISCa), for immunization, ante natal and post natal care, birth with low weight (less than 2.500 gram), delivery of birth without help from medical services, not getting exclusive breast feeding, worm infection.

In this case, the research found the result that was matched with Satyajeet (2005) that proposed since human fertility was mediated by lifestyle behaviour; hence in social set up many terms the norm and culture traits had major impact on it. Child loss is a factor that had dual effect on fertility such as replacement as well as insurance effect. Insurant effect is that, when there is a higher prevalence of child loss in a family, more children has to be given birth to meet the desired family size. Other researcher Babodilla (1990), based on an analysis DHS of Mexico, child mortality rate had correlation with age of the mother at birth, birth order, reproductive pace, inter birth-interval with previous sibling, and inverse relationship between socioeconomic were confirmed, on other word defining the family formation patterns with child mortality was highlighted.

Figure 4.3

A child appears malnutrition and worm infection with his mother

### 4.1.5 Level of Education and Women in Live birth

Table 5.4 showed the result from cross tabulation between level of education and number of live birth s. It showed the percentage of Timor-Leste women who had number of live birth s more than three children and low education as higher around 63.35%. Those conditions was inversely with women who had high education 84 % have live birth s less than or equal three children and 16 % have live birth s more than three children.

Table 4.9

Distribution and percentage of women in live birth by level of education

| Parameter Level of Education | Live birthless than or equal 3 | Percentage | Live birth more than 3 | Percentage | Total | Mean of Live Birth |
|---|---|---|---|---|---|---|
| Low | 43,594 | 36.65 | 75,344 | 63.35 | 118,938 | 4.8 |
| Middle | 9,192 | 65.79 | 4,779 | 34.21 | 13,971 | 3.1 |
| High | 782 | 84.00 | 149 | 16.00 | 931 | 2.3 |

Table 4.9 present the Timor-Leste women who had number of live birth more than three children with low education around 63.35% with 118.938 respondents. And Table 4.4 shows for 65.40% women in age groups 30 -34 years to 81.07% women in old 40-44 years the number of women who had low education and had

live birth more than three is higher compared than the woman who had education on basic level and had live birth s less than three.

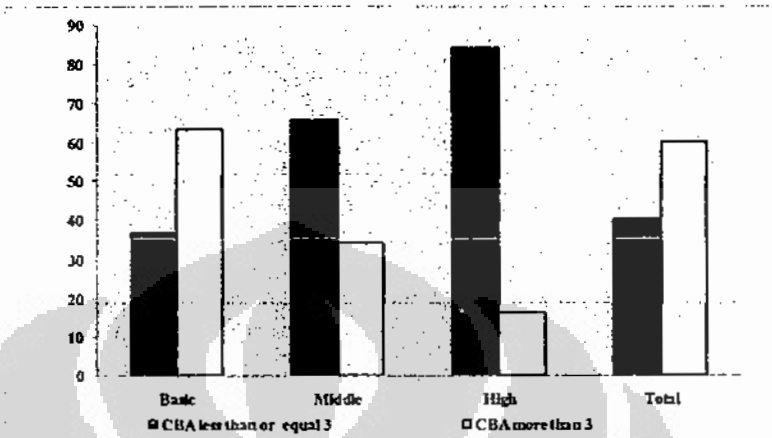


Figure 4.4

Distribution of live birth in women based on level of education

On social economic development, mother education or women education is one of most important factors with the objective to improve quality of society life, change behaviour, increasing of knowledge and skill. Figure 4.4 and 4.5, obtained from 2004 Census Timor-Leste, presented the combination of education low level and age of mother, showed the percentage of the Timor-Leste women who had live birth less than or equal three is only 39% and women who had live birth more than three children is 61%. In other word, the women with low education level tend to have live birth more three children and the ones with high level of education tend to have live birth less than or equal three children. It meant education was major engine for reducing number of children in family formation, and education for women is an instrument to accelerate social economic and society changes. Around 84% of women who had high level of education have live birth less than or equal three children, and 16% having live birth more than three live birth. Based on the descriptive analysis figure 4.4 and table 4.9 was found that the women with high level of education tend to have low fertility rate.

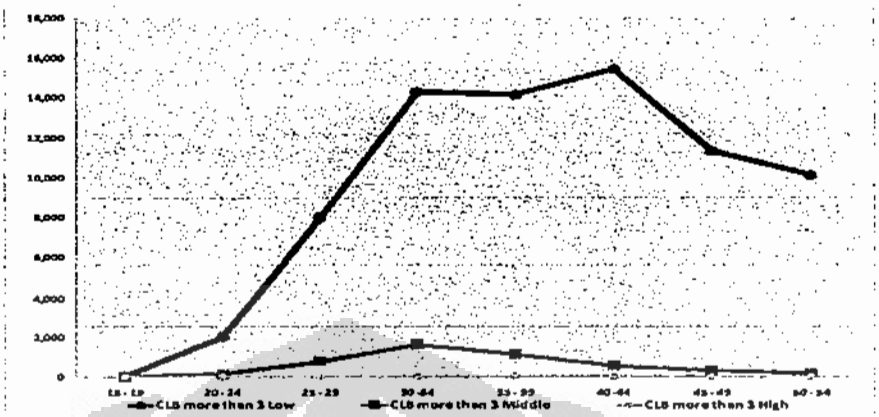


Figure 4.5

Distribution of women in age groups and level of education

### 4.1.6 Employment Status and Women in Live birth

In almost every country, women who work for cash on non-family enterprise had lower fertility than women that were unemployed. In Timor-Leste the percentage of women who were unemployed is 61.01%, having live birth more than three children, and only 38.99 % have live birth less than or equal three children. In other side, among women that were employed, 58.23% had live birth more than three children and 41.77% had live birth less than or equal three children.

In this research, the differences of the percentage in term level of reproductive based on status of employment for women tended to be the same, with difference only 3%. It may be because of the type of job, such as farmer that the mothers bring their child to farm area. Furthermore the consequences when the parents brought their children to the farm, is that the number of children being participants at basic education become low and it is also because the distance from farm to access school is very long. Majority of the children had no entrée to school or drop out from the school. Other pattern in taking care of children is that, as also known as tradition in Timor-Leste family, in many cases, the grand children were taken care by grandmother or grandfather.

Table 4.10

Distribution and percentage of women in live birth and employment status

| Parameter of Employment Status | Women Live birth less than or equal 3 | Percentage | Woemn Live birth more than 3 | Percentage | Total | Mean of Live Birth |
|---|---|---|---|---|---|---|
| Unemployed | 20,821 | 41.77 | 29,021 | 58.23 | 49,842 | 4.5 |
| Employed | 32,747 | 38.99 | 51,251 | 61.01 | 83,998 | 4.6 |

Participation of women in labour market in Timor-Leste had relationship with the quality of education of women, usually women without education or basic education tended be working in subsistent agriculture, home maker (or house wife), and housekeeper with no paid, no salary, and tended to have high fertility. Table 4.11 showed among women who had live birth less than three children and unemployed 82.46% with low education, 16.03 % with middle education, and only 1.51% with high education. More sadly, on this situation that among women who had live birth more than three children and unemployed 93.90% with low education, 5.90% with middle education, and only 0,20% with high education. Other researcher Bratati (2004) with title "differentials fertility and women's employment" found that women who were employed tend to have low fertility and the women that were unemployed who tend to have high fertility, the declining of fertility pushed the increase of income per capita and influence the family expenditure.

Table 4.11

Distribution and percentage of women in live birth, employment status and level of education

| Live births less than or equal 3 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Employment Status | Low | | Middle | | High | | Total |
| Un-Employed | 27,002 | 82.46 | 5,250 | 16.03 | 495 | 1.51 | 32,747 |
| Employed | 16,592 | 79.69 | 3,942 | 18.93 | 287 | 1.38 | 20,821 |
| Live births more than 3 | | | | | | | |
| Employment Status | Low | | Middle | | High | | Total |
| Un-Employed | 48,126 | 93.90 | 3,023 | 5.90 | 102 | 0.20 | 51,251 |
| Employed | 27,218 | 93.79 | 1,756 | 6.05 | 47 | 0.16 | 29,021 |

### 4.1.7 Type of Housing and Women in Live birth

The reason of choosing type of housing was that function of housing was important for type of family, parents and their children. Table 4.12 showed the Timor-Leste women who lived in type of housing that improper that have live birth less than or equal three children 38.80% and that had live birth more than three children 61.20%. Total the Timor-Leste women that were captured in this research 77.24% was living in type of housing that not proper and living with their children and their family.

Table 4.12

Distribution and percentage of women in live birth by type of housing

| Parameter Type of Housing | Women Live birth less than or equal 3 | Percentage | Women Live birth more than 3 | Percentage | Total | Mean of Live Birth |
|---|---|---|---|---|---|---|
| Non Proper | 40,105 | 38.80 | 63,268 | 61.20 | 103,373 | 4.6 |
| Proper | 13,463 | 44.19 | 17,004 | 55.81 | 30,467 | 4.3 |

Furthermore table 4.13 presented the women who had live birth more than three children and had child death experience was living in improper housing. And women who had live birth less than or equal three children that lived in improper type of housing was 83.67%. The environment of living is very important on quality life of family. This table indicated that women who lived in bad environment of living tended to have high in children death experience.

Table 4.13

Cross tabulation type of housing by child death experience and number of live birth

| Live births less than or equal 3 | | | | | |
|---|---|---|---|---|---|
| Type of Housing | Improper | | Proper | | Total |
| Non CDE | 32,258 | 73.00 | 11,932 | 27.00 | 44,190 |
| CDE | 7,847 | 83.67 | 1,531 | 16.33 | 9,378 |
| Average | 40,105 | 74.87 | 13,463 | 25.13 | 53,568 |
| Live births more than 3 | | | | | |
| Non CDE | 22,467 | 73.15 | 8,248 | 26.85 | 30,715 |
| CDE | 40,801 | 82.33 | 8,756 | 17.67 | 49,557 |
| Average | 63,268 | 78.82 | 17,004 | 21.18 | 80,272 |

For the Timor-Leste women who lived in proper type of housing and had live birth less than or equal three children 16.33% and women that had live birth than three children 17.67% were having in child death experience. This table was

found and shown the linked fertility, child death experience, and condition of housing that family use for living. In 2002 the Minister of Health and WHO was conducted *Lympatic Filariasis* (FL) and Intestinal Parasitic Infection (IPI) Survey and the survey result prevalent all territories was estimated 8 – 10 % general population, and then 80 – 90% of children have. Other reason type of housing that family using for life, such as reflect for the social-economic condition that have relationship with health of family, low fertility and living in housing that proper had low number in child death experience.

Figure 4.6

A children and the living behaviour that's not healthy.

### 4.1.8 Mother Tongue and Women in Live birth

Almost all marital behaviour in Timor-Leste country and every model of marital (***hafoli*** or ***habani***) had goals or destination to continue the generation with bigger in hope to get some children. Usually every ethnic group had role in marital system, value for children, and value of family size. In this research were used variable mother tongue as good approach and evaluation for ethnic group behaviour related with fertility issue.

The research found, that women who had mother tongue Tetum who had live birth less than three or equal three children 45.75% and 52.25% had live birth

more than three children. Total 36.702 respondents the women that using Tetum language that was living with their children and family in Timor-Leste catch in this research.

Table 4.14

Distribution and percentage of women in live birth level base on mother tongue.

| Parameter of Mother Tongue | Women Live birth less than or equal 3 | Percentage | Women Live birth more than 3 | Percentage | Total | Mean of Live Birth |
|---|---|---|---|---|---|---|
| Tetum | 17,524 | 47.75 | 19,178 | 52.25 | 36,702 | 4.1 |
| Mambai, Bunak, Kemak | 15,087 | 34.63 | 28,483 | 65.37 | 43,570 | 4.9 |
| Makasai. Fatuluku | 8,232 | 37.64 | 13,639 | 62.36 | 21,871 | 4.7 |
| Other | 12,725 | 40.15 | 18,972 | 59.85 | 31,697 | 4.5 |

The Timor-Leste women that was using Mambai, Bunak and Kemak language as well their mother tongue who have had live birth less than three children 34.63 % and they have had live birth more than three children 65.37%. Total the women who have using Mambai, Bunak and Kemak language 43.570 respondents was chat in this research.

For women who have speaking in Makasai and Fatuluku as well their mother tongue that had live birth less than three children 37.64% and 62.36% had live birth more than three children. The 21.871 respondents in this research were women who used mother tongue Makasai and Fatuluku. The averages more than 50% for all languages groups tend to get live birth more than three children.

Table 4.15

Cross tabulation live birth level, with mother tongue and marital status.

| Life Births | Marital Status | Mother tongue | | | | |
|---|---|---|---|---|---|---|
| | | Tetum | Mambai, Bunak, Kemak | Makasai. Fatuluku | Other | Total |
| Life births less than or equal 3 | Non Married | 502 | 420 | 351 | 436 | 1,709 |
| | Married | 17,022 | 14,667 | 7,881 | 12,289 | 51,859 |
| | Total | 17,524 | 15,087 | 8,232 | 12,725 | 53,568 |
| Life births more than 3 | Non Married | 114 | 146 | 79 | 98 | 437 |
| | Married | 19,064 | 28,337 | 13,560 | 18,874 | 79,835 |
| | Total | 19,178 | 28,483 | 13,639 | 18,972 | 80,272 |

Table 4.15 presented cross tabulation level of live birth s marital status and mother tongue groups. The number of respondent that have live birth s more than three children and was married become from the women that speaking in mother tongue Mambai, Kemak, and Bunak 28.337 respondents, following married women with speaking Tetum 19.064, and women married with other spoke.

Figure 4.7

A family with their grandmother, mother and children that using Tetum language

## 4.2 The Inferential Analysis

The inferential analysis in this research used tool binary logistic binary to measure the effect of number of live birth s in dependent variable as well categorically variables. The dependent variables was established as dummy variable as present in table 4.16 and encoding for independent variables was present in table 4.17.

Table 4.16

Encoding Dependent Variable

| Dependent Variable Encoding | |
|---|---|
| Original Value | Internal Value |
| Live births less than or equal 3 | 0 (failed) |
| Live births more than 3 | 1 (sucsses) |

Table 4.17

The coding of parameters (independent variables)

| Parameters | | Frequency | Parameter coding | | |
|---|---|---|---|---|---|
| | | | (1) | (2) | (3) |
| Mother Tongue | Tetum | 36,702 | 1 | 0 | 0 |
| | Mambai, Bunak, Kemak | 43,570 | 0 | 1 | 0 |
| | Makasai. Fatuluku | 21,871 | 0 | 0 | 1 |
| | Other | 31,697 | 0 | 0 | 0 |
| Education level | Low | 118,938 | 1 | 0 | |
| | Middle | 13,971 | 0 | 1 | |
| | High | 931 | 0 | 0 | |
| Employement Status | Unemployed | 49,842 | 1 | | |
| | Employed | 83,998 | 0 | | |
| Still Birth Experience | Non Still-birth | 110,733 | 0 | | |
| | Still-birth | 23,107 | 1 | | |
| Child Death Experience | Non Child Death | 74,905 | 0 | | |
| | Child Death | 58,935 | 1 | | |
| Type of Housing | Improper | 103,373 | 1 | | |
| | Proper | 30,467 | 0 | | |
| Marital Status | Non Married | 2,146 | 1 | | |
| | Married | 131,694 | 0 | | |

The table 4.18 presented the classification model (ab) shown in this research the data run in inferential statistic with predicted live birth s less than or equal three children and live birth s more than three children does not have missing data. Its sign this predicted proper such as a model that using in inferential analysis. When the result of step 0 for classification for full model without interaction model was showed that value portion classifies 59.98% is corrected, it means the model which may seem moderately good.

