



## Why decentralization in Indonesia is not good for reducing women fertility? Results from National Socio Economic Survey 2002-2014 and a case study

Tria Abrianty<sup>a\*</sup>, Sujarwoto<sup>b</sup>

<sup>a</sup> *Empat Lawang Family Planning Agency, South Sumatra, Indonesia*

<sup>b</sup> *Brawijaya University, Malang, Jawa Timur, Indonesia*

### ARTICLE INFORMATION

#### Article history:

Received 1 January 2017

Accepted: 22 March 2017

Available online: 1 September 2017

*Keywords:* decentralization, women fertility, mixed method, Indonesia

### ABSTRACT

This study examines the relationship between decentralization and women fertility in Indonesia. Mixed methods combining multilevel analyses of National Survey Data (*Susenas*) 2002-2014 and a case study of *Empat Lawang* district were used to examine the relationship and to elaborate why fiscal, administrative and political decentralization do not contribute for reducing women fertility in the country. The findings show that decentralization in Indonesia do not contribute for reducing women fertility. It reveals that lack of district fiscal capacity, lack of competencies of street level bureaucrats, and lack of district mayor political commitment in family planning challenges the promises of decentralization for reducing women fertility. The findings conclude that decentralization in the country may not an effective way for reducing and controlling women fertility. The government may revitalize decentralized family planning and population control programs by addressing those three challenges.

2017 FIA UB. All rights reserved.

### 1. Introduction

The rapid growth of world's population has always been a main concern, particularly in developing countries. World Population Prospects: 2015 Revision reports that the world population reached 7.3 billion as of mid-2015, implying that the world has added approximately one billion people in the span of the last twelve years. At the country level, much of the overall increase between now and 2050 is projected to occur either in high-fertility countries, mainly in Africa, or in countries with large population. By 2050, six of the ten largest countries in the world are expected to exceed 300 million: China, India, Indonesia, Nigeria, Pakistan and United States of America.

Indonesia, recognized as the fourth most populated countries in the world had projected as one of six

countries that will contribute the biggest portion of world population. According to Indonesia's National Population Census 2010, the population of the country had been multiplying two times in the span of 40 years, from approximately 119 million in 1971 to 237 million in 2010. The population growth was steadily decreasing from 2.33% in 1971-1980 to 1.44% in 1990-2000, however, the number was slightly increase to 1.49% (BPS, 2016). Over the next 25 years, Indonesia can expect to experience very substantial population growth – an increase of 67 million or 28%, although the rate of growth is projected to be gradually slowing to 0.625 in 2030-2035 periods (UNFPA, 2016). With this large number of growth, Indonesia has continuously facing population related issues.

Population growth influenced by four factors; fertility, mortality, migrations and age structure, but

\* Corresponding author. Tel.: +62-8112575443; e-mail: [redchestra@gmail.com](mailto:redchestra@gmail.com)

fertility obviously played the main role. Total fertility rate (TFR) in simple terms refers to the total number of children born or likely to be born to a woman in her lifetime if she meets the prevailing rate of the age-specific fertility in the population (WHO, 2014). The rapid population growth experienced by Indonesia is mostly due to the high level of fertility.

At the beginning of the 1970s, the Indonesia's total fertility rate was 5.6 children per woman, counted as a high fertility. During the 1970s, there was much discussion of the government's goal of reducing fertility by one-half by the turn of the twenty-first century. Although appeared unrealistic at that time, the targeted reduction was achieved by 1994. Between 1971 and 1994, the total fertility rate fell from 5.61 to 2.86 births per woman, or by 49% (Pasay & Wongkaren, 2001). The fertility decrease in Indonesia during 1970s through 1990s has known as one of the demographic success in the world. However, the fertility decline experienced until 1990s has not continued in the present century, fertility in 2012 was barely different from its level in 2002. According to Indonesia Demographic and Health Survey 2012, the TFR was 2.56 while in 2007 and 2012 the number had been stuck in 2.59 (BKKBN, 2013), thus bring forward the statement that Indonesia's TFR has been stalling for over one decade.

