

Do Personality Traits Affect Fertility Intention in Indonesia?

Wahyuningsih

Master Program of Population and
Labor Economics

Faculty of Economics and Business
Universitas Indonesia

Depok, Indonesia

yuning@ymail.com

Abstract— Many factors are related to fertility intention, such as personality and social demography. This research examined the effect of personality traits on fertility intention in Indonesia. In this study, fertility intention is defined as the intention to add another child or not by ever-married women aged 15–49-years-old in 2014. This study used the Indonesian Family Life Survey 2014. Using logistic binary regression to estimate the model, the results showed that personality traits have a significant effect on fertility intention. Extraversion and conscientiousness were associated with lower odds of intending to add children, whereas agreeableness and openness were associated with higher odds of intending to add children.

Keywords— fertility intention, personality traits, personality, fertility behavior

I. INTRODUCTION

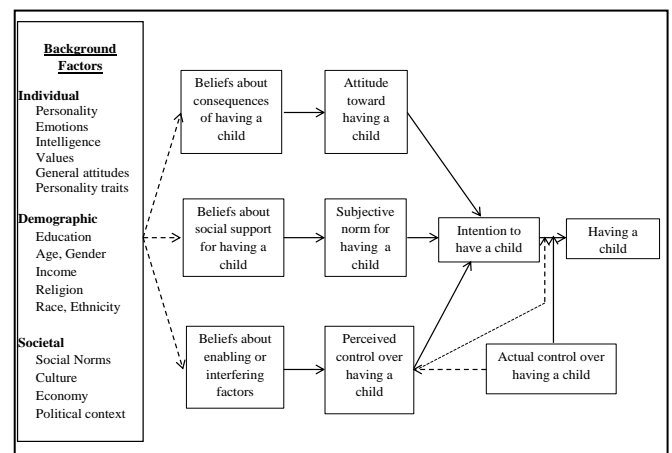
In developing countries, the demand for children is determined by four factors: the cost and benefits of having children; the opportunity cost of having children; personal preferences in having children, and income and welfare [1]. These four factors influence a person's decision-making in determining an intended number of children.

Becker [2] defined children as consumer goods that provide a certain satisfaction or utility for parents. Each individual has different utility levels in deciding the combination of goods and how much will be consumed. Differences in utility between individuals are caused by differences in preferences [3]. That is, the number of children a person wants is also influenced by the child's preference. Bulatao [4] stated that the preference of having children differs between religions, linguistic boundaries, inter-cultural and inter-group levels of socio-economic development, and between personality types.

Additionally, studies based on behavioral economic theory [3, 5, 6] have explained that one's decisions comprise both rational and irrational decisions, where irrational decisions are influenced by psychological factors. This is in line with Golsteyn and Schildberg-Hörisch's [7] opinion that "economic preferences and personality traits are related concepts in the sense that both are characteristics of the individual that have been shown to predict individual decision-making and life outcomes across a wide variety of domains."

Based on the theoretical linkage above, it can be interpreted that personality traits influence a person's

preference to add another child or not. Through this research, the main goal to be achieved is to see the influence of the mother's personality traits on her intention to add another child or not.



A. Research problem

The family planning program has significantly reduced the birth rate in Indonesia. Data from Statistics Indonesia (BPS) show a significant decrease in the fertility rate, from 5.61 children per reproductive age in 1968 (Population Census 1971) to 2.6 children per reproductive women in 2012 [8] i.e., since the implementation of the family planning program.

However, this outcome is, in fact, uneven throughout Indonesia as there are striking differences among the provinces. DI Yogyakarta had the lowest fertility rate in 2012 with a total fertility rate (TFR) of 2.1 children per reproductive woman while West Papua had the highest TFR at 3.7 children per reproductive women. Over 30% of provinces have a fertility rate equal to 3 children per reproductive women.

Viewed from the macro side, economic disparities between provinces in Indonesia could be one of the causes of the difference in fertility rates. As expressed by Caldwell [9], there is a relationship between welfare levels and fertility rates. While Hull [10] argued that fertility decline in Indonesia is influenced by institutional factors (such as the family planning program), it is also influenced by factors of

ethnic and cultural differences in Indonesia. From the micro side, the condition requires further research. Micro-level research on sociological and economic aspects has been done to identify the fertility rate in Indonesia. However, micro research from the psychological aspect has not been done in the Indonesian context.

B. Research objective

On the basis of previous research, this study postulated five hypotheses on how personality traits may predict having children. First, childbearing is motivated, in part, by the social relations with friends and that people who value such relationships are most likely to have more children. Individuals with high sociability prefer to be with other people, thus, they may be more motivated to have children than those with low sociability. Extraversion is a central personality trait in social behavior. This study, therefore, hypothesized that high extraversion predicts an increased probability of having more children.