Table 4.18

Result the classification model (a,b) for model on this research.

| Classification Table(a,b) | | | | |
|---|---|---|---|---|
| Step 0 | | Predicted | | |
| | | Live Birth | | |
| Observed | | Live births less than or equal 3 | Live births more than 3 | Percentage Correct |
| Live Birth | Live births less than or equal 3 | 0 | 53,568 | 0 |
| | Live births more than 3 | 0 | 80,272 | 100 |
| Overall Percentage | | | | 59.98 |
| a. Constant is included in the model. | | | | |
| b. The cut value is .500 | | | | |

Table 4.19 presented Omnibus test that showed Chi-square goodness of fit test with value 54,384.38, degree of freedom 14, and P-value 0.0000 less than $\alpha$ = 0.05, that showed the test product was very significant, or the model still highly significant, and showing that independent variables predict the dependent variable well done. In other word this model were proper to take an analysis of fertility, this showed the all independent variables have significant association with dependent variable that was built in this research.

Table 4.19

The Omnibus test result for model with interaction between age and level of education variables.

| Omnibus Tests of Model Coefficients | | | |
|---|---|---|---|
| Step 1 | Chi-square | df | Sig. |
| Step | 54,384.38 | 14 | 0.0000 |
| Block | 54,384.38 | 14 | 0.0000 |
| Model | 54,384.38 | 14 | 0.0000 |

The inferential analysis was obtained in the first step that was presented in table 4.20, when degree of freedom 14 were entered into the equation, based on model summary that G test or value of -2 Log likelihood 125,179.30 was significant with value of Chi-square ($\chi^2$) = 0.0000 . With value coefficient of Cox & Snell R square = 0.3339 that means the fit of the model improved in 33.39%. Value of coefficient Nagelkerke R square = 0.4514 that means the fit of the model improved correlation in 45.14%.

Table 4.20

Result evaluation of model summary for this research

| Model Summary | | |
|---|---|---|
| Step 1 | | |
| -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
| 125,793.30 | 0.3339 | 0.4514 |
| a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001. | | |

All value that was present in summary model means the factors still highly significant, and showed that independent variables predict the dependent variable well done. In other word this model was proper to be takenan analysis of fertility using the variables that was built in this research.

Table 4.21

Classifications table (a) model with interaction variable.

| Classification Table(a) | | | | |
|---|---|---|---|---|
| Step 1 | | Predicted | | |
| | | Life Birts 3 | | |
| Observed | | Life births less than or equal 3 | Life births more than 3 | Percentage Correct |
| Life Births 3 | Life births less than or equal 3 | 34,222 | 19,346 | 63.89 |
| | Life births more than 3 | 10,686 | 69,586 | 86.69 |
| Overall Percentage | | | | 77.56 |
| a The cut value is .500 | | | | |

The analysis that was resulted from stepwise 1 that present in table 4.21 for classification for full model with interaction model that value portion classifies involve in this model 77.56 % is corrected, it means with the value cut is 0.5 the model which may seem 77.56 % correct could related to sensitivity and specificity in terms fertility that measure with live birth is good.

Table 4.22 was found, in the variable in the equation table for step 1, the parameter estimate column represents the estimate log odds ratio. Based on inferential analysis in output Wald test was showed: the factors that statistically had significant effect on probability to have live birth more than three children are following: (1) Child death experience = 11,415.77, (2) Education level = 764.10, (3) Marital status = 552.88, (4) Still-birth experience = 167.26, (5) Mother tongue = 147.02, (6) Employment status = 141.00, (7) type of housing = 41.47.

From this result was found the dominant factors that had significant effect on probability to have live birth more than three are biological and socio-economic variables. The biological factor as direct effect showed still birth experience. And the socio-economic factor as indirect effect was found includes child death experience, level of education, marital status, and employment status. In general, this research found that the role of education and child death

experience were still significant for Timor-Leste women to have live birth more than three children. This result was confirmed by fertility theory that was proposed by Henri in Caselli (2006), the biological factor and socio-economic effect on fertility behaviour.

Based on the inferential result that was shown in table 4.22, the equation for model with interaction between age and education variables:

logit (p1) = $\ln (p_1/1 - p_1) = b_{10} + b_{21}AGA + b_{22}AGA^2 + b_{23}$Age and Educ1 + $b_{24}$Age and Educ2+ $b_{31}$Non-M + $b_{32}$Married + $b_{41}$NonSE + $b_{42}$SE + $b_{51}$Non-CDE + $b_{52}$ CDE + $b_{61}$ Educ1 + $b_{62}$Educ2 + $b_{63}$ED3 + $b_{71}$ UE + $b_{72}$ Em + $b_{81}$ Im-P + $b_{82}$Pr + $b_{91}$Tetum + $b_{92}$MBK + $b_{93}$MF + $b_{94}$Other + Є..... (Equation 4.1).

logit (p1) = $\ln (p_1/1 - p_1)$ = -16.4731 + 0.6725AGA – 0.0069$AGA^2$ – 0.0013 Age and Educ1 – 0.0005 Age and Educ2 – 1.5301 Non-M + 0 Married + 0 Non-SE + 0.2475 SE + 0 Non-CDE + 1.6623 CDE + 3.3904 Educ1 + 1.8183 Educ2 + 0 Educ3 + 0.1740 UE + 0 Em – 0.11590 Im-P + 0 Pr + 0.1280 Tetum + 0.2110 MBK + 0.0280 MF + 0 Other + Є ..... (equation 4.2).

logit (p1) = $\ln (p_1/1 - p_1)$ = -16.4731 + 0.6725AGA – 0.0069$AGA^2$ – 0.0013 Age and Educ1– 0.0005 Age and Educ2 – 1.5301 Non-M + 0.2475 SE + 1.6623 CDE + 3.3904 Educ1 + 1.8183 Educ2 + 0.1740 UE – 0.11590 Im-P + 0.1280 Tetum + 0.2110 MBK + 0.0280 MF + Є ..... (equation 4.3).

Table 4.22

Parameter estimate, Wald stat, P-value, and odds ratio for binary logistic regression model of factors affecting for the probability of live birth s more than three Timor-Leste Population and Housing Census 2004

| Covariat | Parameter estimate | Wald stat | P-value | Odds Ratio |
|---|---|---|---|---|
| Overall | -16.4731 | 2,420.83 | 0.00 | 0.00 |
| AGE (AGA) | 0.6725 | 10,789.00 | 0.00 | 1.96 |
| AgeSquare ($AGA^2$) | -0.0069 | 746.01 | 0.00 | 0.99 |
| Age and Educ1 | -0.0013 | 28.09 | 0.00 | 1.00 |
| Age and Educ2 | -0.0005 | 3.63 | 0.06 | 1.00 |
| Marital Status | | | | |
| MaritalStatus (1) = Non married | -1.5301 | 552.88 | 0.00 | 0.22 |
| MaritalStatus (0) = Married | | | | |
| Still-birth Experience | | | | |
| SBE(1) = Still-birth Experience | 0.2475 | 167.26 | 0.00 | 1.28 |
| SBE(0) = Non Still-birth Experience | | | | |
| Child Death Experience | | | | |
| CDE (1) = Child Death Experienc | 1.6623 | 11,415.77 | 0.00 | 5.27 |
| CDE (0) = Non Child Death Experience | | | | |
| Education Level | | 764.10 | 0.00 | |
| Educ (1) = Low | 3.3904 | 117.48 | 0.00 | 29.68 |
| Educ (2) = Middle | 1.8183 | 32.75 | 0.00 | 6.16 |
| Educ (0) = High | | | | |
| Employement Status | | | | |
| Estat (1) = Unemployed | 0.1740 | 141.00 | 0.00 | 1.19 |
| Estat (0) = Employed | | | | |
| Type of housing | | | | |
| ToH (1) = Improper | -0.1159 | 41.47 | 0.00 | 0.89 |
| ToH (0) = Proper | | | | |
| Mother Tongue | | 147.02 | 0.00 | |
| MT(1) = Tetum | 0.1280 | 39.19 | 0.00 | 1.14 |
| MT(2) = Mambai, Bunak, Kemak | 0.2110 | 123.59 | 0.00 | 1.23 |
| MT(3) = Makasai, Fatuluku | 0.0280 | 1.58 | 0.21 | 1.03 |
| MT (0) = Other | | | | |

a Variable(s) entered on step 1: AGE, Age Square, Age and Educ1, Age and Educ2, Marital Status, Stillbirth Experience , Child Death Experience, Education Level, Employment Status, Type of Housing, Mother Tongue.

The Constanta in this equation -16.4731, if on equation model all variable enter with code 0, which mean in the women had been married, non-still-birth experience, non-child death experience, high of education, employed, living in proper house, and speaking with other languages, the probability to have live birth more than three children :

$$\text{Ln}(p1 / 1 - p1) = -16.4731$$

$$(p1 / 1 - p1) = e^{-16.4731}$$

$$P = e^{-16.4731} / (1 + e^{-16.4731})$$

$$P = 0.00000007 \quad \text{..... (equation 4.4)}$$

In other words probability of women with characteristics married, had non-still-birth experience, had non-child death experience, had high of education, were employed, living in proper house, and speaking with other languages, to have live birth more than three children is 0.00000007. It is lower compared to other characteristic. The Constanta showed value of Wald test 2,420.83, and value of significance 0,000 less than 0.05 that means, this regression logistic model was significant.

### 4.2.1 Age of Mother Interaction with Level of Education.

Table 4.23 showed that the women who had low education level until the 25 year old tended to get live birth more than three, top point in old 40 – 44 years old. In these cases were shown women who had low education level tended to have increasing number live birth more than three in the increasing of their age.

Table 4.23

Number of live birth based on age groups of mother and low education

| Age Groups | Live births less than or equal 3 | | Live births more than 3 | | Total |
|---|---|---|---|---|---|
| | Number | Percentage | Number | Percentage | |
| 15 - 19 | 2,562 | 98.35 | 43 | 1.65 | 2,605 |
| 20 - 24 | 12,825 | 86.48 | 2,005 | 13.52 | 14,830 |
| 25 - 29 | 8,976 | 52.95 | 7,977 | **47.05** | 16,953 |
| 30 - 34 | 6,139 | 30.03 | 14,306 | **69.97** | 20,445 |
| 35 - 39 | 3,629 | 20.42 | 14,139 | **79.58** | 17,768 |
| 40 - 44 | 3,521 | 18.59 | 15,423 | **81.41** | 18,944 |
| 45 - 49 | 2,862 | 20.16 | 11,337 | **79.84** | 14,199 |
| 50 -54 | 3,080 | 23.34 | 10,114 | **76.66** | 13,194 |

Table 4.22 presented the value of parameter estimate for age 0.6725 with odds ratio 1.96. It means variable age had positively affected live birth more than three (fertility). Increasing age of women gave positive effect on probability to get live birth more than three, with the increasing 1.96 times or two times compared to the women who had live birth less than or equal three children.

The result from this model as presented in table 4.22 and in variable equation (equation 4.3) indicated that age variable were significant predictive power for variable with value of probability (= 0.000). The age variable as the continuous variable was statistically significant, it means the age variable gave effect in fertility (or number live birth more than three children).

Table 4.22 presented the value of parameter estimate for age interaction with low education level -0.0013 with odds ratio 1.00. It means variables age that interacted with low education had negative effect on live birth more than three (fertility). Increasing age of women that had low education level gave effect on probability to get live birth more than three increasing 1.00 times less than the women to have live birth less than or equal three children.

The result from this model as presented in table 4.22 and in variable equation (equation 4.3) was indicates p-value that age of women that interaction with low education variable are significant predictive power for variable with value of probability (= 0.000). The age variable as the continuous variable have been high significance in statistically, it means the age variable give effect in fertility (or number live birth more than three children).

Table 4.22 presented the value of parameter estimate for age interaction with middle education -0.0005 with odds ratio 1.00. It means variables age that made interaction with middle education had negative effect on live birth more than three (fertility). Increasing age of women who had middle education level gave effect on probability to get live birth more than three increasing 1.00 times less than the women to have live birth less than or equal three children.

The result from this model, as presented in table 4.22 and in equation of variable (equation 4.3) indicate in p-value that age of women that interacted with middle education variable were not significant predictive power for variable with value of probability (= 0.06). The age variable as the continuous variable was not statistically significant, it means the age variable didn't have different effect towards fertility (or number live birth more than three children). This result showed that low education level as good indicator to understand the fertility behaviour of Timor-Leste women, because the middle and high education level didn't have significant difference.

The education of women played a significant role in the issue of fertility and population growth. In this study was found a significant correlation between education and fertility; such as if the level of education improves, the fertility rates tended to decrease. Other attribute of economic development that influenced

the decreasing of fertility rate such as, the easiness for the women to access decent jobs, good health care, and family planning resources.

With P-value for age, age square, and age interaction with low education variables that less than $\alpha = 0.05$ it means that the variables age, age square, and age that interaction with low education in this model were high, signified it had affected number of live birth more than three children. Base on P-value the result of analysis in this model rejected the null hypothesis ($H_0$) testing with conclusion the women on age groups 15 – 59 years had relationship with probability number of live birth more than three children.

This result signified that age as a variable was important in method measuring of effect of fertility and this result were considered with theory about relationship between age factor and fertility that was proposed by Henri (2008) age variable as biological and social factor of fertility was an overview that proposed the reproductive time the women, which was defined it started from puberty time to menopause, on term of physiology it started from the menstruation and the end of ovulation time.

Adjusted probability analysis for parameter age that had been interacted with level of education were found the specific pattern of fertility, that consideration on age variable such as continuous data and age running in age square model.

Top point for reproductive age was having been consideration by each level of education that were shown in graph 4.8 and table 4.24 as age were increasing the probability of having live birth more than three children increased too. The women who had higher education level, the probability of having live birth more than three children was still lower, compared to women who had low and middle education level. However, at younger age women who had high education level, the probability of having more than three live births are less than women who had low education level. While at older age women who had low education level, the probability of having more than three live births was less than women who had middle and high education level.

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Top point for reproductive age was having been consideration by each level of education that were shown in graph 4.8 and table 4.24 as age were increasing the probability of having live birth more than three children increased too. The women who had higher education level, the probability of having live birth more than three children was still lower, compared to women who had low and middle education level. However, at younger age women who had high education level, the probability of having more than three live births are less than women who had low education level. While at older age women who had low education level, the probability of having more than three live births was less than women who had middle and high education level.