The success story of Indonesia's demographic development and fertility decline began after Suharto became president in 1967. At that time, the government started to acknowledge that the country's population problem could not be separated from its development problems. The New Order's regime under Suharto administration had a very strong commitment to economic and political stability, upon which all population policy and program efforts have relied. One of effort in his population policy was the establishment of *Badan Koordinasi Keluarga Berencana Nasional* (BKKBN) by presidential decree in 1970. The president and report directly to him, ensuring the effective execution of its policy and program, appoint the head of the organization. The BKKBN was given the mandate to coordinate all family planning activities performing by both the government and nongovernmental organizations (Pasay & Wongkaren, 2001). This strong central agency, other than supported by the president and the government itself, also received strategic, financial and technical support from international donor community. The centralistic character given by Suharto enabling BKKBN to organize vertical programs from the central level to the village, with lines of control and structures for actions implementation. The combination of strong commitment by the leader of the country and

the central command of policy execution by BKKBN led the Indonesia's family planning program to become one of the world's greatest demographic success stories of the 20th century.

However, the success story discontinued after the government passed decentralization reform in 1999. BKKBN was granted a waiver and so did not decentralize until January 2004. The most prominent change to BKKBN was the loss of central control over the program and policy. With decentralization, the BKKBN district offices were moved in most cases, where in some districts the responsibility for family planning came under the office of Health, or Population, or Civil Registration, or Women's Empowerment or some combination of these (Hull & Mosley, 2009). The lack of commitment by the head of district government also marked the change. Although the family planning program is still one of obligatory functions (*urusan wajib*) at districts levels, the priority is set below other programs such as health and education, as it is allocated a very small share of the *Anggaran Pendapatan Belanja Daerah*, only between 0.04 and 0.20%. The past success of family planning program lay mostly in the work of *Petugas Lapangan Keluarga Berencana-PLKB* (family planning fieldworkers) who is the main task is to encourage the couples to adopt small family size values and to use contraception. After decentralization, the PLKB belongs to the *Kabupaten/Kota* and the numbers declined significantly, thus the promotion of family planning is rather neglected at the local level, with great variation between districts (Jones & Adioetomo, 2014).

The link between decentralization and fertility has been studied in developed and developing countries. The role of states in determining non-marital fertility levels in Europe declined, the explanations for the changes include increased supranational integration, for example within European Union, and decentralization within states leading to increases in variation in sub national contextual conditions (Klusener et al, 2012). In China, a research using fertility rates as explanatory variables found that more fiscally decentralized provinces have lower infant mortality rates than the provinces that are the main spending authority, if certain conditions are met (Uchimura & Jutting, 2009). In India, a fertility transition index is developed to measure and monitor fertility transition at the district level, following the need of an effort in developing information system in decentralized population (Chaurasia, 2011). The Philippines experience indicates that decentralization in and of itself does not always improve the efficiency, equity and effectiveness of the health sector. Instead, it can exacerbate inequities, weaken local commitment to

priority health issues and decrease the efficiency and effectiveness of service delivery by disrupting the referral chain (Lakshminarayanan, 2003). In Ethiopia, greater decentralization of health expenditure appears to be associated with improving indicators of health system outputs such as decreasing fertility rate (Khan. et al, 2014).

Although Indonesia's decentralization reform has been conducted almost two decades, relatively few studies examine its consequences on declining women fertility. Among those, Rahayu et al. (2009) pointed that the contraceptive prevalence rate (CPR) which is one of the main factors of fertility decline, only increased by 4% over ten years period of decentralization, suggesting a relatively weak performance of family planning program after decentralization, even though the knowledge of contraception is high among married women. The same result also found by Simatupang (2009), the proliferated municipalities' prevalence rate decrease from 52% to 48% from 1997-2001, likely due to the relative increase of out of pocket cost of contraceptive after the financial crisis. Hull and Mosley (2009) formulated recommendations regarding the flat trend of contraceptive prevalence rate and total fertility rate following the change of governmental system from centralization to decentralization. Hull and Mosley (2009) believed that there is a direct connection between the stagnancy of fertility rate with decentralization. However, their findings were based on descriptive analyses that may bias for many unobserved factors. Moreover, most of those studies are based on national level data and therefore unable to capture the dynamic of decentralization and women fertility within district governments.

This study address limitations of prior studies in several ways. First, it combines results of National Survey data and a case study to explore why decentralization fails to reduce women fertility in the country. Second, using most recent National Survey data (*Susenas*) 2014, this study assesses the relationship between three types of decentralization (fiscal, administrative and political decentralization) and low fertility in Indonesia. Third, this study uses multilevel analysis to account for unobserved heterogeneity of the effect of decentralization in district government on low fertility. The analysis is also able to account for proximate and social determinants of women fertility as well as supply determinants at district government. Therefore, the hypotheses linking decentralization and women fertility can be examined properly. In the next section, we discuss three hypotheses linking decentralization and women fertility.

