SOME FACTORS OF SOCIO ECONOMIC DEMOGRAPHICS ON FERTILITY RATE IN CENTRAL JAVA

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The aims of this study was to examine the influence of socio-economic demographics factors on the fertility rate. The fertility rate for women of childbearing age are influenced by various factors. This study used the social factors include educational variables, old maids and the use of contraceptives; Economic factors include variables work status and family income; and demographic factors that include variables of the respondent’s age, place of residence and age of first marriage. The study used 60 respondents couple households in Central Java, Indonesia. The analysis tool used is multiple linear regression. The study found that of the seven hypotheses were tested, only two hypotheses are accepted. Fertilitas influenced by income level and age of marriage. Revenue was found stronger influence than the age of marriage. Therefore, in order for the fertility rate to be low, the socialization on family planning for women of childbearing age who already have high income needs to be intensified. On the other hand, in order for the first marriage age increased, then the family planning program should be already introduced earlier through the schools curriculum and the provision of information about risks of young marriage age. In addition, the implementation of socialization on family planning should be more intensified, especially for teenagers who will enter childbearing ages. This can be done through teenage family development activities in each neighborhood.

JEL Classification: J10, J13

Keywords: fertility rate, socio-economic, demographic, income, marriage age

INTRODUCTION

Indonesia has begun a period of demographic bonus in 2015-2035, with the dependency ratio ranged between 0.4-0.5 (Casnudi, lifestyle.kompasiana.com/urban/2014/10). The ratio implies that every 100 people of productive age bear 4-5 people of unproductive age. The demographic bonus is an opportunity of prosperity of a country because the proportion of the productive people (15-64 years old age) is greater than the proportion of unproductive people (<15 years and >65 years). The pattern of the demographic bonus cycle takes place once a century. Therefore, the opportunity must be utilized as well as possible.

One effort that must be made to take advantage of the demographic bonus period is to implement development with people conception. The development should be centered on people (people centered development), namely potential and people’s needs-oriented development. The success of the development is largely determined by the quality of the people rather than by the large number of people.
Such large number of people will be a burden of development when they are not qualified.

The Census is conducted every 10 years in Indonesia. The results of the last census conducted in 2010. The population of Central Java, according to the 2010 Population Census was 32,382,657 people. This number increased when compared to the 2000 Population Census which amounted to 30,924,164 people. The population growth rate of 0.37 declined compared to the previous, namely 0.84. In detail, it can be seen in Table 1.

<table>
<thead>
<tr>
<th>No</th>
<th>Description</th>
<th>Population Census</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2000</td>
</tr>
<tr>
<td>1</td>
<td>Number of population</td>
<td>30,924,164</td>
</tr>
<tr>
<td>2</td>
<td>Population Growth</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Source: National Bureau of Statistics

Although the population growth in Central Java had been declining, in absolute terms, the number was still increasing. One reason was that the birth rate remained high (based on SDKI of 2007 at 2.3 and Susenas at 2.32). This condition indicated that the fertility rate in central Java was still high. Fertility rate is the number of births desired, and it can be measured by the total fertility rate (TFR).

Based on the data of SDKI on 2007, TFR at 2.3 indicated that the balanced population growth could not be achieved. More balanced population growth was characterized by a total fertility rate (TFR) at 2.1 children per woman or net reproduction rate (NRR) at 1. Based on the vision and mission of BKKBN (Badan Kependudukan dan Keluarga Berencana Nasional/government agencies for the population in Indonesia), a balanced population growth was set in 2015. It was also in line with the Millennium Development Goals (MDG), which set TFR at 2.1 in 2015. If the fertility rate was still high, the vision and mission of BKKBN in 2015 to achieve the target of a balanced population growth was hard to achieve. Similarly, the target of MDGs that set TFR at 2.1 would also be difficult to achieve.