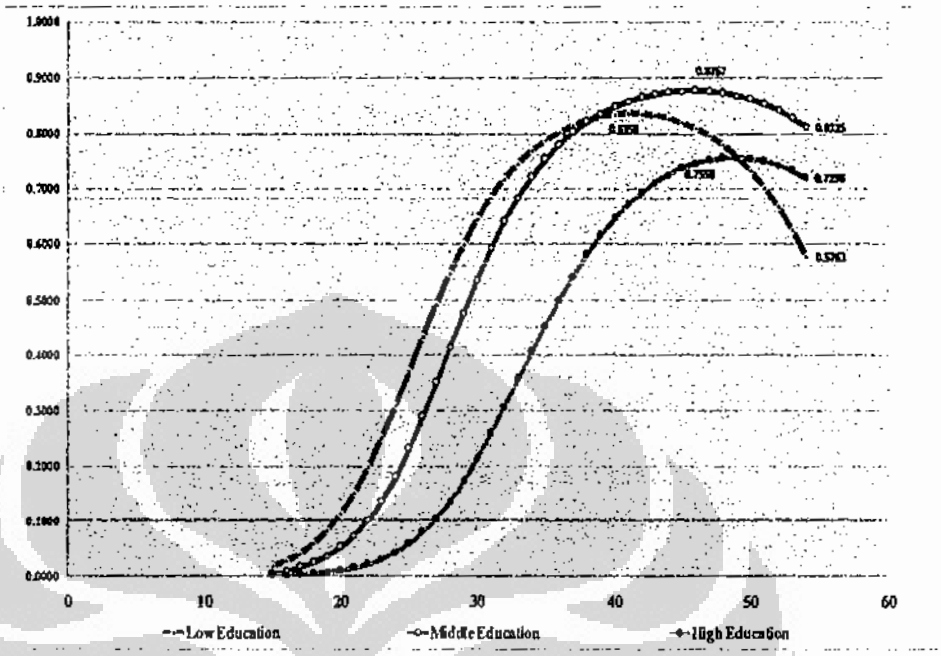


Figure 4.8

Graph adjusted probability of the Timor-Leste women on interaction age of mother and level of education

Perhaps this situation was impact from the biological factors that the women experienced: pregnancy at young age and short distance between each pregnancy. The women who had low education level and that had many pregnancy were related with the number of pregnancy and live birth s than more than three children usually lived in poor and had problem with infection of uterus. In this case, the increasing of services for increasing quality and quantity health of reproduction is very important for women and for the girls in order to prepare condition pregnancy in good health condition.

At the census 2004, the women that were born in Indonesia in year around 1985 – 1990 were 14 to 19 years old; usually they were on junior and senior high school in 2004. Based on adjusted of probability inter action age and level of education at the figure 4.8 and table 4.24, for women who were14 years old and had low education, the probability of having live birth more than three children was still the highest compared to the women who had education level of middle and high school. The situation still inversely that probability of having live birth more than three children at women age 14 that have middle and high education is

lowest. For women who were 19 years old and had low education level, the probability of having live birth more than three children 0.0822 was still the highest compared to the women that have middle (0.0358) and high school (0.0068). The situation still inversely that probability of having live birth more than three children at women age 19 who had education level of middle and high education is lowest. This result reflected the situation of education in Timor-Leste; the free charges cost of education for six year basic education didn't have significant effect in fertility behaviour.

The women who had low education level had peak point age of reproductive in 41 years old with value of probability to get live birth more than three 0.8358, and for women who had middle education level and were 46 years old with value of probability to get live birth more than three 0.8767, and for women that high education level and were 49 years old with value of probability to get live birth more than three 0.7558. Comparing on all of level education, the top point of reproductive age, that highest on women who had been middle education. But in the end time of reproductive the women who had low education level, the probability to get live birth more than three tended to be the lowest. Table 4.23 showed the condition of Timor-Leste women during their productive age used for reproduction activity.

The real situation on Timor-Leste at the census data capturing on 2004, the women who were 40 - 50 years old were born in 1960, in Portuguese era. Until the age 43, the probability of having more than three live birth is higher in women with low education. In this case fertility have relationship with women in low education experience at the Portuguese time was limited the facilities of education. Usually facilities of education were provided by Catholic Church mission e.g at Soibada in District Manatuto, Venilale at Baucau and Ossu in District Viqueque. System of education in Portuguese time, limited on low education, maximum on "quarta classe", and middle of education only in Dili city. The women who were 40 – 50 years old in census 2004 usually had low education level or didn't have any education (no schooling).

The women who were under 40 years old were born at Indonesian time, with increasing of development in education sector. In every village (suco or desa) education facilities on low level, middle level (junior high school) was built, (usually built in sub-district) and senior high school was built in every capital city at the district. The highest education level, some universities were built in Dili (capital city of Timor-Timur province). In Indonesian era, all boys and girls had opportunity to access education, the women that were less than 40 years old usually had middle education level and only small number of them finished the study at university level. The women who had middle and high education level, the probability of having live birth more than three is low. This research found the effect of age on the probability of having more than three live births depended on education. But the women who had low education in 28 years old and middle education in 30 years old, the probability to have live birth more than 0.5 or more fecund. This situation perhaps was related with better of nutrition, health, and education too.

This found as well reflection the situation then all of age the Timor-Leste women the body using to reproductive of childbearing. The result of research showed the increasing of education level is an important factor for reducing the fertility rate. The higher level of education gave effect, that, women would take in consideration about providing information about family formation, family planning, reproductive health, reproductive right, and usage of informal education. The education generates development for all individual, community and society as whole, women that were educated are more independent to decide later married and change the size of family. The problem changes behaviour from big size family norm to the small size with wealth family norm is not easy, need few generations reach those goals including family formation, reproductive health, reproductive right, and important value of education on role of reducing fertility.

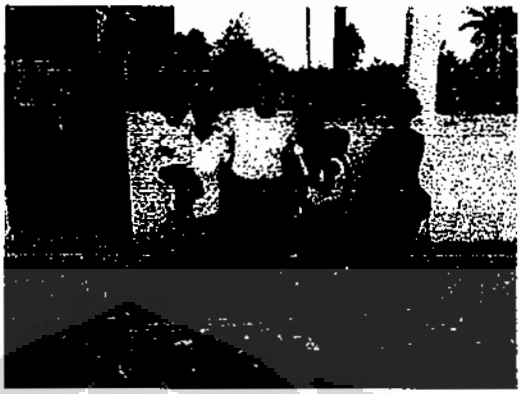

Figure 4.9

The real situation showed a young woman on the right side (15 years old) and an old woman on the left side (49 years old) holding their children. These photos are private document that was taken in Suco Uma Tolun Sub District Lacluta District Viqueque, in February 2010.

Table 4.24

Adjusted probability women who had having live birth more than three children interaction by age of mother and level of education

| Adjusted Probability on interaction age and education level | | | | | | | |
|---|---|---|---|---|---|---|---|
| Age | Education level | | | Age | Education level | | |
| | Low | Middle | High | | Low | Middle | High |
| 15 | 0.0181 | 0.0046 | 0.0012 | 35 | 0.7871 | 0.7531 | 0.4546 |
| 16 | 0.0273 | 0.0074 | 0.0019 | 36 | 0.8025 | 0.7800 | 0.5003 |
| 17 | 0.0403 | 0.0162 | 0.0029 | 37 | 0.8145 | 0.8024 | 0.5426 |
| 18 | 0.0582 | 0.0243 | 0.0045 | 38 | 0.8236 | 0.8209 | 0.5809 |
| 19 | 0.0822 | 0.0358 | 0.0068 | 39 | 0.8301 | 0.8360 | 0.6150 |
| 20 | 0.1133 | 0.0518 | 0.0101 | 40 | 0.8341 | 0.8482 | 0.6449 |
| 21 | 0.1519 | 0.0734 | 0.0148 | [illegible] | [illegible] | 0.8578 | 0.6706 |
| 22 | 0.1982 | 0.1016 | 0.0215 | 42 | 0.8353 | 0.8653 | 0.6924 |
| 23 | 0.2513 | 0.1373 | 0.0306 | 43 | 0.8325 | 0.8707 | 0.7106 |
| 24 | 0.3096 | 0.1808 | 0.0428 | 44 | 0.8274 | 0.8744 | 0.7254 |
| 25 | 0.3708 | 0.2317 | 0.0588 | 45 | 0.8198 | 0.8763 | 0.7370 |
| 26 | 0.4325 | 0.2888 | 0.0793 | 46 | 0.8093 | 0.8767 | 0.7457 |
| 27 | 0.4923 | 0.3502 | 0.1049 | 47 | 0.7958 | 0.8755 | 0.7517 |
| 28 | 0.5482 | 0.4133 | 0.1358 | 48 | 0.7789 | 0.8726 | 0.7550 |
| 29 | 0.5990 | 0.4758 | 0.1720 | [illegible] | 0.7579 | 0.8681 | [illegible] |
| 30 | 0.6441 | 0.5354 | 0.2133 | 50 | 0.7324 | 0.8616 | 0.7540 |
| 31 | 0.6833 | 0.5905 | 0.2586 | 51 | 0.7020 | 0.8530 | 0.7496 |
| 32 | 0.7167 | 0.6400 | 0.3069 | 52 | 0.6660 | 0.8421 | 0.7426 |
| 33 | 0.7448 | 0.6835 | 0.3566 | 53 | 0.6241 | 0.8284 | 0.7327 |
| 34 | 0.7681 | 0.7211 | 0.4063 | 54 | 0.5763 | 0.8115 | 0.7198 |

### 4.2.2 Marital Status and Women in Live birth

The inferential analysis for parameters marital status indicated women who had marital status as non married affected the probability to have live birth more than three has negatively. The table 4.22 showed value of odds ratio for women who had non-married status 0.22. That means the probability of women that were non-married to have live birth more than three children, 0.22 less than comparing the women who have had been marital status as married.

Value of Wald test for the parameter marital status = 552.88 and was in the third place that significantly affected the probability of women having live birth more than three. With P-value for women with marital status as non-married = 0.0000, and less than $\alpha = 0.05$ it means the parameter in this model were highly significant that marital status (non married) gave negative effect for high fertility. Based on P- value that was significant, it can be rejecting the $H_0$; with conclusion the women who had non-married status negatively affected the number of live birth that more than three children.

Timor-Leste society used patrilineal and matrilineal system. The patrilineal and matrilineal system influenced the establishment of family culture. Traditional community usually had two roles of marriage: first ***Barlaki*** (***Hafoli***) and second ***Habani***. (Catharina, 2008). ***Barlaki*** means bride price. ***Barlaki*** is an old tradition in Timor-Leste society. The process to get female bride for male bride consists of some steps: ***husu feto*** (1), ***tuku odamatan*** (2), ***fetosan-umane*** (3), and ***makalero*** (4). Those ceremonies were full with negotiation for price (money, animals, jewelry, ***tais***) or bargaining for position to set value and this process were done by both family (Saldanha and Viegas, 2007). According to Maria (1995), ***Barlaki*** means marriage with payment "***belis***", and ***habani*** means marriage without "***belis***", the marriage process is not accompanied with any payment to the relatives of the wife.

*Barlaki* or *hafoli* (marriage with full payment) or habani (without full payment) has very important point of view related to the topic fertility. The type of marriage was relevant with the fertility issue because the children that were born were considered as harvest of the marriage. Children can have high value. If the women were married using ***barlaki*** model, the child that was born would be

taken on consideration in husband biggest family (or uma kain and uma knua). The consequence for the wife or women related with sex preferences on fertility, if the wife gave births only some boys, the husband and big family are able to request more children with sex preference of female children. One of the reasons is because in future female children or next generation they will get ***barlaki*** from her partner as value for her the parent (especially as payback for her mother that received ***barlaki*** from the side of husband on the past time). In contrary, if the wife have only girls child the husband and the big family can demand a boy child in order to continue family name in those child and it is an honor to continue the next generation. Other reasons for having many boys are that they could be good worker stock for working in farmland.

On this research was found the negative effect non-married status on probability to have live birth s more than three children. This is a sign that the culture and marriage system in Timor-Leste had changed and therefore also affected the couples in establishing their family. The marital status such as non-married commonly called "moris hamutuk" (cohabitation stilly) means they lived as couples without child or with many children. The couples in this groups usually lived in unsecure economic, because they cannot pay the bride price (*barlaki, hafoli, habani*) according the traditional wedding celebration. If the couples that was not able to fulfil bride price, usually they cannot be approved to marry at church and or the civil registrations. The consequences from this situation are that their children would have difficulties to get birth certificate from church or civil registration. The children who didn't have birth certificate from church or civil registration usually had difficulties to access school or other facilities. Because of those problems, the couples in this group tended to have children less than or equal three children. But in the constitution of RDTL as explained in paragraph 18 proposed care for child; children had right to be protected by the family, society and nation from being neglected, discriminated, from violence, suppression, sexual abuse and exploitation. All children who were born from the legal marriage or non-legal marriage had the equal right of social protection.

Patrick (2006) proposed theory that the characteristic of marital status had relationship with role of fertility, like to have children. Salvini and Santini (2006) the proportion number for women who had status never marriage was large and older to married; the means the probability to have children is lower. This result of analysis was similar with previous study that last explained by Hayford (2008) on previous study with title "Fertility after a Non Marital First Birth". The study was using cox-regresssion with hazard function. Thus study was getting differences within women who had non marital status and women in marital status marriage in fertility rates. The result of those study birth hazard for women non marital status first birth are lower than birth hazard for women with marital status for about five years after the first birth.

Picture 4.10

A younger women with her son ( Plexia, Ainaro)

### 4.2.3 Still-birth Experience and Live birth

The inferential analysis for parameter still-birth experience from equation 4.3 and table 4.22 indicated the coefficients of estimated parameters that women who had stillbirth experience, the probability to have live birth more than three children still an effect positively. It means more have still birth experience the probability to have live birth more than three children still increasing. The table 4.22 showed value of odds ratio for women who have stillbirth experience 1.28. That means the probability of women that have still-birth experience to have live

birth more than three children, 1.28 times more than comparing the women who have had been non-stillbirth experience.

Value of Wald test for still-birth experience = 167.26 and was in the fourth place that significantly affect the probability of women having children more than three. With P-value for women that have still-birth experience = 0.0000 less than $\alpha = 0.05$ it means the parameter in this model were significant and had positive effect on live birth more than three children. Then, based on value of probability this parameter can reject the null hypothesis ($H_0$) testing with conclusion the women that have had still-birth experience had positive relationship with probability number of live birth that more than three children.

All information and analysis showed that the Timor-Leste had a great tradition in honouring great value of child related on patrilineal system and prestige as big family. Usually, the value of having more children or prestige as bigger family works as a norm that was related with tradition of marriage or norm to build a family. The stillbirth experiences had relationship with the condition of mother, the mother that was pregnant in health condition, and the behaviour of visiting health services to control their condition and health facilities usually minimized the risk of still birth case. The still births experience gave effect to the probability of having more than three live birth, perhaps influencing from the high prevalence of malaria because Timor-Leste as a country that have high prevalence on malaria or epidemic of malaria. Other problem that probably influenced still birth case included malnutrition, or over working or working hard in land farm in time of pregnancy, and mother behaviour that neglected their self without controlling the pregnancy on health services and health facilities. But in this case need more other research related still birth experience with prevalence of malaria, malnutrition, over load of working in pregnancy time, or and related with number or behaviour of needed health services and health facilities.