## **2. Theory**

Decentralization is broadly defined as the shifting of responsibilities between tiers of government by several fiscal, administrative, and political instruments (Grindle, 2006). The rationale for any decentralization initiative is to increase efficiency, cost effectiveness and program performance (Litvack & Seddon, 1999; Lieberman, 2002). Decentralization is also expected to improve inter-sectoral coordination and promote community participation (Grindle, 2006).

There are many arguments in favor of decentralization for improving family planning and reducing women fertility. First, it is argued that a decentralized system, by reducing centralistic policy and increasing the access to better information on local circumstances, helps to make rational and flexible decisions that reflect the real problems and preferences of the population. This closer flow of information and interaction between health service providers and clients can provide non-bureaucratic institutional support to effectively target the local needs. It also promotes inter-sectoral coordination, increases accountability, reduces duplication, and improves the implementation of health programs (Litvack & Seddon, 1999; Lieberman, 2002). This has a positive impact on the delivery of health care services and ultimately on health outcomes, including reproductive health.

Based on the argument above it can be well assumed that local government agendas such as family planning and population control also can be better addressed in a decentralized environment. Localization of fertility policy in China is a good example to illustrate the success of decentralization in decreasing total fertility rate. Baochang et.al (2007) explain that the ability of China's provincial government to draft their own birth control regulations allowing the local bodies to make their own preferences to regulate the allowable number of children and criteria of exemptions. These regulations clearly more acceptable in a country with heterogeneous demographic and socioeconomic conditions such as China, proven by the decline of the total fertility rate from more than 6 children per woman in 1950s to below the so-called "reproductive level" of 2.1 children per woman in 1990s (World Bank, 2014).

Second, decentralization passes responsibility and accountability to local bodies. This makes local governments become allocative efficient because resources can be devoted to the most needed local services. With decentralization, fiscal responsibilities for services rest with local managers who have incentives to improve efficiency given that they can use the savings

for other local purposes (Robalino et al, 2001). Their close relationship with the local people enables them to be aware of local problems and needs, and they are 'therefore in a better position to establish the right priorities than a central (or regional) government far away' (Peabody et al., 1999; World Bank, 2004). From these arguments, thus can be derived that the ability to self-maintain the public services program's expenditure allowing the local government to focus on their own population preferences including in the matter of population control. Higher fiscal capacity enables local government to increase their expenditure in fertility related budget, thus contributing to fertility decrease.

Third, decentralization is expected to enhance the participation of local communities in decisions regarding health policy objectives, goals, strategies, planning, financing, implementation, and monitoring, which are important to improve the health outcomes at the local level (Lieberman, 2002). Decentralization is expected to create an environment for decision makers to get appropriate and up-to-date information about the preferences and problems of the local people, to be an effective channel for the people to express their wants and priorities, and a motivating environment for the local decision makers to respond to the local needs quickly and effectively (Khaleghian, 2003). Schneider (2003) argued that under politically decentralized system citizens define interests and form identities based on local concerns, and organizations such as parties and social movements operate locally and compete over local issues and in local elections. In fair and competitive local elections, incumbents will be motivated to prove their competence in facilitating public needs. Therefore, a well-designed and implemented decentralization policy is expected to improve the responsiveness of local leader toward public's needs and at the same time to improve equity, efficiency, quality, and coverage of reproductive health care services and thereby its outcomes.

However, if not properly implemented, decentralization may pose risks and challenges. Some literatures present arguments against decentralization and some factors that may hinder its effectiveness. First problem that associated with decentralization is increasing in regional disparities in the absence of a mechanism to transfer resources from rich districts to poor districts (Robalino et al. 2001). Borck (2007) proposed a framework in which disparities affect fertility choice in decentralized OECD countries. He found that decentralization leads to higher growth of human capital with greatly increased inequality. While total fertility is not strongly affected, the distribution of

fertility between rich and poor is, and in particular, the ranking of fertility rates is reversed.