Based on the description, the fertility rate was very interesting to study, especially in Central Java. Central Java with a total area of 32,548 km² (25.04% of the area of Java) had a number of women of childbearing age (WUS/15-49) as many as 8,696,765 people or 53.38% of the total population of 32,382,657 people in Central Java. This study was intended more to analyze the influence of social economic and demographic factors on the fertility rate in Central Java.

The problem in this study was that the fertility rate in Central Java was still high. Fertility rate is the number of births desired, and it can be measured by the total fertility rate (TFR). Based on the background, it had been expressed that BKKBN and MDG’S set a balanced population growth in 2015, with TFR at 2.1.
In fact based on the data of Susenas at 2013 TFR in Central Java was 2.32. This indicated that women of childbearing age in Central Java chose to have many children. The word chose in this case refers to the economic theory of fertility. According to Mundiharno (1998), the topics covered in the fertility economics related to the economic choices of persons in determining fertility (quantity and quality).

The fertility rate for women of childbearing age is influenced by various factors. These factors include the social, economic and demographic. This study used the social factors including educational, household assistant and the length of contraceptive use variables; economic factors including employment status and family income variables; and demographic factors including the respondent’s age, residence and age of first marriage variables.

Based on the background and problems raised in this study, the problem formulation was how to keep the fertility rate in Central Java low and the influence of socioeconomic demographic factors on the fertility rate in Central Java. In general, the purposes of this study were to gain an overview of the influence of socioeconomic and demographic factors on the fertility rate. This study was also to provide input as consideration for making policy in addressing the problem of high fertility rate for women of childbearing age and to provide input for women of childbearing age in determining the choice of the number of children they have in order for their welfare to be fulfilled.

RELEVANT LITERATURE

Fertility is the natural ability to give birth. As a measure, the fertility rate is the number of children born per couple, person or population. Fertility is real, not potential, so different from the fecundity, which is defined as the potential to reproduce. The lack of fecundity called sterility (http://kamuskesehatan.com/arti/fertilitas). In other words, fertility concerns the number of live births. Fertility is a demographic component. Analysis on fertility, as well as an analysis of two other demographic components, namely mortality and migration, (http://www.google.com). A discussion of the theories of fertility is often associated with factors that affect fertility.

1. Theory of Leibenstein: There are various theories that explain the factors that affect fertility. According Leibenstein son viewed from two aspects: usefulness (utility) and the aspect of cost. Its usefulness is to give satisfaction, can provide economic remuneration or assist in the activities of production and is a source that can support parents in the future. While expenses for raising children is the cost of having the child. The cost of having an additional child can be divided into direct costs and indirect costs. The definition of direct costs are those costs incurred in maintaining a child as food and clothing to meet the needs of children until it can stand
on its own. The definition of indirect costs is a lost opportunity for their additional child. For example, a mother can not work anymore because they have to care for the child, loss of income during pregnancy, or reduced mobility dependent parents who have large families (Leibenstein, 1958 in Mundiharno; http://www.google.com). Thus, for a working mother to have a low fertility rate, whereas mothers who did not have high fertility rates.

2. **New Household Economics Theory:** New household economics theory suggests (Mundiharno; http://www.google.com) that (a) the parents start to prefer children of higher quality in an amount which is only slightly so that the purchase price increases; (b) when income and education increases, the more time (especially when the mother) used to care for children. So the child becomes more expensive. As well as in micro-economic analysis when the price gets higher, the demand for the commodity becomes less and less. This is in line with the theory of demand for children (demand for children). Thereby increasing the level of education and income, hence the preference for the less fertility. Therefore, this study uses a variable income that can be divided into three groups: low income, medium and high. The higher the education level will affect low fertility rate.

3. **Theory of Judith Blake:** According to Judith Blake (Mundiharno; http://www.google.com) that the economic problem is the secondary problem is not a matter of normative, if the poor have more children than the rich, it is because of the poor is more strongly influenced by norms pro-natalist norm rather than the rich. It can be concluded that the richer a person is getting a little bit to have the number of children or otherwise has a low fertility rate. In this study, a man’s wealth is measured by family income so that the higher the family income the lower the level of fertility.

