Determinant Model of Female Fertility On Productive Coupleto The Islamic StudiesGroup in Palu,Central Sulawesi

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Abstract-The high fertility has an implication to the population. The large population has broad implication such as additional field jobs, education and health facilities, and the availability of adequate food and energy. Beside that,it has the potential to the ecological and environmental degradation caused by the shift of the function of agricultural land into residence, illegal logging and the rise of social conflict.This study aimed to find out the determinant model of female fertility on productive coupleto the group of Islamicstudies in Palu, Central Sulawesi. This study is an observational study with cross sectional study. The total samplesare149 women onproductive couples in Islamic studies group. The method in taking sampleswas simple random sampling. The data were analyzed by path analysis with the program of Statistical Package for the Social Sciences (SPSS).The results show that knowledge variable hasdirect and indirect effecton fertility. Indirect effect of knowledge variable on fertility is through the use of contraception. Occupation variable does not have direct effect on fertility. However, it hasaneffect indirectly on fertility. That is through the age at first marriage. Religiosity variable does not have direct effect on fertility but it has indirect effect. That is through the use of contraception and the unmet need. While income variable does not have direct or indirect effect on fertility. Determinant model of female fertility on productive coupleto the group of Islamicstudies in Palu, CentralSulawesi is:Fertility = -0,337 knowledge – 0,286 the age at first marriage + 0,434 the use of contraception + 0,483 unmet need.

Keywords: Model, Determinant, Fertility.

I.　INTRODUCTION

The increasing number of people every year creates a phenomenon that thebirth control (fertility) is an important issue in this world nowadays. Based on data taken from the Department of Economic and Social Affairs of the United Nations in 2013, the population in this world reached 7,2 billion by 2013. It is predicted to reach 8,1 billion in2025(UNDP, 2013). Large population has broad implicationsuch as additional field job, education and health facilities, and the availability of adequate food and energy. Besides,it has the potential to the ecological and environmental degradation caused by the shift of the function of agricultural land into residence, illegal logging, and the rise of social conflict.

One of the components affecting the growth of the population is birth (fertility). Fertility interm of demographic is defined as a result of the real reproduction from a woman or a group of women that is calculated by the number of babies bornalive. The level offertility in a country is effected by several variables, such as gender, marital status, the use of contraception or other characteristics. According to Davis and Blake (1956), there are some variableswhich have direct and inderecteffect, such as socio-cultural and economic. Freedman (1975) adds the theory of Davis and Blake with the social norms occuring in a society. Moreover, Richard A Easterlin said that ahalf of fertility level isdetermined by the background of characteristics likethe value of children's perception, religion, condition insettlement, education, occupation status, age at first marriage, income, and dead baby.

Findings from theresearch conducted by Sarah, H. and Philip, M.S. (2008) in the United States show that women who say that religion is "very important" have higher fertility than who say that it is "less important" and "unimportant". Then,another findingsof the study from Zhang, L. (2008) in the United States show that religiosity and the effect of religious affiliation on various denominations in Christian Catholic and Protestant show a positive effect on fertility. The higher the level of someone's religiosity,higher the level of the fertility.

The level of fertility in Indonesia is vary diverse based on the province. Diversity of fertility in provinces is relatively large, ranging from 1,8 children per woman in Yogyakarta to 4,2 children per woman in the East Nusa Tenggara. Meanwhile, the level of fertility in some provinces is still quite high with TFR (stand for what?)is more thanthree children per woman, among others Nangro Aceh Darussalam, North Sumatra, West Sumatra, Kepulauan Riau, Central Kalimantan, Central Sulawesi, Southeast Sulawesi, West Sulawesi, Maluku, North Maluku and West Papua (Data from Central Bureau of Statistics 2013).

Meanwhile,Trend TFR of Central Sulawesi showthe tendance tobean improvement (in 2000, 2010 and 2012) respectively 2,7; 2,9; 3,2. Those data are as well as the data reported by the Survey ofDemographic and Health of Indonesia in 2012 where the TFR of Central Sulawesi reached 3,2 (Data from Central Bureau of Statistics 2013).

In the government's efforts to reduce the level of fertility are: declaring the Family Planning programas as a national

movement,setting the Marriage Constitution in which regulate and define the boundaries of marriage age, and restrictingthe child's subsidy for civil servants or armed till the second child only. These efforts have not been maximum yet. It can be proven by the level of fertility in Palu, Central Sulawesi, which is still high. Therefore, to solve this problem,the determinant model of female fertility on productive coupleto the group of Islamicstudiesneeds to be investigated.