Second, a key factor that influences the effectiveness of decentralization is the existence of a strong planning and executive capacity at local levels as 'decentralization brings a heavy new management burden' to local government (Litvack & Seddon, 1999). However, the experience of most developing countries reveals that local governments suffer from a shortage of qualified personnel and managers to shoulder the new responsibilities. This may undermine the competence of local government to plan and execute the new tasks (Collins & Green, 1994). The problem may be further worsened if there is a lack of clearly defined accountability and responsibility between and within different actors at the central, regional, and local levels (Arun & Ribot, 1999). Williamson et al (2014) proposed that decentralization in family planning may overwhelm the capacity of lower-level organizations to fulfill new functions. Moreover, in some countries, decentralization has led to family planning not being a priority as local-level authority reallocate resources to other areas. This problem may arise due to the lack of awareness of the local government about the importance of family planning in controlling population growth problems including fertility matter.

Bolivia's experience demonstrates the importance of decentralized institutional capacity in determining the impacts of decentralization on family planning services. Decentralization in Bolivia began in 1994 and was applied unevenly due, in large part, to weak capacity at the decentralized level (Saunders & Sharma, 2008). Family planning services were hampered by a lack of administrative and managerial capacity at district government. Inadequate provision of training, technical support, and sharing of best practices to support small district government posed a major barrier to accessing services. In general, district government in Bolivia did not know how to access available funds and did not have the capacity to manage the funds that they were able to access.

Some studies have also shown that the level of corruption at local governments can be much higher than at the central level (Brueckner, 1999; Dethier, 2000; von Braun & Grote, 2000). It is well known that local corruption is a critical factor influencing personal decision making and hence economic outcomes, inevitably influences the decision about giving birth and child rearing. It is argued that local corruption reduces not only productive investment such as education but also fertility rate. Yamamura (2011) presented evidence based on data from OECD countries that fertility rate is

higher in less corrupted countries. However, the study did not explore precisely the mechanism by which corruption influences government expenditure and in turn affects fertility rate.

While some of these hypotheses were examined in cross-county studies or small number of district and provincial government, in this study we examine whether three types of decentralization may relate with low women fertility in large number of district government in decentralized Indonesia.

### 3. Research Method

#### 3.1. Measures of Women Low Fertility

We follow definition of low fertility from OECD (2005) that defines low fertility as total fertility rates below 2.1 children per women aged 15-49. In this paper,

low fertility is defined at household level instead of district level. Therefore, we used 2.1 children born per woman aged 15-49 as a cut-off point for lower fertility. A binary variable (1 = a woman aged 15-49 years in a family with two or fewer children, and 0 = a woman aged 15-49 years in a family having more than two children) was created to measure low fertility. There are some families with more than one women in the *Susenas* dataset. For example, household head has more than one wife (polygamy). In this case, low fertility was calculated based on total number of children present from his wives. There are also some women within a household but she is not a wife of household head (i.e. daughter and daughter in law). We dropped them from analysis since we only use wife of household head. Table 1 describes variables, definition and source in this study.

Table 1. Variables, definitions and sources

Variables	Definition	Source
<b>District Level</b>		
Fiscal decentralization	Logarithmic of district general balancing fund ( <i>dana alokasi umum</i> ) for family planning (2001 and 2013)	SIKD 2001, 2013
	Special allocation fund ( <i>dana alokasi khusus</i> ) for family planning (2001 and 2013)	BKKBN 2001, 2013
Administrative decentralization	Number of <i>petugas penyuluh lapangan keluarga berencana (PLKB)</i> or family planning fieldworkers (2001 and 2013)	SIDUGA 2001,2013
Political decentralization	Age of direct local election (2002-2014)	Ministry of Home Affairs
Family planning facilities	Number of family planning clinics (2002,2014)	SIDUGA 2002, 2014
Islam majority population	Regions with islam majority population	SP BPS 2000, 2010
<b>Household Level</b>		
Household size	The total member of a household	<i>Susenas</i> 2012
Electricity	The availability of electricity in a household / the source of lighting	<i>Susenas</i> 2012
Insurance	The availability of health insurance for medical needs	<i>Susenas</i> 2012
Poor	Dummy variable for the household with averages of daily expenditures below USD 1.25	<i>Susenas</i> 2012
<b>Individual Level</b>		
Women low fertility	A dummy indicator indicating low fertility	<i>Susenas</i> 2012
Marital Status	Marital status of women in reproductive age (15-49 years old)	<i>Susenas</i> 2012
Contraceptive Use	Whether using family planning tools/method	<i>Susenas</i> 2012
Age	The age of women in reproductive age (15-49 years old)	<i>Susenas</i> 2012
Income	The amount of net income (money and goods) generally received in a month from the main job	<i>Susenas</i> 2012
Women Education	The education level of women in reproductive age (15-49 years old)	<i>Susenas</i> 2012
Age at Marriage	The age of a woman in her first marriage	<i>Susenas</i> 2012
Women Employment	The employment status of women in reproductive age (15-49 years old)	<i>Susenas</i> 2012
Urban Rural	Place of residence, village/kelurahan classification	<i>Susenas</i> 2012