4. **Richard A. Easterlin Theory:** The economic analysis of fertility proposed by Richard A. Easterlin revealed that the demand for children is partly determined by the characteristics of the individual’s background, such as religion, education, place of residence, type / family type and so on. Ananta (1983, in Anwar 1995) outlines a model Easterlin showing the relationship of a child price by the number of children. The more expensive (cost) price of a child, the little (a lot) the number of children desired. Price is the difference between the cost and the advantages of having a child. Costs and benefits are calculated in terms of monetary and not monetary. Increase or decrease in revenue resulted in changes in demand for children.

Wahyudi (2011) suggest that social factors, namely the improvement of education, economy and health of women working determining fertility rates tend to decline. The woman who ever studied in Primary School likely to have the number of children that a lot, and then tends to decrease the number of children at
a higher level junior high or high school. And the families who contribute economically active (working) in the social life negatively affect (reduce) the parity.

Oktavia, Putro, and Sari, (2014), showed that 48% of respondents who graduated from high school have an average of two children, and 26% of respondents had undergraduate education most have one child, while 26% are not completed primary school and educated the secondary levels mostly had children 3-4 children. The results showed that the higher the education level of fertile couples, the wife will understand more about the welfare of the family in creating a happy little family and quality. Higher education can delay marriage somebody, because if it is higher education a direct most women do not marry but will work on first. Even if some of them were married at a young age, their knowledge of pessary will delay them to have children. Women who marry at a young age were found to have higher levels in fertilitas and mortality (Reddy, K.S.N. and Sudha, G., 2010).

Murder (2011) shows that the relationship between level of education and number of children each showed a negative relationship, where the higher the level of education, the lower the fertility rate. The study showed the following data: a woman who did not complete primary school on average give birth to 2.68 children; women who complete primary school have an average of 1.06 children; women who completed high school/vocational school have an average of 1.12 children, and women who graduated from colleges/universities on average have 0.8 children. From these data show that the higher the education of women in the city of Palangkaraya then the child is getting low.

Hatmadji (1980) explained that according to population census on 1971 showed symptoms of the relationship between fertility and educational attainment inverted U-shape in which the low-level education to junior high positive relationship then after that relationship becomes negative. These results are consistent with the age of first marriage that are getting younger reproductive age someone, it can be expected to further perpetuate his marriage a young person the more the child is born. Based on SKDI (2007), the average age of first marriage at 18.1, while the ideal is 21 years for women and 25 years for men.

Sumini, Tsalatsa, & Kuntohadi (2009) explains that the respondents were not using contraception, fertility rates of respondents from rural areas is high, while the respondents who use contraceptives from rural areas have significantly lower fertility rates. Siswanto (1995) describes the changes in reproductive behavior in conjunction with lifestyle changes traditional society into an industrial society. So that changes of modernization which leads to increased practice of contraception and the cause of the fertility transition in the community.

METHODS

In order to achieve the study objectives, it required primary data. Primary data is data taken directly from the sources, namely the respondents of women as
housewives. The data were collected by survey. Unit analysis in this study was women as housewives. The population in this study was housewives who lived in Semarang city. Samples taken were 60 respondents. The sampling was conducted by convenience sampling, namely the respondent encountered ease during the implementation of the study and directly sampled. There were two analysis methods used in this study, namely: Descriptive Statistical Analysis and Inferential Analysis.

Inferential analysis used was a multiple linear regression. Multiple Linear Regression analysis used to determine the influence, employment status, education, income, age, household assistant, marriage age and the length of contraceptive use on the number of children. Before being analyzed with the regression, a model feasibility test was conducted to determine the feasibility of the resulting regression model in predicting the fertility rate. The model feasibility test was conducted by using an F test. Furthermore, the coefficient of determination is used to determine the overall influence of independent variables on the change in the dependent variables. In addition, the multiple linear regression analysis was used to test the truth of the hypothesis proposed in this study, in which the model was as follows:

$$Y = a + \beta_1 \text{Stat} + \beta_2 \text{edu} + \beta_3 \text{inc} + \beta_4 \text{age} + \beta_5 \text{prt} + \beta_6 \text{mrr} + \beta_7 \text{lcu} + e$$