Individuals with high emotionality may perceive having more children as more stressful than do those with low emotionality and may, therefore, be less likely to have children of their own. Neuroticism reflects a general tendency to experience negative emotions, such as anxiety, and to become easily distressed. Therefore, the second hypothesis is that high neuroticism decreases the probability of having more children.

Third, agreeable individuals tend to be empathic, caring, and cooperative; thus, it is expected that high agreeableness is associated with having more children. The fourth hypothesis is a negative association between conscientiousness and having more children. Conscientiousness that is related to goal orientation and self-discipline, and are important in predicting motivation to pursue a successful career. Career-oriented people tend to delay childbearing or have fewer children.

The last hypothesis is the negative association between openness and having more children. High openness correlates with cognitive ability and educational achievement, both of which are associated with the postponement of childbearing and lower parity.

II. LITERATURE REVIEW

A. Predicting Fertility Behavior from Fertility Intentions

The pattern of fertility behavior in developing countries can be predicted by using fertility intention patterns. Fertility rates using the fertility intention approach tend to be higher than actual fertility rates because fertility intention does not take into account infant and child mortality [4]. However, McClelland [11] mentioned that for countries that already have a good family planning program, fertility intention is able to predict well the actual fertility rate. Indonesia is one of the countries that have a successful family planning program.

Fertility intention has been widely used by many researchers because it can predict well for short- and medium-term fertility behavior although less well for the long-term [12]. Fertility behavior changes as fertility intention changes [12, 13]. A study conducted by Schoen et

al. [14] suggested a strong and consistent relationship between the desire to have children or not and the desire to add children with fertility behavior.

B. Determinants of Fertility Intention

Ajzen dan Klobas [13] mentioned psychological social factors developed from the theory of planned behavior that can affect a person's desire to have children in three ways First, psycho-social factors address behavioral beliefs, where the desire to have children is the result of positive and negative judgments on the consequences. Second, the desire to have children is a blend of one's assessment of the expectation of having children and social factors. Third is the assumption of the personal ability to have children. Figure 1 illustrates the theory of planned behavior as applied to fertility decisions.

C. Personality Traits and Fertility Intention

Based on the psychology literature, one's behavior and attitudes are a combination of two effects: basic character and external influences such as culture. The basic character inherent in a person is fundamentally stable, whereas one's behavior and attitude may change [15].

A study conducted by Kim [16] estimated the effects of personality traits, physical attractiveness, and intelligence on reproductive behavior (transition to parent and expected number of children). It was found that female personality characteristics significantly affect the expected number of children, whereas conscientiousness had no statistically significant effect. Extraversion and agreeableness have a positive correlation with the expected number of children. That is, an increase in either trait increases the expected number of children. However, neuroticism and openness negatively correlate with the expected number of children. This means that an increase in these character points reduces the number of expected children.

Tavares [17] observed the influence of personality traits at the first birth between a group of women with low education and those who are highly educated. By using survival analysis, it was found that in the low-educated group, the five personality types significantly affected the first birth both before and after being controlled by other variables. In the group of highly educated women, however, only agreeableness, extraversion, and openness were significantly affected at first birth both before and, in contrast, while controlled by other variables.

Based on research conducted by Jokela et al. [18], a statistically positive relationship exists between extraversion and agreeableness on the number of children they have while a negative relationship exists between neuroticism, conscientiousness, and openness on the number of children they have.

D. Measures of personality traits

According to Almlund et al. [19], "personality traits are the relatively enduring patterns of thoughts, feelings, behaviors that reflect the tendency to respond in certain ways under certain circumstances." The measurement of personality traits involves the "Big Five Personality Traits." This measure comprises five basic individual traits and is based on a set of personal characteristics. Based on the

classification, the dimensions of the Big Five personality traits: extraversion (vs. introversion), agreeableness (vs. antagonism), conscientiousness (vs. lack of direction), neuroticism (vs. emotional stability), and openness (vs. closed to experience) [15].

Costa and McCrae [20] described the characteristics of the five personality traits. Extraversion is mainly characterized by sociability. Extroverts tend to be sociable, talkative, and assertive as opposed to reserved and quiet. Agreeableness relates to the willingness to help others, to be caring, gentle, cooperative, kind and affectionate, and contrasts a prosocial orientation toward others with antagonism. Someone who scores high on conscientiousness tends to follow the rules, to be reliable, well-organized, self-disciplined; the low scores tend to be undependable, disorganized, lazy, and negligent. “Neuroticism” summarizes traits related to emotional stability. High scorers in neuroticism tend to be anxious, depressed, and insecure. Openness to experience relates to unconventionality and intellect. Someone who scores high on openness tends to question conventions, to be imaginative, creative, curious about the world, complex, and broad-minded (as cited in [15]).