Theory about relationship variable between fertility and still-birth experience were proposed by Pinelli (1984) on Gourbin (2008). Gourbin (2008) proposed that foetal mortality varies considerably over the mother's reproductive career and this variation in risk can be examined using conventional characteristics of age and parity, and other researcher Davis and Blake (1956) used too the proximate

determinants approach to child survival parallel in the approach for developing an analytically for the study of fertility. Gourbin on Caselli at el (2006), study from Czech and Hungarian data, found the higher risks for fetal mortality from women of low education attainment. Level education of mother's, income associated with different occupational are an indicator of her ability to adopt health promoting behaviours during pregnancy, make effective use of prenatal care services, and household.

### 4.2.4 Child Death Experience and Live birth

The inferential analysis from equation 4.3 and table 4.22 indicated, the coefficients of estimated parameters that women who had child death experience, the probability to have live birth more than three children was still affected positively. The table 4.22 showed value of odds ratio for women who had child death experience 5.27. That means the probability of women that have child death experience to have live birth more than three children is 5.27. It is higher compared to the women who didn't have child death experience. With other word the increasing of experience in child death pushed the women (and their family) to get more new live birth as replacement for the lost child and to cope with the desired family size. More than that value of Wald test for child death experience = 11,415.77 was on first place that significantly affected the probability of women having live birth more than three children.

With P-value for variable child death experiences = 0.0000 less than $\alpha$ = 0.05 it means this parameter in this model was very significant and had positive effect on live birth more than three children, thus can reject the null hypothesis ($H_0$) with conclusion child death experience gave positive effect for women to have live birth more than three children. The women who have experience in child death tended to get live birth more than three.

The child death experiences had relationship with the condition of mother, the mother who lived in non-healthy condition, and the behaviour of visiting health services and health facilities to control her sons or daughters condition usually minimizing risk of child death case. The child death experience gave effect in probability of having more than three live birth s; perhaps this problem

was influenced from behaviour of mother who gave exclusive breast feeding and immunization.

Figure 4.11

The good reproductive behaviour; a mother appears breast-feeding for child them

Other problem that probably influenced child death experience was diarrhoea cases that was related with water resources and the high prevalence of malaria because Timor-Leste is a country that has high prevalence on malaria or epidemic of malaria; this is related with behaviour of not using net at sleep time, malnutrition, and pattern of child care which neglecting their child on dirty living behaviour wash of hand before eating.

The child death experience as the first factor that influenced the probability of having live birth s more than three, was related with behaviour of Timorese family: if a sons or a daughter was dead usually the husband or big family context request to the wife to get new pregnancy in order to replace their son or daughter that was dead. As a full respect for deceased son/daughter, usually the new born baby named similar with the deceased brother/ sister. The discovery of this research was adjusted with theory that Satyajeet (2005) proposed, child death had insurance effect, when there is a higher prevalence of child loss, and more children have to be given birth so as to meet the desired family size.

Timor-Leste country adopted the MDGs as a framework for planning and evaluation of the progress of development in this country. This has been applied in the policy set by the Health Ministry of RDTL in adopting the MDGs 4 (reduce

child mortality) and MDGs 5 (improve maternal health) will decrease levels of child mortality 60 per 1000 live birth (2008) to 53 per 1000 live birth in 2015, and lowered levels maternal mortality rate 450 per 100,000 live birth (2008) to 252 per 100 000 live birth. In order to improve the health status of East Timorese people, the health ministries of Timor-Leste had a program based on the vision of "one vision, many hand" of government collaboration with donors, private sector, community, families and individual participation can succeed the five major components outlined in the Nationality Priorities: improvement of the procurement of drugs and medical chain supplies, SISCa[1] covered and delivery of quality maternal and child care. (Sources: Speech of Minister of Health, in Timor-Leste and Development Partner's, Meeting in Dili 1 – 4 April 2009). Before Ministry of Health in 2001 was using the vision for health development "Healthy Timor-Leste people in healthy Timor-Leste" (WHO publication 2005).

Figure 4.12

A woman was breastfeeding her child at Suco Tibar, District Liquiça

Information activities, education and communication (IEC) related to family planning should consider the cultural and religious matters, respect the individual choices and are formulated in the context of responsible parenthood. All providers of services, particularly reproduction health, had the duty to provide

[1] SISCa = Servisu Integradu da Saude Communitaria (Integrated Community Health Services) http://www.basics.org/documents/13-SISCa-Guidlines.pdf.

information of the advantages and disadvantages of all contraceptive methods available, so that individual was able to choose an appropriate method of contraception. This statement is 3rd component that publication on 5 component principal from policy of family planning programs.

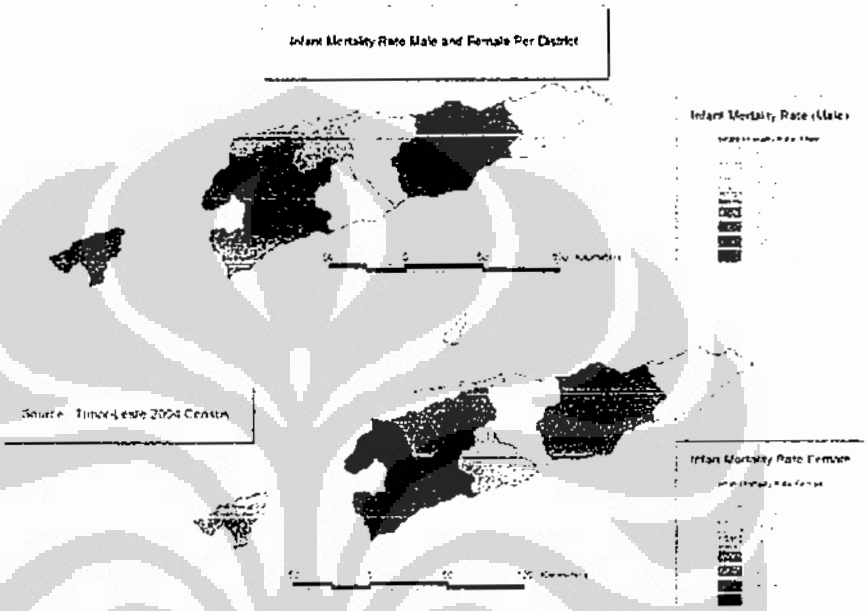


Figure 4.13
Map Infant Mortality Rate by District, Male and Female
Based on 2004 Census Result

### 4.2.5 Mother of Education and Live birth

Table 4.22 presented the resulted coefficient of parameter that, women who had low education, the probability to have live birth more than three showed positively effect. The inferential analysis resulted value of odds ratio for women who have low education 29.68. That means the probability of women who had low education level to have live birth more than three children, 29.68 more times compared to the women who had high level of education. The women who had low education (and not schooling) tended to get live birth more than three children.

Table 4.22 and equation 4.3 presented the resulted coefficient of parameter of women who had middle level of education, the probability to have live birth more than three children showed positive effect. The inferential analysis resulted value parameter estimate 1.8183 and value of odds ratio for women who had middle level of education 6.168. That means the probability of women that middle level of education to have live birth more than three children, 6.168 more times compared to the women who have had been high level of education.

Based on table 4.22 the value of Wald test for level education of women = 764.60 and was in the second place that significantly affect the probability of women having live birth more than three. As other variable, the education level is significant predictor for fertility Timor-Leste women; hence they were excluded low, middle, and high level of education. Table 4.20 was showed P-value of probability for women who had low, and middle education level 0.0000 and less than $\alpha = 0.05$. It means the parameter estimate for low and middle education in this model was significant and had positive effect on live birth more than three children. Base on P-value for parameter low and middle education, this research rejected the null hypothesis ($H_0$) testing with conclusion the women that have had on low and middle level of education had positive correlation with probability to have number of live birth that more than three children.

From this research was found, increasing level of education has positive effect on fertility (increasing of fertility), health of mother and health of children. Education provides knowledge and skill about what is useful for health, and many ways of accessing the power and resources that is necessary for carrying out preservative or recuperative health activity. The education experience from women was explained in last pages that education had interaction with age, and have relationship with development of country experience in past time (Portuguese and Indonesia time). Since years 1511 – 1979 in colonial Portuguese time, the rule mass education was not policy of the colonial administration; literacy rate that time was about 90%. In Indonesian time 1975 – 1999 rule mass education only for basic education for six year only, while free cost but poor in quality and high in repetition and dropout. Since 1999 post referendum and destruction, the government of RDTL on National Development Planning made

education as well cornerstone of its strategy to alleviate poverty and facilitate economic growth. The NDP and NDGs required mass education on basic level on 9 years for children between ages 7 – 15 years, and universal enrolment in 2015. The World Bank reports (2007) in 2005 stated the number of children out of school was 55.219 and percentage net school enrolment 68.9%, some reason as well the challenges include (1) no interest in attending, (2) work at home or land farm, (3) the school is too far away from family home, (4) lack of text books and learning material, (5) poor pre service preparation of primary teacher (6) barrier to learn among children because instruction presented in Portuguese language, (7) the teacher and student high absenteeism which may be caused by illness such as malaria and tuberculosis (Word Bank, 2007)

Experience education and the history at past time gave colourings in experience Timor-Leste women in fertility. This research found the adolescent reproductive health was characterized by education and health factors, because the women who had low education usually poorly educated of reproductive health, low level to access information and were early at marriage and pregnancy. These women were product processed in colonial Portuguese and Indonesia education system.

Figure 4.14

Many girls and her school facility (Dare, Ainaro)

Based on analysis, this research found there was strongt relationship with world commitment (UNFPA's Commitments to the platform for action Beijing at

Ten): " Creation of an educational and social environment, in which women and men, girls and boys, are treated equally and encouraged to achieve their full potential, respecting their freedom of thought, conscience, religion and belief, and where educational resources promote non- stereotyped imaged of women and men, would be effective in elimination of causes of discrimination against women and inequalities between women and men "Education so generates development both for the individual, community, and society as a whole. Educated for women are more independent, self-confident, they also get married letter and have fewer children. (Beijing Platform for Action, Paragraph 72).

The fertility of Timor-Leste women were explained with theory that Bravo (1997) that education is inversely correlated with fertility levels, high education shown low level fertility. Other demographers Calister and Didham (2007) proposed that the women that had infestation in education and carrier: indirect benefit for man and great for direct in child rearing (low fertility). Lucia and Esther (2002) proposed the theory that the education of parental has strong causal effect on reduction of child. Justin and Royer (2006) impact of school entry policy & indicates limited fertility causal role of education (to longer timing entry to childbearing).

Figure 4.15

Many boys and want to school, education for all (Tibar, District Liquiça)

### 4.2.6 Employment Status and Women in Live birth

The inferential analysis in table 4.22 and equation 4.3 that was result of equation for variable employment status showed value of parameter coefficient 0.17404. The sign positive value that means the unemployment status gave positive effect for probability of women to have live birth more than three children. Table 4.22 presented the resulted coefficient of parameter that, women who were unemployed, the probability to have live birth more than three children showed positive effect. The inferential analysis resulted value of odds ratio for women who were unemployed 1.19. That means the probability of women that unemployed to have live birth more than three children, 1.19 higher compared to the women who were employed.

With value of probability for women who had un-employment status 0.0000 and less than $\alpha = 0.05$, it means the parameter for un-employment in this model are highly significant and had positive effect on live birth more than three children. Based on value of probability this parameter can reject the null hypothesis testing with conclusion the women that had un-employment status had positive correlation with probability to have number of live birth more than three children. In other word the women who were unemployed had higher probability to get number live birth more than three children.

The descriptive and inferential analysis still has similar result; in descriptive analysis the women who were unemployed still more than to have live birth more than three children, similar to the inferential result. Thus situation have relationship with the family poverty, it is more difficult to secure the basic need and schooling for their children. Other reason the pattern of child care was related to the type of job that women have; majority in agriculture subsistent usually Timor-Leste women use as well bringing them children at the farm area, or market like the picture at below. Other pattern that was also common was grandmother or grandfather had to take care them grandchild that they lived such as extended family (like in figure 4.16 and 4.18).

The descriptive analysis showed the Timor-Leste women who were unemployed and had low education had number live birth more than three 93.90%. The women who were unemployed and had low education that had live

birth less than or equal three children were 82.46%. And then inferential analysis showed that fertility or probability of having live birth more three children were still high in the women in group low education and unemployed. It means vulnerable situations, because usually they life by low income, they don't have capability to give good education for her children, good nutrition, good health and other economic resources.

Picture 4.16
Many women has been bringing them children to sales prawn
(Bride of Loes, Atabai, District Bobonaro)

The value of children or value of big family size was very important in Timor-Leste society; usually family size is big with many children and then additional with other people such as extended family and even people that are not blood-related. The function of the children in family such as worker stock was oriented based on market activities and sources of manpower. The children were employed in agricultural field or fisheries. The agriculture activities included the production of coffee, local foods commodity, and fisheries, included processing and sales of product. The children can also earn money on coffee farm or rice field during peak harvest time, or in other agriculture activities, by collecting firewood in wild plantain or around farm of coffee. This little point is one of reasons why Timor-Leste women tended to have high fertility rate.

One of the most important changes levels of education and opportunity to enter in employment experience was connecting with timing to later on childbearing. The effort of the government of RDTL was take in consideration in development planning have programmed that conducted by Minister of Social and Solidarity and UNDP Timor-Leste with name "Bolsa de Mãe".

Figure 4.17

A young boy sold fishes

The "Bolsa da Mae" programme such as conditional cash transfer, learn from Latin of America country's that commonly in spirit of South-South Cooperation. "Bolsa de Mãe" means scholarship for the children whose parents were single parent (widowhood), the head of household illness, lost of income, who lived on poverty, for children of both sex, in order to minimize the number children that drop out of schooling, and to minimize child labour cases. Other goals from this program were increasing the number of children sent to school, minimizing iliiteracy at young people which means every child entered and ended basic education. The programme of "Bolsa de Mãe" was launched by MoSS in March 2008 with beneficiaries 7.200 children on fund allocated 663.750 US$. And then based on UNDP monthly news, the Ministry of Social and Solidarity (MoSS) in 2009 the beneficiaries receiving was increasing to 9.739 with total funding 876.153 US$.