Where:
- $Y$ = number of children
- Stat = employment status
- edu = education
- inc = family income
- age = respondent’s age
- prt = household assistant
- mrr = marriage age
- lcu = length of contraceptive use
- $a$ = intercept
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ = regression coefficient
- $e$ = estimation error

RESULT

The following is the results of the descriptive analysis showing the frequency of the data of study on each variable in this study. The results of this study showed that families with no children were 5 families (8.3%); families with 1 child were 13 families (21.7%); families with 2 children were 28 families (46.7%); families with 3 children were 13 families (21.7%) and families with 4 children were 1 family (1.7%). It could be concluded that most of the samples had 2 children in one family.
This study showed the status of housewives who worked as many as 47 wives (78.3%), while the remaining 13 wives (21.7%) did not work. From the education level of housewives, those with education above or equal to stratum 1 (S1) were 33 wives (55%), while the remaining 27 wives (45%) had education below stratum 1 (S1).

Based on the family income per month, in this study were divided into three groups. The first group was families with a family income per month over Rp 27 million to Rp 40 million by 3 families (5%); the next group with the number of family income over Rp 14 million to Rp 27 million by 11 families (18.3%); the next group with the number of family income of Rp 1,200,000 to Rp 14,000,000 by 46 families (46.7%).

This study showed the age of the youngest respondent was 23 years old while the age of the oldest respondents was 60 years. In this study, the respondent’s age was divided into three groups: the first group was the young group of 23 years to 35 years old of 15 respondents (25%), the next group was housewives of over 35 years to 47 years old of 30 respondents (50%), the latter was the old group of over 47 years to 60 years old of 15 respondents (25%). The existence of household assistant in the family showed information that those who had household assistants were 19 families (31.7%), and those who did not have were 41 (68.3%).

The results of study showed that the youngest marriage age was one year, while the oldest was 34 years old. In this study, the marriage age was divided into three groups: the first group was the marriage age from 1 to 12 of 22 respondents (36.7%), the next group was the marriage age over 12 years to 23 years of 30 respondents (50%) and the latter was the marriage age over 23 years to 34 years of 8 respondents (13.3%).

Length of contraceptive use used by respondents in this study was divided into two groups: short term and long term. Long-term use group was the length of contraceptive use over 132 to 264 per month of 12 respondents (20%) while the rest was from 0 to 132 of 48 respondents (80%).

The feasibility model test was used to determine the feasibility of the resulting regression model in predicting the fertility rate. The feasibility model test was conducted using an F test. Based on results of the feasibility model test result and F value of 5.108 with a significance value of 0.000. Given the scale of significance value less than 0.05, it could be concluded that the resulting model was feasible to predict the fertility rate.

The resulting regression equation was as follows:

\[
\text{Fertility rate} = -0.085 \text{ stapek} - 0.133 \text{ didik} + 0.476 \text{ pndptan} - 0.092 \text{ ur} - 0.267 \text{ prt} + 0.586 \text{ us} - 0.078 \text{ lpalt}
\]

The determination coefficient was conducted to determine the influence of independent variables on the overall change in the dependent variables. The results of the calculation of the determination coefficient (R²) adjusted (adjusted R²) was
0.328 meaning that 32.8 percent of the variation of all independent variables (employment status, education, income, respondent’s age, existence of household assistant, marriage age and length of contraceptive use) could explain the dependent variables (fertility rate), while the remaining 67.2 percent was explained by other variables not proposed in this study.