III. RESEARCH METHOD

A. Data

The data used in this study are secondary data sourced from the Indonesian Family Life Survey (IFLS) 2014. IFLS is an individual-level and household-based longitudinal survey conducted since 1993. IFLS 2014 covers 13 provinces in Indonesia (Sumatera Utara, Sumatera Barat, Sumatera Selatan, Lampung, DKI Jakarta, Jawa Barat, Jawa Tengah, DI Yogyakarta, Jawa Timur, Bali, Nusa Tenggara Barat, Kalimantan Selatan, dan Jawa Timur), which represents about 83% of Indonesia’s population.

One of the reasons for using IFLS 2014 data in this study as it relates to the personality variables to be researched is that it is only available in this survey. “Personality” comprises a new set of questions in the IFLS that uses the Big Five Index 15 (BFI 15), consisting of 15 questions to describe five individual characteristics so that each characteristic is described by three questions.

B. Unit of analysis

The unit of analysis used in this study was an ever-married woman of reproductive age (15–49-years-old) in 2014.

C. Method

Before examining the association between personality traits and the intent to add children, we counted the score of personality traits. In the IFLS 2014, each person was asked about how much he or she agreed with adjectives describing his or her personality using a five-point scale: 1 = disagree strongly; 2 = disagree a little; 3 = neither agree nor disagree; 4 = agree a little; and 5 = agree strongly). When required, some variables were reverse-coded so that high scores reflected the higher level of the trait and means were taken for each item set. Based on the IFLS 2014, the following are adjectives for each trait: extraversion - talkative, outgoing, and

sociable; agreeableness - has a forgiving nature, considerate and kind to almost everyone, and softhearted; conscientiousness - organized, hardworking, and efficient; neuroticism - easily distressed, worries a lot, and gets nervous easily; openness - curious, imaginative, and artistic. Then, each trait score was standardized by transforming to a mean value of 0 and standard deviation of 1 so that the odds ratio expressed the difference in the odds of intending to add children by one SD difference in the personality trait level.

Finally, the following logistic binary regression analysis was used to examine the influence personality traits on the intent to add another child or not:

$$\ln \left(\frac{\pi}{1-\pi} \right) = \beta_0 + \beta_1 \text{ extra} + \beta_2 \text{ agree} + \beta_3 \text{ neuro} + \beta_4 \text{ cons} + \beta_5 \text{ open} + [\beta_6 \text{ parity} + \beta_7 \text{ age} + \beta_8 \text{ mean years schooling} + \beta_9 \text{ area} + \beta_{10} \text{ workforce}] + \varepsilon_i \quad (1)$$

IV. RESULTS

Table 1 shows the result of the logistic binary regression. Extraversion was associated with lower odds of intending to add another child (Table 1). This was not in accordance with the hypothesis. In other words, a one SD difference in extraversion decreases the tendency to add more children by 0.9 times when the influences of other variables are fixed. If extraversion is defined as a personality with a high level of social relations, then these results are in line with the research conducted by Yeni [21] who studied the influence of social capital on the number of live births in Indonesia and found women with higher social capital tend to have fewer children.

Agreeableness shows a significant and positive influence on the intention to add more children, which concurs with the hypothesis. Each increase of one SD for agreeableness results in an increase in the tendency to add more children by 1,067 times when the influences of other variables are fixed.

The relationship between conscientiousness and the intention to add another child is negative. Table 1 shows that every increase of one SD for conscientiousness will decrease the tendency to add more children by 0.937 times when the effects of other variables are held constant. On the contrary, an increase of one SD in openness increases the tendency to add more children by 1,078 times. In the present study, neuroticism is not statistically significant in affecting the desire to add more children.

TABLE I. RESULT OF LOGISTIC BINARY REGRESSION

Variable	β	Sig.	Exp
Extraversion	-0.066	0.012*	0.937
Agreeableness	0.065	0.018*	1.067
Neuroticism	0.030	0.259	1.030
Conscientiousness	-0.065	0.020*	0.937
Openness	0.076	0.006*	1.078
Parity	-0.859	0.000*	0.424
Age	-0.111	0.000*	0.895
Mean years schooling	-0.007	0.364	0.993
Area	-0.157	0.004*	0.855
Workforce	0.195	0.000*	1.216

*significant at $p < 0.05$

V. CONCLUSION

The findings of this study demonstrate that personality traits are systematically associated with an intention to add another child. Therefore, individual differences in psychological disposition need to be considered in explanatory models of human fertility in contemporary societies.