II.   MATERIALS AND METHODS

This study is an observational study with cross sectional study. The populations in this study are all women in productive couple who are themembers of Islamic study groups. They are Jama'ah Tabligh (JT)organization, Wahdah Islamiyah (WI), HizbutTahrir Indonesia (HTI), Hidayatullah, and Majelis Mujahidin of Indonesia (MMI) in Palu. The samples are 149 people taken from each group of Islamic studies by simple random sampling (Kuntoro 2010). The data were analysed by using path analysis with program of Statistical Package for the Social Sciences (SPSS) (Sharma, S., 1995).

III.   RESULTS

Determinant model analysis of female fertility on productive couple in the group of Islamic Studies in Palu, Central Sulawesi, were conducted in two stages: the first stagewas analysis of exogenous variables (knowledge, occupation, income, and religiosity) towardintervening variables (age at first marriage, the use of contraception, breastfeeding duration, and unmet need); and the second stage was analysis ofexogenous and intervening variables toward the dependent variable (fertility).

1. *The Effect of Exogenous Variables (Knowledge, Occupation, Income, and Religiosity) to the Age at First Marriage*

Result analysis from the first stageabout the effect of exogenous variables (knowledge, occupation, income, and religiosity) tothe age at first marriage is as follows:

Table 1The effect of exogenous variables (knowledge, occupation, income, and religiosity)tothe age at first marriage in Palu by 2015

Exogenous Variable	Standardized Beta Coefficient	T Value	Sig.
Knowledge	0.136	1.653	0.101
Occupation	0.243	2.894	0.004
Income	-0.73	-0.852	0.395
Religiosity	-0.027	-0.330	0.742

Source: primary data

Table 1 shows that from the four exogenous variables analyzed,only occupation variable has a significant effect to the age at first marriage (standarized beta coefficient = 0,243 with p = 0,004).

Based on the analysis that has been done, then a model equation is drafted as follows:

The age at first marriage = 0,243 occupation.

2. *The Effect of Exogenous Variables (Knowledge, Occupation, Income, and Religiosity) to the Use of Contraception*

Result analysis of the effect of exogenous variables (knowledge, occupation, income, and religiosity) tothe use of contraception is as follows:

Table 2The effect of exogenous variables (knowledge, occupation, income, and religiosity)tothe use of contraception in Palu by 2015

Exogenous Variable	Standardized Beta Coefficient	T Value	Sig.
Knowledge	0.246	3.114	0.002
Occupation	-0.099	-1.226	0.222
Income	0.029	0.354	0.724
Religiosity	-0.298	-3.828	0.000

Source: primary data

Table 2 shows that from the four exogenous variables analyzed,it is seen that only knowledge and religiosity variables have a significant effect to the use of contraception (each standardized coefficient beta = 0.246 and -0298 with p = 0.002 and 0.000).

Based on the analysis that has been done, then a model equation is drafted as follows:

The use oc contraception = 0,246 knowledge -0,298 religiosity.

3. *The Effect of Exogenous Variables (Knowledge, Occupation, Income, and Religiosity) to the Duration of Breastfeeding*

Result analysis of the effect of exogenous variables (knowledge, occupation, income, and religiosity) to the duration of breastfeeding is as follows:

Table 3The effect of exogenous variables (knowledge, occupation, income, and religiosity)tothe the duration of breastfeeding in Palu by 2015

Exogenous Variable	Standardized Beta Coefficient	T Value	Sig.
Knowledge	-0.013	-0.087	0.931
Occupation	0.100	0.754	0.454
Income	-0.023	-0.160	0.874
Religiosity	0.025	0.85	0.854

Source: primary data

Table 3 shows that from the four exogenous variables analyzed,it is seen that none from the variables has a significant effect to the duration of breastfeeding(each variable value of p is $\geq 0,05$).

4. *The Effect of Exogenous Variables (Knowledge, Occupation, Income, and Religiosity) to theUnmet Need*

Result analysis of the effect of exogenous variables (knowledge, occupation, income, and religiosity) tothe unmet need is as follows:

Table 4The effect of exogenous variables (knowledge, occupation, income, and religiosity)tothe unmet needin Palu by 2015

Exogenous Variable	Standardized Beta Coefficient	T Value	Sig.
Knowledge	-0.131	-1.583	0.116
Occupation	-0.008	-0.100	0.921
Income	0.083	0.963	0.337
Religiosity	0.194	2371	0.019

Source: primary data

Table 4 shows that from the four exogenous variables analyzed,only religiosity variable has a significant effect to the unmet need (standarized beta coefficient = 0,194 with p = 0,019).