Result of the t-test was conducted to see the influence partially (individual) of independent variables (employment status, education, income, respondent’s age, existence of household assistant, marriage age and length of contraceptive use) to the dependent variable (fertility rate) or test the significance of the constant and the dependent variable. Based on the results of the t-test calculation could be concluded that:

1. t-test variable of employment status resulted the t value of -0.677 with a significance value of 0.501. Given the scale of significance value that is greater than 0.05, it could be concluded that this variable could not partially influence the fertility rate.
2. t-test variable of education resulted the t value of -0.952 with a significance value of 0.346. Given the scale of significance value greater than 0.05, it could be concluded this variable could not partially influence the fertility rate.
3. t-test variable of income resulted the t value of 2.977 with a significance value of 0.004. Given the scale of significance value less than 0.05, it could be concluded this variable could partially influence the fertility rate.
4. t-test variable of respondent’s age resulted the t value of -0.372 with a significance value of 0.712. Given the scale of significance value greater than 0.05, it could be concluded this variable could not partially influence the fertility rate.
5. t-test variable of household assistant resulted the t value of -1.733 with a significance value of 0.089. Given the scale of significance value greater than 0.05, it could be concluded this variable could not partially influence the fertility rate.
6. t-test variable of marriage age resulted the t value of 2.277 with a significance value of 0.027. Given the scale of significance value less than 0.05, it could be concluded this variable could partially influence the fertility rate.
7. t-test variable of the length of contraceptives use resulted the t value of -0.629 with a significance value of 0.532. Given the scale of significance value greater than 0.05, it could be concluded this variable could not partially influence the fertility rate.
DISCUSSION

Based on the t-test, the employment status variable could not partially influence the fertility rate. Thus the hypothesis stating that there was an influence of the employment status on the fertility rate was rejected. This study suggested that the employment status consisting of employed and unemployed did not play a role in influencing the fertility rate. These findings indicated that the fertility rate was not influenced by the employment status. This was because having a number of children did not consider the employment status, but they considered more on better quality children and in accordance with the desired gender.

The results of the t-test in this study indicated that the education variable could not partially influence the fertility rate. Based on this, the second hypothesis stating that there was an influence of the educational level on the fertility rate was rejected. The results of this study indicated that the fertility rate was not influenced by the education level. It was likely influenced by the variable that linked between fertility norms that have been received by the community and the number of children they had. According to Ronald Freedman (1962) that the fertility norms already established could be accepted by the community in accordance with one’s desired fertility. According to him the norm was considered a recipe to guide a series of specific behavior in various same situations. This study indicated that the indicator of education consisting of education above or equal to stratum 1 (S1) and education under stratum 1 (S1) did not influence the fertility rate.

The results of the t-test showed that the income variable could partially influence the fertility rate. These findings indicated that the third hypothesis stating that there was an influence of the family income on the fertility rate was accepted. The results of this study were not in line with New Household Economic theory stating that when the income increased, there was more time (especially mother’s time) to take care of her children. So children became more expensive. As in the micro economy analysis, if the price is higher, then the demand for commodity is less. The results of this study was also in line with the theory of demand for children. Thus, the higher the income level increased, the more the fertility rate. This study used an income variable that could be divided into three groups: low, medium and high income. The higher the income level, it would influence the high fertility rate.

Based on the t-test variable of the respondent’s age, it could not influence partially the fertility rate. Thus the fourth hypothesis testing that there was an influence of the respondent’s age on the fertility rates could not be accepted (rejected). The results of the t-test of the respondent’s age variable could not partially influence the fertility rate. Thus the hypothesis testing that there was an influence of age on the fertility rate could not be accepted (rejected). The rejection of this hypothesis indicated that the fertility rate was not influenced by the respondent’s age.
Theoretically, according to Davis and Blake (in Mundiharso, 1998) suggested factors influencing the fertility through intermediate variables. According to them, social, economics and culture factors would influence the fertility through intermediate variables. There were 11 variables between those influencing the fertility and each was grouped into 3 stages of reproduction process, namely: (1) the factors that influence the occurrence of intercourse variables consisting of the factors that regulated the absence of sexual intercourse and factors that regulate the sexual intercourse. Factors that regulate the absence of sexual intercourse included ages starting the sexual intercourse; permanent celibacy, namely the proportion of women who had never had sexual intercourse; and the length of the reproductive period after or between the period of sexual intercourse if the life of married couple was divorced or separated and when the life of husband and wife ended because the husband died. While the factors that regulated the sexual intercourse included the voluntary abstinence, abstinence because they had to (by impotence, illness, temporary separation) and the frequency of sexual intercourse. (2) The factors that influenced the conception variables included fertility or infertility that is influenced by accidental factors, used or unused contraceptive method using mechanical and chemicals means, using other methods and fertility or infertility influenced by accidental factors (sterilization, subincision, drugs and so on). (3) The factors that influenced the pregnancy and birth (gestation variables), namely fetal mortality caused by accidental factors and fetal mortality by accidental factors.