This research was found similar with Miah and Mizan (1992) who proposed the result from a research in Bangladesh 1976 with multivariate analysis, in which were found fertility of women on variables births, deaths,

nuptiality, and family planning knowledge, and was found that women with modern and traditional occupation as well as higher and secondary education had significantly lower their fertility, and that higher age, Islamic religion, use of modern contraceptives and husband's occupation in transitional and modern sectors have significant positive effects on fertility. Other researcher Lesthagle and Van de Kaa (1986) on (Rowland 2005) gave explanation that generalized the second transition of demographic such as result from changes of value gender on labour market that women have same opportunity to get job and employ with payment and combination strongly of histories on increasing access to control the fertility and birth, changes of patriarchal that man had to join in the childbearing process of children and women had autonomy on independent economic, that it's the true indication of changes of culture and ideology. According to the demographic transition answered on largest part of social-economic changes, because the changes process influenced the value of relationship between women and men on the spouse or family contexts and pattern of fertility. Joshi and Davis on Casselli et al (2006) proposed the women that advance into labour market, wage for women such as potential labour force participant, such as independent factor that influence on fertility. The higher wage that women received, example because of her education, would be predicted the lower fertility.

Picture 4.18

A Grandmother has been take care them grandchildren in shop

(Caraubalo, District Viqueque)

### 4.2.7 Type of housing and Women in Live birth

The housing was basic need that every family need to shelter and stay during their live. According thus the reasons, measuring fertility using type of housing was important socio-economic variable.

The result form inferential analysis variable in equation 4.3 and table 4.22 showed: value coefficient estimated parameter for type of housing (improper type) negative affected on probability of women to have live birth more than three children. Table 4.20 showed value of odds ratio for type of housing 0.89. That means at the women who lived in type of housing that was improper, the probability to have live birth more than three children are 0.89. It is lower than the women who lived in type of housing that was proper.

With value of probability for women who had improper type of housing 0.0000 less than $\alpha$ 0.05 it means the parameter for type of improper in this model are significant and had negative effect on live birth more than three children. Then, based on value of probability this parameter can reject the null hypothesis testing with conclusion the women that had improper have negative correlation with probability to have number of live birth those more than three children. In other word the women who lived in improper housing had less probability to get number live birth more than three children.

The descriptive and inferential analysis still have different result; in descriptive analysis the women who lived in improper house still had higher probability to have live birth more than three children, in contrast with the inferential result. Probably this problem in descriptive analysis was only measured specifically between improper and proper of housing (bivariate analysis). Nevertheless on inferential analysis type proper of housing was controlled by other variable such as age, marital status, education level, still-birth and child death experience, employment status and mother tongues, and then the result probability of women to have live birth more than three children tended to be higher.

The reasons for this discovery were that it was considered with prosperity that women (or family) have; majority in prosperity of women and them children sources form prosperity of family. Proper housing condition and better ability can

enhance for having many children. Timor-Leste people have been living in behaviour: more wealth means get more children. The higher level of prosperity of family was affected higher probability to have live birth more than three children.

Consider with those situation, Bongaarts and Frank (1984), Anne (2007), proposed argumentation processes increasing fertility that different in Sub Sahara with other area have been influenced by the experience lower development socio-economic, include the situation of low rate of accessibility for health facility, contraception. Other researcher (Mason, 1997) emphasised more the problem of poverty, transformation and communication as a big factor that influenced the African fertility cesses.

Figure 4.19

Ones improper house, for shelter and staying (Soibada, District Manatuto)

### 4.2.8 Mother Tongue and Women in Live birth

Table 4.22 presented the result of inferential analysis for variable mother tongue as well approach for measuring fertility relationship with specifically of fertility behaviour. The parameter estimate value for women who spoken with Tetum languages are 0.1280 and odds ratio 1.14. That means the women who had spoke in Tetum language have probability to have live birth more than three children 1.14 higher than women that spoke with other languages. The parameter estimate value for women who spoke with Mambai, Bunak, Kemak languages 0.2110 and odds ratio 1.23. That means the women who spoke in Mambai, Bunak,

Kemak languages have probability to have live birth more than three children 1.23 higher than women that spoke with other languages.

In table 4.22 were showed P-value 0.0000 and less than α 0.05 for women who had speaking Tetum, and Mambai, Kemak Bunak. The analysis resulted variable mother tongue Tetum, and Mambai, Kemak, Bunak, as significant predictor and that were given positive effect on the probability to have live birth more than three children. Based on this result, for variable mother tongue Tetum, Mambai, Kemak and Bunak rejected the hypothesis null ($H_0$), with other word that women who spoke on Tetum, Mambai, Kemak and Bunak affected in probability to have live birth more than three children.

The inferential analysis resulted that estimated of parameter mother tongue Makasai and Fatuluku have been P-value 0.2088 and more than value of α 0.05. That means the parameter of mother tongue Makasai and Fatuluku are not significant predictor to affect probability of women having live birth more than three children. Based on this result, especially for variable mother tongue Makasai and Fatuluku received the hypothesis null ($H_0$), with other word that women who spoke on Makasai and Fatuluku didn't affect probability to have live birth more than three children.

UN state 1984 provided manual for surveys and censuses that the most important socio-economic characteristic commonly covered in ***conjunction with demographic topics included***: literacy, education, ***ethnicity, language***, economic activities, income, housing condition and amenities, and socio-economic data at the community level. Abanihe (1994), proposed that the Igho ethnic had the highest family size among all ethnic groups at Nigeria, which is certainly culturally related the dominance of strong patriarchal (patrilineal) systems, prefer for male children, and observation of ceremonies in honour of women who maintain high fertility norms. Joshi and Davis (2006) proposed fertility was most strongly related to culture boundaries, defined by languages, ethnic, or geography. Adioetomo et al (2009) proposed the theory of behaviour change ones related with factors that influenced motivations for ideal number of children that family need. Continue lesson from European experience on declining of fertility Princeton

University was result the research; the speed of declining of fertility in European was get facilities on similarity of language and culture.

On the constitution of Republic Democratic of Timor-Leste paragraph 13, as a nation, Timor-Leste has official language of Tetum and Portugese. Other languages that were also used for communication in working are Indonesian and English. Indigenous languages such as Makasi, Fatuluku, Galole, Mambai, Kemak, Bunak are spoken by significant number of peoples. There are some differences of Tetum language: Tetum Dili is a Creole-like lingua franca spoken in Timor-Leste, and only recently acquiring native speakers. Tetum Terik has much deep seated Portuguese influence and some Indonesian. Tetum was formerly an oral language with "low" functions, usually used in Catholic liturgy since 1982 and since 1999 used in public life and writing (Catharina, 2007).

The behaviour that was common in Timor-Leste people value is having the big family size among all ethnic groups at Timor-Leste which is certainly behaviour related the dominance of strong patriarchal and patrilineal systems, they prefer son for power of man (worker stock investment) and prefer daughter child for continuation the generation. And observation found that the ceremonies were held in order to give honour for women who maintained high fertility norms. Change of behaviour to decline fertility or reducing number of live birth with approach language was possible based on constitution of RDTL paragraph 13, point b). By advocating and establishing the information for family planning, reproductive health, and reproductive right, using Mambai, Bunak, and Kemak languages for women or family who spoke with Mambai, Bunak and Kemak society, and other indigenous languages that indicate have high fertility.

Figure 4.20

Some families that spoken in Tetum langue (Suco Bibileo, District Viqueque)

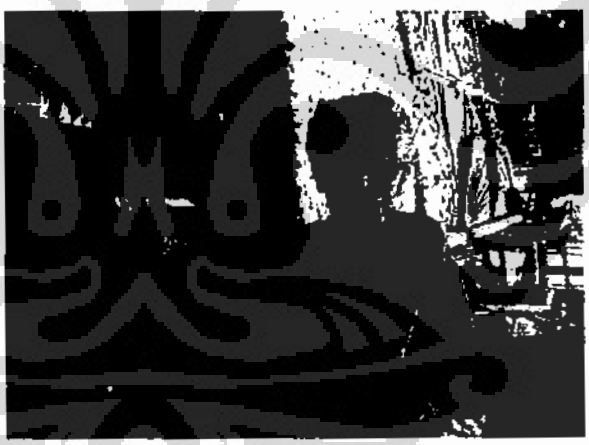

Figure 4.21

A grandmother has been making handicraft a small basket ("luhu" in Tetum language) for daily activity in older age. (Suco Bikari, Subdistrict Viqueque, District Viqueque)

# CHAPTER V

# CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Conclusions

The conclusion in this research was presented in each variable to get deep understanding and to consider taking recommendation related with census activities or other policy regarding development for Timor-Leste government especially for issue education and child death related with fertility behaviour.

The descriptive and binary logistic regression analysis resulted that the study showed that Timor-Leste women have specific in fertility even though virtual throughout the country. Based on Chi-square test, Walt test, and G test that were running with BLR (Binary Logistic Regression) over the entire model with interaction variables showed the good model, such as the all variable observed has well done work in predicted variable good value of significance. Nevertheless the role of education and child death experience on fertility or live birth remains important (Bravo, 1997).

Descriptive analysis resulted the percentage of having more than three live births higher among women who had in reproductive age until 30 – 40 years, married, have still-birth experience, have child death experience, low level of education, employed, living in improper house, and spoke in mother tongue Mambai, Bunak, Kemak.

Probability of women to have live birth more than three children who had characteristics married, didn't have still-birth experience, have child death experience, high of education, employed, living in proper house, and spoken with other languages, to have children more than three children is 0.0000006; it is less compared with other characteristic. Nevertheless the differential between characteristics of women based on value of Wald test 1845.66 and value of significance 0,000 less than 0.05 for the Constanta (overall). It has showed the meaning of this regression logistic model was significant.

The women who were in age of reproductive and had low education showed positive effect on probability to have live birth more than three children. The value of odds ratio was resulted the probability to have number of live birth more than three

children for women that have low education in age of reproductive 1.00 more times than women that have high education in age of reproductive.

The pattern of fertility Timor-Leste women very specific consideration from adjusted probability analysis that was establish based interaction variable age square and level of education. The women that have been in reproductive age and having low level of education have top point of age 41 years with probability of having live birth more than three children 0.8358. The women that were in reproductive age and had middle level of education, have top point of age 46 years with probability of having live birth more than three children 0.8767. And then for women who were in reproductive age and had high level of education have top point of age 49 years with probability of having live birth more than three children 0.7558. Based on this discovery, the policy implication that is possible to be applied by government of RDTL is that encouraging the implementation of paragraph 19 article 2 constitutions of RDTL using concrete regulation for more open accessible for all young people to get education, health, and training considered with their ability.

The women that have non-married status showed negative effect on probability to have live birth more than three children. The value of odds ratio resulted probability to have live birth that more than three children for non-married women 0.22 less than women that have status of ever married. This descriptive analysis indicates 60% that women who had marital status married tend to get live birth more than three children.

The women who had still-birth experience showed positive effect on probability to have live birth more than three children. The value of odds ratio result the probability to have number of live birth more than three children for women that have still birth experience 1.28 which is higher than women that did not have experience on stillbirth. This descriptive analysis indicates 73.6% that women who have had in still-birth experience tend to get live birth more than three children. This discovery was confirmed with theory from Pinelly and Goubin (2006), Davis and Blake (1956) explained theory that still-birth variable as proximate determinant.

The women who had child death experience showed positive effect on probability to have live birth more than three children. The value of odds ratio resulted the

probability to have number of live birth more than three children for women that have still birth experience 5.27 which is higher than women that did not have child death experience. The descriptive analysis indicated 84% that women who had in child death experience tend to get live birth more than three children. This research found the model of fertility women in Timor-Leste is similar with the study from Oriza country of India that was established by Satyajeet (2005).

The women who have low level of education showed positive effect on probability to have live birth than three children. The value of odds ratio was resulted the probability to have number of live birth more than three children for women who had low level of education 29.68 more times which is higher than women that have high level of education. This descriptive analysis indicates 63% women who had low level of education tend to get live birth more than three children. That means increasing level of education from low to high level of education is important found out from this research. The increasing level of education for women with reason to later age of marriage and prolongers times to enter on childbearing time.

The women who had middle level of education showed positive effect on probability to have live birth more than three children. The value of odds ratio was resulted the probability to have number of live birth more than three children for women that middle level of education 6.16 which is higher than women who had high level of education. This descriptive analysis indicates 34% that women who had middle level of education tend to get live birth more than three children. The increasing level of education for women who had middle education to high education with other reasons increasing knowledge and widest of attitude of women on health and life style (specifically on reproductive health, reproductive right and family planning).

Adjusted to probability for parameter interaction between ages and level of education were found the specific pattern of fertility: first increasing of age and level of education means the tendency of lower in the probability of having live birth more than three. Secondly women who had low and middle education tended to have high the probability of having live birth more than three comparing with women that have high education.

The women who had unemployment status showed positive effect on probability to have live birth more than three children. The value of odds ratio resulted the probability to have number of live birth more than three children for women that unemployment 1.19 which is higher than women who were employed. In the descriptive analysis indicates 61% that women who were unemployed tend to get live birth more than three children.

The women who lived in improper housing showed negative effect on probability to have live birth more than three children. The value of odds ratio was resulted the probability to have number of live birth those more than three children for women that lived in improper house 0.89 which is lower than women that lived in proper housing. In the descriptive analysis was indicated 61% that women who lived in improper housing tend to get child born a live more than three children, contrary with inferential result.

The different results from descriptive and inferential analysis for parameter type of housing were caused by: in inferential analysis thus parameter was controlled with other parameter that joins in all equation. With other word in this research was found pattern of fertility the women (family) that lived in proper housing tend to get having live birth more than three children, or more prosper (more wealthy) get more number of children.

The women who spoke with mother tongue Tetum language showed positive effect on probability to have live birth more than three children. The value odds ratio resulted probability to have number of live birth that more than three children for women who spoke Tetum langue 1.14 which is higher than women that spoke other langues. The descriptive analysis indicated 52% that women who have spoken Tetum langue tend to get child born a live more than three children.

The women who spoke mother tongue Mambai, Bunak, Kemak languages showed positive effect on probability to have live birth more than three children. The value odds ratio resulted probability to have number of child born alive that more than three children for women who spoke mother tongue Mambai, Bunak, Kemak languages 1.23 which is higher than women who spoke other languages. The descriptive analysis indicated 65%

women who spoke Mambai, Bunak, Kemak langues tended to get live birth more than three children.

Based on Wald test showed: the factors that statistically have significant effect on probability to have more than three children are following: (1) Child death experience = 11,415.77, (2) Education level = 764.10, (3) Marital status = 552.88, (4) Still-birth experience = 167.26, (5) Mother tongue = 147.02, (6) Employment status = 141.00, (7) type of housing = 41.47. This discovery indicated that education and child death are important factor on role of fertility Timor-Leste women.

Based on P-value was shown: the factor that statistically have high significant effect on probability to have more than three children are following: (1) Age and low education, (2) Non-married, (3) Still-birth experience, (4) Child death experience, (5) Low education, (6) Middle education, (7) Unemployed, (8) Living in Improper house, (9) Spoke in Tetum language, (10) Spoke in Mambai, Bunak and Kemak. According to the P-value evaluation for this research rejected the null hypothesis ($H_o$) with conclusion that women who were on reproductive age and low educated, non-married, have still-birth experience, have child death experience, low educated, middle educated, unemployed, spoken on Tetum, Mambai, Kemak and Bunak affected the probability to have live birth more than three children.

Other then, the women that spoke in Makasai and Fatulku and women who have middle education in age of reproductive, the probability to have live birth more than three children was statistically not significant.