Following Snideker (1990), we measure decentralization in three types: (1) fiscal

decentralization is measured by district general balancing fund and district special allocation fund for family planning. We use general balancing fund and

district special allocation fund for family planning 2013 as the fund take at least one year to have an effect on family planning program and fertility. (2) Administrative decentralization is measured by number of *Petugas Penyuluh Lapangan Keluarga Berencana (PLKB)* or family planning fieldworkers. Family planning fieldworkers are street level bureaucrats that have main responsibility in implementing family planning in the village level. (3) Political decentralization is measured by age of direct local election. Age of direct local election is a proxy of local democracy maturity as we assume that district governments that are longer implementing direct local election likely have higher democracy maturity than those are earlier.

### *3.2. Other determinants of fertility*

Davis and Blake (1956) first introduced the organizations of fertility determinants. From their study, the factors influencing fertility can be classified into two groups of determinants: (1) proximate determinants and (2) socioeconomic determinants. While the former consists of all biological and behavioral determinants through which the background determinants must operate to affect fertility, the latter include the social, cultural, economic, institutional, psychological, health and environmental determinants (Davis & Blake, 1956; Boongarts & Potter, 1983).

The intermediate determinants together constitute a complete set of proximate determinants through which socio-economic and cultural determinants affect fertility (Bongaarts & Potter, 1983). The principal characteristic of a proximate determinant is its direct influence on fertility. Most of the variations in fertility are mainly due to the differential impact of four determinants, which are marital status, contraceptive use, abortion and breastfeeding (postpartum-infecundity).

In explaining historical patterns or the cross-sectional variation in fertility across countries or among regions and groups within a country, the proportion of the population ever married, the age of marriage, or the age at entry in sexual unions and the probability of widowhood and remarriage are often powerful determinants of overall fertility than the level of marital fertility itself. The general rule is that the higher the age at marriage the lower will be the fertility.

Contraception is central to the whole question of fertility control. By definition, some forms of contraception or abortion must be used if married couples wish to reduce their fertility. From the

perspective of economic research on fertility, it may be advisable to include contraception sterilization and deliberate abstinence from sexual relations all under "contraception". While there are many advantages to modern contraception (and some disadvantages as well), more traditional methods can also be effective in reducing the level of fertility.

In most societies, there are several practices that women can follow the birth of child that delay subsequent pregnancy. A woman is unable to conceive after a pregnancy until her normal ovulation returns. When she is breastfeeding, the length of factional amenorrhea is determined primly by the duration, intensity and pattern of breastfeeding.

Socioeconomic determinants can affect fertility only indirectly by modifying the proximate determinants (Boongarts, 1983). Friedlander and Morris (1967) found positive and statistically significant relations between fertility and illiteracy, child mortality, proportion of agricultural population, proportion of nonfarm self-employment, and overcrowded housing. Heer (1966) found that fertility is directly associated with per capita income when controls for other relevant variables are counted. Ainsworth et al (1996) observed the impact of women's schooling on fertility and contraceptive use in fourteen Sub-Saharan African countries and found that female schooling has a negative and statistically significant relationship with cumulative fertility in all of the countries, in both urban and rural areas. Panopoulou and Tsakloglou (1999) found that fertility is negatively related with female education, urbanization and family planning but is positively related with the levels of infant mortality and economic development.

Studies of fertility differentials in both developed and developing countries indicate a negative relationship between the level of education attained by women and their fertility (Goldstein, 1972; Hessian, 1970; Jordan, 1976; Rodriguez & Cleland, 1980; Jain, 1980). This relationship tends to be strongest when determinants such as husband's education, women's employment and type of education and place of residence are uncontrolled; and it seems to be strongest at younger ages. Fertility is generally lower for women with more schooling (Becker, 1960, Schultz, 1997). There are several reasons explain this finding. First, when girls attend school their marriage age and age at first birth tend to rise relative to women who do not attend school (Birdsall 1980, Cleland & Bernstein, 2006). Second, women with more schooling are generally better able to obtain and understand information on how to prevent pregnancy; more likely to use modern family planning methods; and more