The results of the t-test of the existence of household assistant variable could not partially influence the fertility rate. Thus the fifth hypothesis testing that there was an influence of the existence of household assistant on the fertility rate could not be accepted (rejected). This study indicated that the indicators of the existence of household assistant consisting of with household assistant and without household assistant did not influence the fertility rate. According to Freedman, the variable that directly influence the fertility was intermediate variable. The intermediate variable was influenced the norms prevailing in the community, namely the norms about the family size and the norms about the intermediate variable itself. Thus the number of children owned by a family indirectly influenced the existence of household assistant but it was also influenced by an intermediate variable as proposed by Davis and Blake. Briefly the intermediate variable could be grouped into 3 stages of reproductive process, namely: (1) the factors that influence the occurrence of the sexual intercourse (intercourse variables); (2) the factors that influence the conception (conception variables); and (3) the factors that influence the pregnancy and birth (gestation variables).

Based on results of the t-test showed that marriage age could partially influence the fertility rate. These findings indicated that the sixth hypothesis testing there was an influence of marriage age on the fertility rate was accepted. Thus it could be said that the marriage age had a positive influence on the fertility rate. The
results of this study supported the idea of Hatmadji (1980) stating that the younger a person held his/her marriage, the more children he/she had. Therefore socialization on population, family planning and family development (KKBPK) programs was necessary for all citizens. It should be done with the hope of improving knowledge, attitudes and behaviors, individuals, families and communities in growing the values of population development-minded behavior. Development with population conception implies that the development conducted should emphasize more on improving the quality of human resources as compared to the infrastructure development alone. Challenges in development with population conception is controlled growth and fulfillment of basic needs, such as food supply.

Based on t-test, the length of contraceptive use variable can not partially the fertility rate. Thus the hypothesis stating that there was an influence the length of contraceptive use on the fertility rate was rejected. This study indicated that the length of contraceptive use as measured by time spent by the respondents in the contraceptive use did not influence the fertility rate. These findings indicated that the fertility rate was influence by the length of the contraceptive use. This was most likely because having a number of children did not consider the length of the contraceptive use, but they considered more the norms about the family size. The norms further influenced the intermediate variable and ultimately influenced the fertility rate as the theory of fertility expressed by Freedman.

CONCLUSION
In order for the fertility rate to below, the conclusion given are as follows:

1. The results of this study indicate that the factors that influence the fertility rate are income and marriage age. The study found that incomes are stronger influence than the age of marriage. Therefore, in order for the fertility rate to be low, the socialization on family planning for women of childbearing age who already have high income needs to be intensified. On the other hand, in order for the first marriage age increased, then the family planning program should be already introduced earlier through the schools curriculum and the provision of information about the disadvantaged/risks of young marriage age. In addition, the implementation of socialization on family planning should be more intensified, especially for teenagers who will enter childbearing ages. This can be done through teenage family development activities in each neighborhood block (RW) and neighborhood ward (RT).

2. For women of childbearing age who are unmarried, then to have less children, it can be done by delaying the marriage age.

FUTURE RESEARCH
The findings of this study showed the determination coefficient in which the results are still small, then for future study is necessary to use other variables other than
those used in this study, for example, a residence variable. Besides, it can also be applied to the study model using intermediate variables.

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