Based on the analysis above, then a model equation is drafted as follows:

The unmet need = 0,194 religiosity.

5. *The Effect of Exogenous Variables (Knowledge, Occupation, Income, and Religiosity) and Intervening (Age at First Marriage, Contraception, Breastfeeding Duration, and Unmet Need) to the Fertility*

Result analysis of the second stage about the effect of exogenous variables (knowledge, occupation, income, and religiosity) and intervening variables (age at first marriage, contraception, breastfeeding duration, and unmet need) tothe fertility obtained the following results:

Table 5The effect of exogenous variables (knowledge, occupation, income, and religiosity) and intervening variables (age at first marriage, contraception, breastfeeding duration, and unmet need) tothe fertility in Palu by 2015.

Exogenous Variable	Standardized Beta Coefficient	T Value	Sig.
Knowledge	-.337	-2.593	.012
Occupation	-.063	-.524	.602
Income	.066	.517	.607
Religiosity	.101	.834	.408
The age at first marriage	-.286	-2.370	.021
The use of contraception	.434	2.744	.008
Breastfeeding duration	.054	.475	.637
Unmet need	.483	3.303	.002

Source: primary data

Table 5 shows that from the four exogenous variables that have been analyzed, it can be seen that only knowledge variable has a significant effect tothe fertility with a standardized Beta coefficient = -0,337 and p = 0,12). While from the four intervening variables, the age at first marriage, contraception and unmet need variable have a significant effect tofertility.

Based on the analysis above, then a model equation is drafted as follows:

Fertility = -0,337 knowledge –0,286 the age at first marriage + 0,434 the use of contraception + 0,483 unmet need.

This model can be described as follows:

Figure 1Determinant Model of Female Fertility on Productive Coupleto the IslamicStudies Group in Palu, CentralSulawesi.

IV.   DISCUSSION

1. *The Effect of Knowledge to the Fertility*

Knowledge is a very important domain in determining someone's actions. Someone's knowledge inrelation to fertility can affect the level of fertility. Commonly, the better knowledge that someone's have, the lower thelevel of the fertility.

The result tested based hypothesis show that knowledge has a direct effect towardfertility with p = 0,014. Standardized beta coefficient obtained is mines. It means that the higher the respondents' knowledge about the things with fertility, the lower the level of fertility.Indirect effect of knowledge tofertility is through the use of contraception obtained p = 0,002. Standardized beta coefficient are

mines, which means that any increase ofknowledge will be followed by an increase in the use of contraception. These results also support the research doneby Venkat, P *et al* (2008) that the less of mother's knowledge about the effects of contraception in Latina effect the mother's participation in family planning Use of contraception is intended to avoid or to prevent the pregnancy as a result from the meeting between the egg and sperm cells. These results are in line with the research conducted by Casterline, J.B. and El Zeni, L.O (2014). They conclude that the completion of the need ofcontraception in some countries in sub Saharan goes down significantly in fertility level.

2. The Effect of Occupation to theFertility

Essensially, work is a source of human's satisfaction, social catalyst once as a complement to the status and human dignity. With the development of science, technology and global change on various sectors, the efforts to respond these changes in order to enhance human being necessitates arequite big.

Results of hypothesis testing show that there is no direct effect between occupation status ofproductive couple and the level of fertility. However, it has an effect on fertility levelthrough the age at first marriage. Effect of occupation status of productive coupleto the age at first marriage is valued positively. It means that people who work tent to postpone their marriage. Women who work often makes a career in his work become a cause to postpone themarriage because the time to take care of children and household can consume much time in job. By that,increasing age at first marriage means to shorten the reproductive period of women who will ultimately reduce the birth number. Instead,women who are married at young age have a long reproductive period so the total number of children born are also more. It means thatthe birth number is higher than women who marry at older age.

The finding of this hypothesis also supports the argument of Caceres J. and Delpiano (2012) that in several developing countries, having children impact negatively to the carrier women and cause women to postpone their marriage.

3. The Effect of Religiosity to theFertelity

Anggasari (as cited in Firmansyah, I., 2010) distinguish between religion and the term of religiosity. Religion or religious refers to the formal aspects relating to the rules and obligations.While religiosity refers to the aspect internalized by individuals, which means that there is an internalized element religion within the individual. Lindridge (2005) suggests that religiosity can be measured by the presence of religious institutions and the importance of religion in the daily life. Jaluddin (2001) says that religion in the individual livehas a function as a system of values that contain certain norms.