REFERENCES

- [1] R. D. Lee, and R.A. Bulatao, "The Demand for Children: A Critical Essay," in *Determinant of Fertility in Developing Countries*, vol. 1, R. D. Lee and R.A. Bulatao, Eds. Washington, D.C.: National Academy Press, 1983, pp. 233-287.
- [2] G. S. Becker, "An economic analysis of fertility," In *Demographic and Economic Change in Development Countries*, vol. I, Universities-National Bureau Ed. New York: Columbia University Press, 1960, pp. 209-240.
- [3] N. G. Mankiw, *Principles of Microeconomics*, 7th ed. Stamford: Cengage Learning, 2015.
- [4] R. A. Bulatao, "Reducing Fertility in Developing Countries-A Review of Determinants and Policy Levers," *The International Bank for Reconstruction and Development/The World Bank*, 1985 [Working Paper].
- [5] S. Mullainathan, and R. H. Thaler, "Behavioral Economics," in *International Encyclopedia of the Social & Behavioral Sciences*, vol. 2, J. D. Wright, ed. United States: Elsevier, 2015, pp. 1094-1100.
- [6] S. DellaVigna, "Psychology and economics: evidence from the field," *J. Econ. Lit.*, vol. 47, no. 2, pp. 315-372, 2009.
- [7] B. Golsteyn, and H. Schildberg-Hörisch, "Challenges in research on preferences and personality traits: Measurement, stability, and inference," *J. Econ. Psychol.*, vol. 60, pp. 1-6, 2017.
- [8] Statistic Indonesia (Badan Pusat Statistik-BPS), National Population and Family Planning Board (BKKBN), Ministry of Health (MOH-Kemenkes), Agency for International Development (USAID), and ICF International, *Indonesia Demographic and health Survey Jakarta, Indonesia*, Jakarta: BPS, BKKBN, Kemenkes and ICF International, 2012.
- [9] J. C. Caldwell, *Theory of Fertility Decline*. London: Academic Press, 1982.
- [10] T. H. Hull, *People, Population, and Policy in Indonesia*. Singapore: Institute of Southeast Asian Studies (ISEAS), 2005.
- [11] G. H. McClelland, "Family-Size Desires as Measured of Demand," in *Determinant of Fertility in Developing Countries*, vol. 1, R. D. Lee and R.A. Bulatao, Eds. Washington, D.C.: National Academy Press, 1983.
- [12] D. Philipov, "Theories on Fertility Intentions: A Demographer's Perspective," *Vienna Yearbook Pop. Res.* vol. 9, pp. 37-45, 2011.
- [13] I. Ajzen, and J. Klobas, "Fertility intentions: An approach based on the theory of planned behavior," *Demogr. Res.*, vol. 29, pp. 203-232, 2013.
- [14] R. Schoen, N. M. Astone, Y. J. Kim, C. A. Nathanson, and J. M. Fields, "Do fertility intention affect fertility behavior?," *J. Marriage Fam.*, vol. 61, pp. 790-799, 1999.
- [15] O. P. John, and S. Srivastava, "The big five trait taxonomy: History, measurement, and theoretical perspective," In *Handbook of Personality*, 2nd ed., L. A. Pervin and O. P. John, Eds. London: The Guilford Press, 1999, pp. 102-138.
- [16] K. Kim, "The effect of personality traits, physical attractiveness, and intelligence on reproductive behavior," *Kor. J. Sociol.*, vol. 49, pp. 161, 2015.
- [17] L. P. Tavares, "Who delays childbearing? The relationships between fertility, education and personality traits," 2010 [ISER working paper series].
- [18] M. Jokela, A. Alvergne, T. V. Pollet, and V. Lummaa, "Reproductive behavior and personality traits of the five factor model," *Eur. J. Pers.*, vol. 25, pp. 487-500, 2011.
- [19] M. Almlund, A. L. Duckworth, J. Heckman, and T. Kautz, "Personality psychology and economics," 2011 [NBER Working Paper No. 16822].
- [20] P. T. Costa, and R. R. McCrae. "Normal personality assessment in clinical practice: the NEO personality inventory," *Psychol. Assess.*, vol. 4, pp. 5-13, 1992.
- [21] L. S. Yeni, *Pengaruh Modal Sosial Terhadap Fertilitas di Indonesia (Analisis Jalur Data Susenas Tahun 2014)*. Thesis. Depok: Universitas Indonesia, 2017.