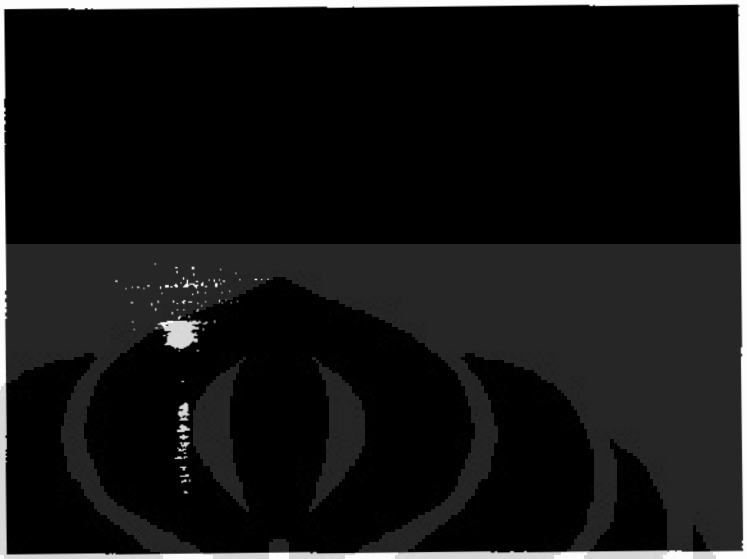

Figure 5.1

Sunset at Area Branca such as this research can continue in next day

## 5.2 Recommendations

Based on the result of this research, it was needed to take in consideration for many recommendations for policy on census activities and policy that related to fertility regarding the education, health, and other demographic issues. Other measurement that was important have relationship with census activities, MDGs and NDGs issue, Human Development report, as tool to measure one countries in term of development.

Reviewed policy about population development that was establish, with mean cut point three children, should be used as desired family size. Encouraging the government, society, to support the policy of basic education with opportunity to all child girls and boys, to minimize drop out from school. Improving the educational curriculum, related population and environmental development issue. Hopefully, the improvement of education sector can change behaviour, knowledge, health and economic population of Timor-Leste.

It is very important to push the program that government RDTL, especially Minister of Social, solidarity that was lunching the "Bolsa da Mãe". The program "Bolsa da Mãe" as scholarship conditional cash transfers for the child that lived in poor family, is useful

to increase the probability for all children enter to schooling, for girls this programm is useful to later entre on first at marriage, and reducing number of child worker.

It is important to encourage participation of all society to be given more opportunity for every girl and boy to have easy accesses in middle level of education facilities. Improving of education facilities is important for women and man to prolonger's time enters in age of reproduction. Improving level of education for young women and young man can change behaviour and knowledge of health, specifically to understand family planning.

Based on the discovery of this research, the improvement of mother becomes important, because the women who have stillbirth experience tended to have high fertility. Improvement of maternal health including (1) changes behaviour of mother to visit health facility and health services more frequent (SISCa, health post or hospital) on reason ante natal care, post natal care for mother and the baby, (2) changes food behaviour for mother that pregnant for possibility to get good nutrition, (3) minimizing over load of worker for women that pregnant to save energy during the pregnant time, (4) change behaviour more secure to avoid malaria, or other infection illness (diarhea, worm, TBC).

Based on the discovery of this research, the improvement of child health is important, because the women who have child death experience tended to have high fertility. Improvement of child health become access for mother in ante natal care, post natal care for mother and the baby at SISCa, health post, or hospital. The most important is to improve child health together with improving mother health, and family health. To reduce the cases of child death experience, there are some recommendation including: (1) make sure to give exclusive breast-feeding, and food additional for the child after the end time of breast feeding time, (2) increasing to complete immunization, (3) using clean and closed water sources to reduce diarrhoea cases, (4) children possible to changes behaviour to the habit of hand washing before eating.

Target program to improve for women that were unemployed and lived proper housing is important to decrease number of children and to increase the prosperity of family. The family that live with small size family, had opportunity to the employment

status and lived in proper house tend to have an easy access for the children to health, education and other socio-economic facilities.

Based on research discovery that women who spoke in Mambai, Bunak, and Kemak have high probability to have live birth more than three, the implication for this and based on constitution of RDTL article 13, was possible the information for family planning, increasing knowledge about reproductive health, and reproductive right using Mambai, Bunak, and Kemak languages for women or family who spoke with Mambai, Bunak and Kemak society. Perhaps health education and health services can be effective if use intervention in Mambai, Kemak, Bunak languages special taking education of health and health services at Mambai, Kemak, and Bunak society. But barrier or relationship of mother tongue and changes behaviour of fertility needs other deep research.

Recommendation for technical census; based on experience from the processing cleaning; the next census should increase the quality of the interviewer, notation, and enter data process to minimize the illogical data, and error on term of age in digital irregularity ending 0 and 5 years. Marital status information includes information: the age of first marriage, type of marital status with additional term polygamy, polyandry, or remarried. Live birth should be noted in an additional term of type of baby birth single or twin two, twin three. Most important is to get information about mortality (stillbirth, child mortality, maternal mortality, and other mortality) in term direct from in census 2010.

Information about the type of housing should be added with deep information related: access to water save, water sources, sanitary system, energy use, energy sources, health access, and education access by household level. It is needed to review the concept of urban rural, because concept that was established based on the result from census 2004 that was not sufficient, with the references of urban rural that was proper for increasing the quality of census 2010. This is requirement to substantiate and improve the result of policy advice. Recent analysis emphasize that relationships of inequality sustain the structures and processes that keep people in poverty. Economic and political analysis must be adjusted within cultural contexts, examining not only the types of choices made but the local conditioning external dynamics within which they are made.

The next research, based on this research, can run fertility analysis on progressive model, using gender and family approach, related to environmental issue and to be compared with census 2010 result.


Figure 5.2
Logo of Census Population and Housing Timor-Leste 2010
(In version Tetum language)

## 5.3 Limitations of the Study

The limitation of this study specified on fertility research, the census data is very poor of information; the census data did not cover deeper information of fertility analysis. The information is very important such as the variables that give direct influence to the fertility for example information about family planning, contraceptive use, age of first marriage, time of post-partum in-fecundability, breast feeding, children that were born in twin cases, type of marriage: polygamy, monogamy, or remarriage. The variables were commonly addressed as proximate determinants fertility. That was the reason why the title of the research was changed or different from the proposal of the thesis.

Although Timor-Leste Census 2004 data gave some opportunity to be used in the fertility analysis based on live birth, in this research we cannot choose some variables

that were very urgent and very relevant to Timor-Leste population situation and specific problem of the issue related in education, family planning and health population.

The lack of literature, theory and data influenced the exploring and explanation for the research problem and model of analysis. For example, how to explain fertility issues related with migration on 1999 as impact from conflict situation. Other cases how to take model and analysis fertility on women that had mental illness and disability, or other situation that is actually related with climate change issue.

Figure 5.3

Laclo river water and sea water as picture on next research that comparing census data 2004 and 2010

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Timor-Leste The total area covered is 15,007 sq km and the coastline is 706 km. http://www.mapsofworld.com/lat_long/timor-leste-lat-long.html Land border and coastline publish on (http:///www.indexmundi.com/timor-leste/geographic-coordinates.html.)

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# Syntaxes of SPSS

**On this research have been three data editors:**

1. **Census 2004 SPSS, Sav (as well original data)**
2. **Census 2004 clean, sav (as cleaning on first step)**
3. **Census 2004 clean_data (as clening withsecond steps / final).**