Based on the explanation above, we can conclude that religiosity is the depth of a person's religious appreciation and a belief in the existence of God which is realized by obeying commands and avoid a ban.

Results obtained by testing the hypothesis that religiosity does not havea direct effect tothe level of fertility. However, theeffectis through the use of contraception and the unmet need. The effect of religiosityto the use of contraception is negative. It means thatthose women on productive couples who have high understanding aboutreligiosity tend to not use contraception.

Some opinions from therespondents who link the use of contraception with religious aresuch as by mentioning some of the verses of the Qur'an and the hadith of the Prophet SAWrelated to the use of contraception and fertility. Disagreement was found about family planning in Islam.Some people allow that andothers forbid.Among the arguments, they are:

1. *Q.S. Al-Isra: 31*

   It means: "Do not kill your children for fear of poverty. It is we who give sustenance to them and to you."

2. *Hadith of Muslim*

   "If a man dies so the entire value of the reward of good deed is stopped, except three cases: jariah alms, tha useful knowledge and pious children who pray for their parents."

3. *Abu Dawud Hadith 2050, An-Nasai 6/65, Sahih Abu Dawud, 1789, Sahih Ibn Hibban 9/4056, Hasan Sahih in the book of Al-Irwa' 1784*

   "Marry women who are fertile and have a high affection.Actually,I am proud of you because of many people in the Day of Resurrection in front of other people".

4. *Sahih Hadist from Abu Dawud 1/320; Nasa'i 2/71, Ibn Hibbaan no. 1229, Judge 2/162, Baihaqi 781, Abu Nu'aim in Al-Hilyah 3 / 61-62:*

   "We have done coitus interruptus while the Qur'an was still falling down (in the time of the Prophet Muhammad sallallaahu 'alihi wa sallam). In another narration, it wasconveyed that it was delivered to Muhammad and he let/silence. It indicates his skill".

5. *Q.S. An-Nisa: 9*

   It means: "And let those fear to Allah. As if they left their children in a weakened state and they fear to theirprosperity. Therefore, let them fear to Allah and speak the true words".

The arguments of the Qur'an and hadith above areinterpreted differently by the Islamic community. For

instance, hadiths about the permissibility to coitus interruptus is interpreted differently by therespondents. In one side that accepts the concept of family planning refers this hadith as the permissibility to undergo a preventive effort and lets the contraception to be used. While other side interpret the hadith as a preventive action of pregnancy, which isallowed by Rosulullah so there is no need to use contraception anymore.Results of this study are supported by research of Manlove, *et al*(2008) that those who come from a religious family have a direct negative affectwith the consistency of the use of contraception.

The effect of religiosity to the level of fertility is also through theunmet need for family planning, where the higher the respondents' understanding aboutreligiosity,the higher the unmet need for family planning. This is due to the effect of religiosity to the use of contraception has also effected to theunmet need for family planning status. Although religiosity is not the only one determinant of high status of unmet need in the society but the demographer say that among the factors causing, the still high level of unmet need is because ofreligious and socio-cultural factors besides affordability factor and the quality of family planning services.

Finding from testing thehypothesis is in line with a research doneby Glacier *et al* (2007). He conclude that there is an effect of religiosity, conservative political, and cultural power to 120 million pairs using unmet need for family planning.

V.   CONCLUSION

1. Knowledge has either direct or indirect effect to the level of fertility. Knowledge variable effect indirectlyto thefertility through the use of contraception.
2. Occupationdoes not have direct effect to thelevel of fertility but occupation has indirect effect to the fertility through the ages at first marriage.
3. Religiosity does not directly effect the level of fertility but the variable of religiosity has indirect effect to the level offertility. That is through the use of contraception and the unmet need.
4. Determinant model offemale fertility on productive couple in Palu is:
    Fertility = -0,337 knowledge –0,286 the age at first marriage + 0,434 the use of contraception + 0,483 theunmet need.

SUGGESTION

1. Al-Qur'an Surah Al-Isra: 31, Surah An-Nisa: 9
2. It needs to increase the counseling to the productive coupleabout the use of contraception and fertility and its impact appeared.
3. It is expected that the government in Palu, Central Sulawesi, will bein collaboration with the relevant

stakeholders, especially to the religious leaders to promote family planning to cope with the level of fertility.
4. There should be regulations on the prohibition of marrying at an early age in order to prevent the level of fertility.

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