**Syntaxes that were using for this research:**

```
*Open file data Census Original (Census 2004 SPSS.sav).
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 SPSS.sav'.

*Made set data for women 15 - 54 years, from original data census 2004).
FILTER OFF.
USE ALL.
SELECT IF(SEX = 2 & (AGE >= 15 & AGE <= 54)).
EXECUTE .

*Filter for women who had age 15-54 Year..
FILTER OFF.
USE ALL.
SELECT IF(CEB >= 1).
EXECUTE .

 *take and save result data set women 15- 54 years (Census 2004 clean).
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean.sav'
  /COMPRESSED.

*Call file, that save on with name Census 2004 Clean.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.

*Make frequency, histogram and Bar chart for Child Born Alive before cleaning data: using Census 2004
clean.sav.SPSS (Data Editor for getting the number of CBA before cleaning data)
Data Editor
FREQUENCIES
  VARIABLES=P09Q0C
  /STATISTICS=STDDEV VARIANCE MINIMUM MAXIMUM MEAN MEDIAN MODE SUM
SKEWNESS SESKEW KURTOSIS SEKURT
  /HISTOGRAM NORMAL
  /ORDER= ANALYSIS .

FREQUENCIES
  VARIABLES=P09Q0C
  /BARCHART FREQ
  /ORDER= ANALYSIS .

_____Start data cleaning processing_____.

 *CLEANNING DATA PROCES, STAR.
*Make cross tabulation: age of mother and CBA.
CROSSTABS
  /TABLES=AGE BY P09Q0C
  /FORMAT= AVALUE TABLES
  /STATISTIC=CORR
  /CELLS= COUNT
  /COUNT ROUND CELL.
```

```
*Make statistics corelation: age mother and CBA.
CROSSTABS
 /TABLES=P09Q04Z BY AGE BY P09Q0C
 /FORMAT= AVALUE TABLES
 /STATISTIC=CORR
 /CELLS= COUNT
 /COUNT ROUND CELL .

*Iterations process for clean to clean-data.

*1. Filter age of mother 15 years have children <=2.
FILTER OFF.
USE ALL.
SELECT IF(AGE = 15 & P09Q0C <= 2).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.


*2. Filter age mother 16 years and child <=3.
FILTER OFF.
USE ALL.
SELECT IF(AGE = 16 & P09Q0C <= 3).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.


*3. Filter age mother 17 years and child <=3.
FILTER OFF.
USE ALL.
SELECT IF(AGE = 17 & P09Q0C <= 3).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.

*4. Filter age mother 18years and children <=4.
FILTER OFF.
USE ALL.
```

```
SELECT IF(AGE = 18  & P09Q0C <= 4).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.


*5. Filter age of mother 19 years and children <=4.
FILTER OFF.
USE ALL.
SELECT IF(AGE = 19  & P09Q0C <= 4).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.

*6. Filter age of mother 20 years and children <=5.
FILTER OFF.
USE ALL.
SELECT IF(AGE = 20  & P09Q0C <= 5).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.

*7. Filter age of mother 21 years and Children <=5.
FILTER OFF.
USE ALL.
SELECT IF(AGE = 21  & P09Q0C <= 5).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
```

```
/COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.

*8. Filter age of mother 22 years and children <=6.
FILTER OFF.
USE ALL.
SELECT IF(AGE = 22  & P09Q0C <= 6).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.


*9. Filter age of mother 23 years and children <=7.
FILTER OFF.
USE ALL.
SELECT IF(AGE = 23  & P09Q0C <= 7).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.


*10. Filter age of mother 24 and children <=7.
FILTER OFF.
USE ALL.
SELECT IF(AGE = 24  & P09Q0C <= 7).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.


*11. Filter age of mother 25 and children <=8.
```

```
FILTER OFF.
USE ALL.
SELECT IF(AGE = 25  & P09Q0C <= 8).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.

*12. Filter age of mother  > 25 tahun .
FILTER OFF.
USE ALL.
SELECT IF(AGE > 25  & P09Q0C >= 1).
EXECUTE .

ADD FILES /FILE=*
 /FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
EXECUTE.

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean.sav'.

GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Make statistics and corelation age of mother and CBA.
CROSSTABS
  /TABLES=P09Q04Z  BY AGE  BY P09Q0C
  /FORMAT= AVALUE TABLES
  /STATISTIC=CORR
  /CELLS= COUNT
  /COUNT ROUND CELL .

SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.

*Cleaning data for age  26.
DO IF (AGE=26  & P09Q0C >= 7) .
RECODE
  P09Q0C
  (Lowest thru 6=0)  (ELSE=1)  INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code  (SYSMIS=0)  (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
```

```
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 27.
DO IF (AGE=27  & P09Q0C >= 7) .
RECODE
  P09Q0C
  (Lowest thru 7=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code  (SYSMIS=0)  (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 28.
DO IF (AGE=28  & P09Q0C >= 8) .
RECODE
  P09Q0C
  (Lowest thru 8=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code  (SYSMIS=0)  (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 29.
DO IF (AGE=29  & P09Q0C >= 8) .
RECODE
  P09Q0C
  (Lowest thru 8=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code  (SYSMIS=0)  (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
```

```
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.


*Cleaning data for age 30.
DO IF (AGE=30  & P09Q0C >= 8) .
RECODE
  P09Q0C
  (Lowest thru 8=0)  (ELSE=1)  INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code  (SYSMIS=0)  (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 31.
DO IF (AGE=31  & P09Q0C >= 8) .
RECODE
  P09Q0C
  (Lowest thru 8=0)  (ELSE=1)  INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code  (SYSMIS=0)  (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 32.
DO IF (AGE=32 & P09Q0C >= 8) .
RECODE
  P09Q0C
  (Lowest thru 8=0)  (ELSE=1)  INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code  (SYSMIS=0)  (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
```

```
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 33.
DO IF (AGE=33 & P09Q0C >= 8) .
RECODE
  P09Q0C
  (Lowest thru 8=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 34.
DO IF (AGE=34 & P09Q0C >= 9) .
RECODE
  P09Q0C
  (Lowest thru 9=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data age 35.
DO IF (AGE=35 & P09Q0C >= 9) .
RECODE
  P09Q0C
  (Lowest thru 9=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
```

```
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 36.
DO IF (AGE=36 & P09Q0C >= 9) .
RECODE
  P09Q0C
  (Lowest thru 9=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data age 37.
DO IF (AGE=37 & P09Q0C >= 9) .
RECODE
  P09Q0C
  (Lowest thru 9=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 38.
DO IF (AGE=38 & P09Q0C >= 10) .
RECODE
  P09Q0C
  (Lowest thru 10=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
```

```
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 39.
DO IF (AGE=39 & P09Q0C >= 10).
RECODE
  P09Q0C
  (Lowest thru 10=0) (ELSE=1) INTO  ceb_code.
END IF.
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE.
RECODE
  ceb_code (SYSMIS=0) (1=1).
EXECUTE.
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE.
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 40.
DO IF (AGE=40 & P09Q0C >= 10).
RECODE
  P09Q0C
  (Lowest thru 10=0) (ELSE=1) INTO  ceb_code.
END IF.
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE.
RECODE
  ceb_code (SYSMIS=0) (1=1).
EXECUTE.
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE.
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 41.
DO IF (AGE=41 & P09Q0C >= 11).
RECODE
  P09Q0C
  (Lowest thru 11=0) (ELSE=1) INTO  ceb_code.
END IF.
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE.
RECODE
  ceb_code (SYSMIS=0) (1=1).
EXECUTE.
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE.
```

```
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 42.
DO IF (AGE=42 & P09Q0C >= 11).
RECODE
  P09Q0C
  (Lowest thru 11=0) (ELSE=1) INTO ceb_code.
END IF.
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE.
RECODE
  ceb_code (SYSMIS=0) (1=1).
EXECUTE.
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE.
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for age 43.
DO IF (AGE=43 & P09Q0C >= 11).
RECODE
  P09Q0C
  (Lowest thru 11=0) (ELSE=1) INTO ceb_code.
END IF.
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE.
RECODE
  ceb_code (SYSMIS=0) (1=1).
EXECUTE.
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE.
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'.

*Cleaning data for 44.
DO IF (AGE=44 & P09Q0C >= 11).
RECODE
  P09Q0C
  (Lowest thru 11=0) (ELSE=1) INTO ceb_code.
END IF.
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE.
RECODE
  ceb_code (SYSMIS=0) (1=1).
EXECUTE.
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE.
```

```
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'

*Cleaning data for 45.
DO IF (AGE=45 & P09Q0C >= 12) .
RECODE
  P09Q0C
  (Lowest thru 12=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code  (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'

*Cleaning data for age 46.
DO IF (AGE=46 & P09Q0C >= 12) .
RECODE
  P09Q0C
  (Lowest thru 12=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code  (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'

*Cleaning data for age 47.
DO IF (AGE=47 & P09Q0C >= 12) .
RECODE
  P09Q0C
  (Lowest thru 12=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code  (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
```

```
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'

*Cleaning data for age 48.
DO IF (AGE=48 & P09Q0C >= 12) .
RECODE
  P09Q0C
  (Lowest thru 12=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'

*Cleaning data for age 49.
DO IF (AGE=49 & P09Q0C >= 13) .
RECODE
  P09Q0C
  (Lowest thru 13=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'

*Cleaning data for  50.
DO IF (AGE=50 & P09Q0C >= 13) .
RECODE
  P09Q0C
  (Lowest thru 13=0) (ELSE=1) INTO  ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
```

```
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'

*Cleaning data for 51.
DO IF (AGE=51 & P09Q0C >= 13) .
RECODE
 P09Q0C
 (Lowest thru 13=0) (ELSE=1) INTO ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
 ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'

*Cleaning data for age 52.
DO IF (AGE=52 & P09Q0C >= 14) .
RECODE
 P09Q0C
 (Lowest thru 14=0) (ELSE=1) INTO ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
 ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
 FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'

*Cleaning data for age 53.
DO IF (AGE=53 & P09Q0C >= 14) .
RECODE
 P09Q0C
 (Lowest thru 14=0) (ELSE=1) INTO ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
 ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
```

```
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'


*Cleaning data for age 54.
DO IF (AGE=54 & P09Q0C >= 14) .
RECODE
  P09Q0C
  (Lowest thru 14=0) (ELSE=1) INTO ceb_code .
END IF .
VARIABLE LABELS ceb_code 'Children Born Alive Code'.
EXECUTE .
RECODE
  ceb_code (SYSMIS=0) (1=1) .
EXECUTE .
FILTER OFF.
USE ALL.
SELECT IF(ceb_code = 0).
EXECUTE .
SAVE OUTFILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004
Clean_data.sav'
 /COMPRESSED.
GET
  FILE='C:\Documents and Settings\Toshiba\My Documents\Final spss Protes\Census 2004 Clean_data.sav'

*Make frequency, histogram and Bar chart for Child Born Alive, for after cleaning data using Census 2004
clean_data.sav.
FREQUENCIES
  VARIABLES=P09Q0C
  /STATISTICS=STDDEV VARIANCE MINIMUM MAXIMUM MEAN MEDIAN MODE SUM
SKEWNESS SESKEW KURTOSIS SEKURT
  /HISTOGRAM NORMAL
  /ORDER= ANALYSIS .

FREQUENCIES
  VARIABLES=P09Q0C
  /BARCHART FREQ
  /ORDER= ANALYSIS .


_____Developing some variables_____

*8 December 2009
* make age group by five years.
RECODE
  AGE
  (15 thru 19=1) (20 thru 24=2) (25 thru 29=3) (30 thru 34=4) (35 thru 39=5) (40 thru 44=6) (45 thru
49=7) (50 thru
  54=8) INTO AGEGROUPS .
VARIABLE LABELS AGEGROUPS 'AG'.
EXECUTE .

*Make marital status code.
RECODE
  MARITAL_STATUS
  (2 thru 5=1) (ELSE=0) INTO MaritalStatus .
VARIABLE LABELS MaritalStatus 'MS'.
EXECUTE .

*Make Stillbirth experience dummy variable.
COMPUTE SBE = (MSTILL + FSTILL) .
```

```
EXECUTE .

*Make recode for still-birth experience.
RECODE
 SBE
 (1 thru Highest=1) (ELSE=0) INTO StillbirthExperience .
VARIABLE LABELS StillbirthExperience 'SBEx'.
EXECUTE .

*Make recode for still-birth experience 4.
RECODE
 SBE4
 (1 thru Highest=1) (ELSE=0) INTO StillbirthExperience .
VARIABLE LABELS StillbirthExperience 'SBEx4'.
EXECUTE .

*Make Child Death experience.
COMPUTE CDE = P09Q08SE + P09Q08DE .
EXECUTE .
RECODE
 CDE
 (1 thru Highest=1) (ELSE=0) INTO ChildDeathExperiece .
VARIABLE LABELS ChildDeathExperiece 'CDEx'.
EXECUTE .

*Make Child Death experience4.
COMPUTE CDE = P09Q08SE + P09Q08DE .
EXECUTE .
RECODE
 CDE
 (1 thru Highest=1) (ELSE=0) INTO ChildDeathExperiece4 .
VARIABLE LABELS ChildDeathExperiece 'CDEx4'.
EXECUTE .

*Make variabel Employment and occupation status.
RECODE
 ECONOMIC_ACTIVITY
 (6=1) (1 thru 5=2) (7=2) (ELSE=0) INTO EO.
VARIABLE LABELS EO 'Emplo'.
EXECUTE .

*Make variable New Employment and occupation status.
RECODE
 ECONOMIC_ACTIVITY
 (8 thru 13=1) (ELSE=0) INTO EStat .
VARIABLE LABELS EA 'EStat'.
EXECUTE .

*Make for education level variable new (Pendidikan ibu).
compute pendidikan = 1.
if(P07Q12 =1 & P07Q14 =2) pendidikan = 2.
if(P07Q12 =1 & P07Q14 =1) pendidikan = 3.
EXECUTE.

*Make variable Mother Tongue.
RECODE
 MOTONGUE
 (2=1) (33=1) (34=1) (10=2) (20=2) (26=2) (12=3) (24=3) (ELSE=4) INTO MT .
VARIABLE LABELS MT 'Mt'.
EXECUTE .

* Make a variable of Housing, Ownership of housing.
RECODE
 P03Q01
```

```
 (1=0) (ELSE=1) INTO Owners .
VARIABLE LABELS Owners 'Owners'.
EXECUTE .

*make recode type of walls.
RECODE
 P03Q02
 (1=0) (ELSE=1) INTO W .
VARIABLE LABELS W 'Walls'.
EXECUTE .

*make recode type of roof.
RECODE
 ROOF
 (1=0) (4=0) (5=0) (ELSE=1) INTO Rf .
VARIABLE LABELS Rf 'RF'.
EXECUTE .

*make recode type of floor.
RECODE
 FLOOR
 (1=0) (ELSE=1) INTO FL .
VARIABLE LABELS FL 'FF'.
EXECUTE .

*Compute new variable Type of Housing.
COMPUTE ToH = (Owners = 0 & W=0 & Rf = 0 &  FL = 0) + (Owners = 1 & W = 1 & Rf = 1 & FL = 1) .
EXECUTE .


*make new Y variable with cut off point 3 children alive (Y variable with cut off point 3 new  assuming Y=1
(sukses) if have child born alive more than 3, and Y=0 (failed) if have chilborn alive 1-3 child.
RECODE
 P09Q0C
 (1 thru 3=0) (ELSE=1) INTO CBA3 .
VARIABLE LABELS CBA3 'CBA3'.
EXECUTE .

*Make recode Urban Rural in dummy variable (rural =1 and Urban = 0).
RECODE
 P01Q07
 (29=0) (1=0) (11=0) (61=0) (53=0) (114=0) (116=0) (112=0) (176=0) (232=0) (234=0) (284=0)
(299=0) (332=0)
 (334=0) (362=0) (366=0) (393=0) (435=0) (192 thru 204=0) (212 thru 219=0) (221 thru 222=0)
(ELSE=1) INTO UR .
VARIABLE LABELS UR 'UR'.
EXECUTE .

* Make ineraction for variable Education and Age.
COMPUTE EdnAg = (pendidikan * AGEGROUPS) .
VARIABLE LABELS EdnAg 'EDnAg' .
EXECUTE .

*make new variable for age square ( For model with age in continue variable).
COMPUTE AgeSquare = (AGE * AGE) .
EXECUTE .

*recode for basic education on interaction.
RECODE
 pendidikan
 (1=1) (ELSE=0) INTO Educ_1 .
VARIABLE LABELS Educ_1 'Educ_1'.
EXECUTE .
```

```
*recode for middle education.
RECODE
 pendidikan
 (2=1) (ELSE=0) INTO Educ_2 .
VARIABLE LABELS Educ_2 'Educ_2'.
EXECUTE .

*Compute for interaction age continus by educ 1.
COMPUTE AgeCnEduc1 = (AgeSquare * Educ_1) .
VARIABLE LABELS AgeCnEduc1 'AgeCnEduc1' .
EXECUTE .

*Compute for interaction age continous by educ 2.
COMPUTE AgeCnEduc2 = (AgeSquare * Educ_2) .
VARIABLE LABELS AgeCnEduc2 'AgeCnEduc2' .
EXECUTE .

*cross tabs for Bivariate analysis.
CROSSTABS
 /TABLES=AGEGROUPS MaritalStatus StillbirthExperience ChildDeathExperiece pendidikan EStat ToH
MT BY CBA3
 /FORMAT= AVALUE TABLES
 /CELLS= COUNT
 /COUNT ROUND CELL .
CROSSTABS
 /TABLES=MaritalStatus StillbirthExperience ChildDeathExperiece pendidikan EStat ToH MT AgeGs BY
CBA3 P09Q0C
 /FORMAT= AVALUE TABLES
 /CELLS= COUNT
 /COUNT ROUND CELL .

CROSSTABS
 /TABLES=AgeGs BY StillbirthExperience BY CBA3
 /FORMAT= AVALUE TABLES
 /CELLS= COUNT
 /COUNT ROUND CELL .

FREQUENCIES
 VARIABLES=CDEx1 SBEx1 SBE CDE EStat
 /ORDER= ANALYSIS .
FREQUENCIES
 VARIABLES=SBE ECONOMIC_ACTIVITY CDE
 /ORDER= ANALYSIS .
FREQUENCIES
 VARIABLES=StillbirthExperience EStat ChildDeathExperiece
 /ORDER= ANALYSIS .
FREQUENCIES
 VARIABLES=ECONOMIC_ACTIVITY EStat SBE SBEx3 CDE CDEx3
 /ORDER= ANALYSIS .
FREQUENCIES
 VARIABLES=ECONOMIC_ACTIVITY SBE CDE
 /ORDER= ANALYSIS.

*Crosstabs for MS, SBE, CDEX, EDuc, Estat, ToH and MT by Live births for description analysis.
CROSSTABS
 /TABLES= AGE5GROUPS MaritalStatus SBEx4 CDEx4 pendidikan EStat ToH MT BY CBA3
 /FORMAT= AVALUE TABLES
 /CELLS= COUNT
 /COUNT ROUND CELL .
CROSSTABS
 /TABLES=EStat BY CBA3
 /FORMAT= AVALUE TABLES
 /CELLS= COUNT
 /COUNT ROUND CELL .
```

```
CROSSTABS
 /TABLES=ToH  BY CBA3
 /FORMAT= AVALUE TABLES
 /CELLS= COUNT
 /COUNT ROUND CELL .

CROSSTABS
 /TABLES=ToH  BY P09Q0C CBA3
 /FORMAT= AVALUE TABLES
 /CELLS= COUNT
 /COUNT ROUND CELL .
```

For Descriptive analysis mean of live birth by each variabel.

```
* Basic Tables.
TABLES
 /FORMAT BLANK MISSING('.')
 /OBSERVATION P09Q0C
 /TABLES AgeGs > P09Q0C
 BY (STATISTICS)
 /STATISTICS
 mean( ).
* Basic Tables.
TABLES
 /FORMAT BLANK MISSING('.')
 /OBSERVATION P09Q0C
 /TABLES MaritalStatus > P09Q0C
 BY (STATISTICS)
 /STATISTICS
 mean( ).
* Basic Tables.
TABLES
 /FORMAT BLANK MISSING('.')
 /OBSERVATION P09Q0C
 /TABLES SBEx4 > P09Q0C
 BY (STATISTICS)
 /STATISTICS
 mean( ).
* Basic Tables.
TABLES
 /FORMAT BLANK MISSING('.')
 /OBSERVATION P09Q0C
 /TABLES CDEx4 > P09Q0C
 BY (STATISTICS)
 /STATISTICS
 mean( ).
* Basic Tables.
TABLES
 /FORMAT BLANK MISSING('.')
 /OBSERVATION P09Q0C
 /TABLES pendidikan > P09Q0C
 BY (STATISTICS)
 /STATISTICS
 mean( ).
* Basic Tables.
TABLES
 /FORMAT BLANK MISSING('.')
 /OBSERVATION P09Q0C
 /TABLES EStat > P09Q0C
 BY (STATISTICS)
 /STATISTICS
 mean( ).
* Basic Tables.
TABLES
 /FORMAT BLANK MISSING('.')
 /OBSERVATION P09Q0C
 /TABLES ToH > P09Q0C
 BY (STATISTICS)
 /STATISTICS
 mean( ).
* Basic Tables.
TABLES
 /FORMAT BLANK MISSING('.')
```

```
/OBSERVATION P09Q0C
/TABLES MT > P09Q0C
BY (STATISTICS)
/STATISTICS
mean( ).
```

```
*This Model that is the best and choice for this research.  This for Multivariate Analysis.
LOGISTIC REGRESSION  CBA3
 /METHOD = ENTER AGE AgeSquare AgeCnEduc1 AgeCnEduc2 MaritalStatus SBEx4 CDEx4
pendidikan EStat ToH MT
 /CONTRAST (MaritalStatus)=Indicator  /CONTRAST (SBEx4)=Indicator(1)  /CONTRAST
(CDEx4)=Indicator(1)  /CONTRAST
 (pendidikan)=Indicator  /CONTRAST (EStat)=Indicator  /CONTRAST (ToH)=Indicator  /CONTRAST
(MT)=Indicator
 /CRITERIA = PIN(.05) POUT(.10) ITERATE(20) CUT(.5) .
```

John Paul II Statue in Dili

**SENSUS PENDUDUK TIMOR-LESTE**
**JULI 2004**
**KUESIONER RUMAH TANGGA**

| Bagian 1. Informasi Rumah Tangga – Indentifikasi Lokasi | Kode |
|---|---|
| **Khusus Rumah Tangga** | 1 |
| 1. Distrik | |
| 2. Sub-Distrik | |
| 3. Wilayah Pencacahan | |
| 4. Area Pencacahan | |
| 5. No. Bangunan Sensus — *Tempelkan stiker disini* | |
| 6. No. Rumah Tangga (Keluarga Pertama = 1, Keluarga Kedua = 2 dst) | |
| 7. Suco | |
| 8. Aldeia | |
| 9. Nama Kepala Keluarga | |

**Berapa jumlah Perempuan dan Laki-laki di Rumah tangga ini?**
**Lelaki** [ ] **Perempuan** [ ]

| Bagian 2. Informasi Pencacahan | | |
|---|---|---|
| **Perincian** | **Pewawancara** | **Pengawas** |
| 1. Nama | | |
| 2. Kode | | |
| 3. Tanggal wawancara & Pengecekan Pengawas | | |
| 4. Tanda-tangan | | |

**SENSUS PENDUDUK TIMOR-LESTE 2004**
**KUESIONER RUMAH TANGGA**

**Bagian 3. Informasi Tempat Tinggal dan Rumah Tangga.**

| | | |
|---|---|---|
| 1. Apa kategori kepemilikan rumah anda? | Milik sendiri atau milik keluarga = 1<br>Milik Umum atau Suco = 2<br>Milik Pemerintah = 3<br>Milik Gereja = 4<br>Lain-lain = 8 ---------- | ☐ |
| 2. Bahan Bangunan Utama – Dinding Luar | Semen/batako = 1<br>Kayu = 2<br>Bambu = 3<br>Seng = 4<br>Tanah Liat = 5<br>Lain-lain = 8 | ☐ |
| 3. Bahan Bangunan Utama – Atap | Semen = 1<br>Kayu = 2<br>Bambu/Daun-daunan/rumput = 3<br>Seng = 4<br>Genting = 5<br>Asbes = 6<br>Lain-lain = 8 | ☐ |
| 4. Bahan Bangunan Utama – Lantai | Semen/Keramik/Ubin = 1<br>Kayu = 2<br>Tanah = 3<br>Lain-lain = 8 | ☐ |
| 5. Berapa ekor ternak yang dimiliki oleh rumah tangga ini. | Ayam<br>Babi<br>Domba<br>Kambing<br>Kuda<br>Sapi<br>Kerbau | ____<br>____<br>____<br>____<br>____<br>____<br>____ |
| 6. Adakah rumah tangga ini menanan beberapa tanaman, baik temporari atau permanen? Jika ada tolong tandai ( √ ) pada kotak-kotak ini. | ☐ 1. Padi<br>☐ 2. Jagung<br>☐ 3. Ubi kayu<br>☐ 4. Sayur-sayuran<br>☐ 5. Buah-buahan (temporari)<br>☐ 6. Buah-buahan (permanen)<br>☐ 7. Kopi<br>☐ 8. Kelapa<br>☐ 9. Tanaman temporari lain<br>☐ 10. Tanaman permanen lain | |
| 7. Berapa hari dari anggota dewasa di rumah tangga ini, yang memberikan sumbangan tenaga (bekerja) di suco pada bulan yang lalu? | | ☐☐ |
| 8. Apakah di rumah tangga anda, ada seseorang yang menderita sakit jiwa ? | Ya = 1<br>Tidak = 2 | ☐ |
| 9. Apakah di rumah tangga anda ada seseorang yang mengalami cacat? (Buta, Tuli, Kaki patah dsb) | Ya = 1<br>Tidak = 2 | ☐ |

**Sensus Penduduk Timor-Leste 2004**

**Sensus Penduduk Timor-Leste 2004**

**Bagian 4: Anggota Rumah Tangga (yang hadir pada hari sensus)**

| 1 | 2 | 3 | | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|
| **No. Urut** | **Nama Lengkap Anggota Rumah Tangga** | **Umur** *Pada ulang tahun terakhir.* | | **Jenis Kelamin** L = 1 P = 2 | **Hubungan dengan kepala Rumah Tangga** | **Status Pernikahan Sosial Sosial** *lihat kode* | **Apakah Ibu Kandung masih hidup?** Ya = 1 Tidak = 2 Tidak tahu = 3 | **Apakah Ayah Kandung masih hidup?** Ya = 1 Tidak = 2 Tidak tahu = 3 |
| 1 | | | | | 1 | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |

**Bagian 5: Pengunjung pada hari sensus**

| 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| No Urut | Nama Lengkap Pengunjung/ Tamu | Umur *Pada ulang tahun terakhir (tahun)* | Tempat Tinggal biasa | | Jenis Kelamin | Hubungan dengan kepala rumah tangga | Status Pernikahan Sosial | Apakah Ibu kandung masih hidup? Ya = 1, Tidak = 2 Tidak tahu = 3 | Apakah ayah kandung masih hidup? Ya = 1, Tidak = 2 Tidak tahu = 3 |
| | | | Dalam Negeri *Kode Suco* | Luar Negeri *ama Nega* | L = 1 P = 2 | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

| 6. Kode hubungan dengan kepala rumah tangga |
|---|
| 1: Kepala keluarga |
| 2. Istri/suami |
| 3. Anak perempuan/ laki- laki |
| 4. Anak tiri/anak angkat |
| 5. Menantu |
| 6. Ibu/ayah |
| 7. Adik/Kakak |
| 8. Cucu |
| 9. Kakek/Nenek |
| 10. Keluarga lain |
| 11. Bukan keluarga |

| 3. Umur saat ulang tahun terakhir |
|---|
| 0. Kurang dari 1tahun |
| 1. 1 tahun |
| 2. 2 tahun |
| Dan seterusnya |
| |
| |
| |
| 7. Kode - Status Pernikahan Sosial |
| 1: Tidak pernah kawin |
| 2: Kawin |
| 3: Janda/Duda |
| 4: Cerai |
| 5: Pisah |

**Bagian 6: Anggota Rumah Tangga ( RT) biasa yang absen pada hari sensus**

| 1 | 2 | 3 | 5 | 6 | 10 | 11 |
|---|---|---|---|---|---|---|
| No Urut | Nama lengkap Anggota RT yang absen | umur *hari ulang tera (Tahun)* | Jenis Kelamin L = 1 P = 2 | Hubungan dengan kepala rumah tangga | Lokasi pada hari Sensus Luar Negeri *Nama Negar* | Berapa bulan tidak ada *kurang dr 1 bulan = 0* |
| 51 | | | | | | |
| 52 | | | | | | |
| 53 | | | | | | |
| 54 | | | | | | |
| 55 | | | | | | |

**Sensus Penduduk Timor-Leste**

**UNTUK SEMUA ORANG** *(Tidak termasuk orang yang absen)*

**Bagian 7: Kuesioner Rumah Tangga - Informasi Perorangan (Tempat Tinggal)**

| | 1 | | 2 | 3 | | 4 | 5 | | 6 |
|---|---|---|---|---|---|---|---|---|---|
| No. Urut | Tempat Kelahiran *Dimana anda lahir?* Jika lahir di suco ini, masukan kode dari Bag. 1 Jika lahir di luar *Timor-Leste*, tulislah nama negara (Penulisan kode kemudian) | | Lamanya tinggal *Berapa lama tinggal di rumah ini?* (Kurang dari 1 tahun = 0) | Tempat Tinggal sebelumnya *Dimana anda tinggal pada bulan Januari 1999?* | | Jika anda pindah dari tempat itu mengapa anda pindah? | Apakah tempat tinggal anda berbeda pada 2 tahun lalu (Juli 2002) dengan tempat tinggal sekarang? *Jika tidak, lanjutkan ke halaman berikut, jika ya, jawab pertanyaan berikut:* | | |
| | | | | | | | Dimana anda tinggal? | | Mengapa anda pindah? |
| | Nama Suco | Kode | Tahun | Nama Suco | Kode | Lihat kode | Nama Suco | Kode | *lihat kode* |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |

**Pengunjung pada hari sensus - Informasi Perorangan**

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| | | *Berapa lama tinggal di rumah anda sendiri (Di Bagian 5)* | | | | |
| 31 | | | | | | |
| 32 | | | | | | |
| 33 | | | | | | |
| 34 | | | | | | |
| 35 | | | | | | |

**4 & 6. Kode - Alasan Pindah**

1: Pekerjaan
2: Pendidikan
3: Pernikahan
4: Perpindahan keluarga
5: Kembali ke tanah asal
6. Kekerasan
7. Keamanan
8. Penghunian Sementara
9. Lain-lain

**Sensus Penduduk Timor-Leste 2004**

**UNTUK SEMUA ORANG** *(Tidak termasuk yang tidak ada)*

**Bagian 7: Kuesioner Rumah Tangga - Informasi Perorangan**

| 7 | 8 | 9 | | | | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Agama** | **Bahasa Ibu** | **Bahasa** | | | | **Jumlah tahun di Sekolah Dasar** | **Jumlah tahun di Sekolah Menengah** | **Telah Menerima Ijasa Sekolah menengah** | **Jumlah tahun di Universitas** | **Telah Menerima sertifikat atau gelar universitas** |
| | *(bahasa/dialek yang lazim digunakan di rumah)* lihat kode | Dapatkah anda berbicara, membaca dan menulis dalam bahasa-bahasa di bawah ini? lihat kode di bawah | | | | | | | | |
| | | *Untuk orang berumur 6 tahun ke atas* | | | | *Untuk orang berumur 6 tahun ke atas* | | | | |
| lihat kode di bawah | lihat kode | Portu-guese | Tetun | Bahasa Indonesia | English | | | 1 : Ya 2 : Tidak | | 1 : Ya 2 : Tidak |
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**Pengunjung pada hari sensus - Informasi Perorangan**

| 7 | 8 | 9 | | | | 10 | 11 | 12 | 13 | 14 |
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| 7. Kode - Agama |
|---|
| 1: Katholik |
| 2: Islam |
| 3: Budha |
| 4: Hindu |
| 5. Protestan/ Evangelis |
| 6. Tradisional |
| 7. Lain-lain |

| 9. Kode - Bahasa |
|---|
| 0:Tidak dapat berbicara, membaca dan menulis |
| 1: Hanya dapat berbicara |
| 2: Hanya dapat membaca |
| 3: Hanya berbicara dan membaca saja |
| 4: Dapat berbicara, membaca dan menulis |

**Sensus Penduduk Timor-Leste**

**SEMUA ORANG 10 TAHUN KE ATAS** *(tidak termasuk yang absen (tidak hadir)*

**Bagian 8: Kuesioner Rumah Tangga - Informasi Pekerjaan**

| | 1 | 2 | 3 | | 4 | | 5 |
|---|---|---|---|---|---|---|---|
| No. Urut | Kegiatan Ekonomi | Berapa hari anda bekerja pada minggu sebelum hari Sensus? | Pekerjaan *(lihat daftar kode pekerjaan)* | | Industri *(lihat daftar kode industri)* | | Berapa bulan anda bekerja pada Tahun lalu? |
| | Apa yang anda lakukan pada minggu yang lalu? *lihat kode* | *hari* | *Pekerjaan* | Kode di kantor *Kode* | *Kegiatan bisnis apa yang anda lakukan ditempat kerja anda?* | Kode di kantor *Kode* | |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
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| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
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**Pengunjung pada hari sensus - Informasi Pekerjaan**

| | 1 | 2 | 3 | | 4 | | 5 |
|---|---|---|---|---|---|---|---|
| No. Urut | | | | | | | |
| 31 | | | | | | | |
| 32 | | | | | | | |
| 33 | | | | | | | |
| 34 | | | | | | | |
| 35 | | | | | | | |

**1. Kode - Kegiatan pada minggu yang lalu (Termasuk Tenaga Kerja - Jawab Pertanyaan 1-5)**

1. Bekerja di pemerintahan (Termasuk Polisi, tentara, Guru)
2. Bekerja di Organisasi PBB
3. Bekerja di NGO (Diupah atau Sukarela)
4 Bekerja pada Industri Pribadi (Diupah atau Sukarela)
5. Pekerja sendiri pada Bisnis sendiri
6. Petani dan Nelayan

**1. Kode - Kegiatan pada Minggu lalu (Tidak termasuk Tenaga Kerja - lanjutkan ke Bag. 9)**

7. Mencari pekerjaan dan siap memulai pekerjaan

***Tidak bekerja dan tidak mencari pekerjaan***

8. Pelajar
9. Pekerjaan Rumah tangga
10. Pensiun/Terlalu tua
11. Sakit/Cacat
12. Tidak ada pekerjaan
13. Lain-lain

**Sensus Penduduk Timor-Leste 2004**
**SEMUA WANITA UMUR 15 TAHUN KE ATAS**

| Bagian 8: Kuesioner Khusus - Informasi Fertilitas (Kesuburan) | Kode |
|---|---|
| 1. Nama _____ | |
| 2. Tulis saja "No. Urut" untuk wanita dari bagian 4. dan 5. | ☐ |
| 3. Pernahkah anda melahirkan? (Hanya Kelahiran hidup) Ya = 1 Tidak = 2<br>(Jika tidak akhiri wawancara dengan orang ini) | ☐ |
| 4. Bulan dan tahun berapa anda melahirkan pertama kali? Bln/Thn | __/__ |
| 5. Apakah anda mempunyai anak kandung baik lelaki dan perempuan yang tinggal bersama anda sekarang? Jika ya, berapa anak laki-laki dan perempuan yang tinggal dengan anda?<br>Jumlah anak laki-laki di rumah<br>Jumlah anak perempuan di rumah | ☐☐<br>☐☐ |
| 6. Apakah anda mempunyai anak kandung laki-laki dan perempuan yang masih hidup tetapi tidak tinggal dengan anda? Jika ya, berapa anak laki-laki dan perempuan yang masih hidup tetapi tidak tinggal dengan anda<br>Jumlah anak laki-laki di tempat lain<br>Jumlah anak perempuan di tempat lain | ☐☐<br>☐☐ |
| 7. Apakah anda pernah melahirkan anak laki-laki dan perempuan yang lahir mati? Jika ya, berapa anak laki-laki dan perempuan yang lahir mati?<br>Jumlah anak laki-laki yang lahir mati<br>Jumlah anak perempuan yang lahir mati | ☐☐<br>☐☐ |
| 8. Apakah anda pernah melahirkan anak lelaki dan perempuan yg lahir hidup tetapi kemudian meninggal? (Pada umur apa saja)<br>Jumlah anak laki-laki yang meninggal<br>Jumlah anak perempuan yang meninggal | ☐☐<br>☐☐ |
| 9. Jumlahkanlah jawaban dari pertanyaan 5,6 dan 8. Tidak termasuk pertanyaan 7<br>Jumlah total ☐☐ | |
| 10. Hanya untuk menyakinkan bahwa saya benar. Anda mempunyai total (jumlah) Kelahiran hidup selama hidup anda? (Jika tidak benar, cek kembali jawaban utk pertanyaan 5, 6 dan 8) | |
| 11. Anda melahirkan anak anda yang terakhir pada bulan dan tahun berapa?<br>Bln/Thn | __/__ |

**LANJUTKAN KE HALAMAN BERIKUT UNTUK WANITA UMUR 15 Th KE ATAS**