effective users of family planning methods, although a certain minimum level of schooling may be necessary, typically about four years (Birdsall, 1980, Cleland, 2002, Pörtner & Beegle, 2011, Rosenzweig & Schultz, 1989). Third, women are generally the prime caregivers and as their schooling levels rise and they face improved employment and earnings opportunities, the opportunity cost of childrearing increases and they may choose to have smaller families (Chernichovsky & Meesook, 1981). Fourth, as women's schooling and incomes rise there is less need children to work either outside or at home, or to have children for old-age security (Lloyd & Ivanov, 1988). Fifth, women with more schooling and higher incomes may in addition trade off more investment (e.g., in child health and schooling) in a smaller number of children against a larger number of children in which they invest less (Becker & Lewis 1973).

Any effect of income on fertility will depend on the type of income (e.g., wealth or wages) that changes and the relative income (wealth) level of households. Wealthier households, where wealth takes the form of income from physical assets and land, tend to have more children. This is because increases in the returns to these assets while raising household endowments are unlikely to raise the opportunity cost of raising children (Schultz, 1994, Schultz, 2005). However, rises in other types of income such as women's wages may lower fertility as the opportunity cost of childrearing increases due to improved labor market and earning opportunities for women (Schultz 2005). However, in cases where women's wages are low, for example, in agriculture, looking after children may not entail a loss of income in which case fertility may not decline even if income rises (Chernichovsky & Meesook, 1981).

Fertility is found to be higher in rural areas than in urban areas. Residence may have a strong effect on fertility by influencing women's values, how she spends her time, and their view of the world (Zeidenstein, 1979). Women in rural areas may want large families to ensure that someone will help with domestic and agricultural activities and provide financial security in old age. In urban areas, women may begin to limit their fertility because of the costs associated with child breeding. Living in urban areas may change women's values as they are expected to the modern health sector, family planning, and more western attitudes (Acsadi & Johnson-Acsadi, 1990)

Similarity of age structure is one the major determinants of society's fertility patterns. The age of the potential parent plays an important role in fertility outcomes because fertility is, in most senses, a

cumulative process closely related to the lifecycle of each parent and of the family unit. Thus, age is closely associated with marriage, divorce or widowhood, menarche, the frequency of intercourse, the probability of conception and with menopause. Age is also related to many of the economic variables. Income, for example, is likely to increase over much of the live-cycle.

Rodriguez & Cleland (1980) confirms negative relationship between fertility and female employment. While a few studies provide evidence of a negative association, many others demonstrate a positive relationship or no relationship at all; for example, even in the urban areas of developing countries, women's employment has been found to be consistently associated with fertility (McGreevy & Birdsall, 1974). Furthermore, in rural areas, women's participation in the work force often appears to be positively associated with fertility. The differences of the relationship is underscored by the observation that, in some cases working women in rural environment of the developing countries have higher fertility than non-working women in urban areas.

### 3.3. Indonesia's social economic survey 2014 and official statistics

The individual data used in the analysis are taken from the National Socio-economic Survey (*Susenas*) 2014. *Susenas* is one of the oldest national representative surveys in a developing country and is the best regarded of them (Friedman & Levinsohn, 2002; Ravallion & Lokshin, 2007). It is also the only such survey in Indonesia that covers the entire archipelago (Pradhan et al., 2001; Biro Pusat Statistik, 2009). Conducted by the government's Central Bureau of Statistics, it has been fielded yearly since 1993 and is representative at the district level. The annual sample size is about 250,000 households (BPS, 2009), in all districts in the country. This study used total 286,113 households sample and 291,636 individuals' sample. Individual samples selected were women in reproductive age (15-49 years old).

The *Susenas* data are linked to official statistics. First, the Ministry of Finance collects district's fiscal data, in e-government system named as *Sistem Informasi Keuangan Daerah*. This dataset provides detailed information ranging from each district's own revenue source, balancing funds and general allocation funds deriving from central government, and to sectoral development expenditure. This study used fiscal data from 2011 (a year prior to the *Susenas* survey) as district Indonesian budgeting system requires at least one year

to take effect. Second, the data of the number of family planning fieldworkers (PLKB) and family planning clinics in 2012 that used as the measurement of administrative decentralization are directly obtained through the official website of BKKBN. Official statistics data from Ministry of Home Affairs is used to obtain the data of districts that had already implemented direct elections (*Pemilihan Kepala Daerah Langsung*), which are used as indicators in political decentralization.

#### 3.4. A case study: decentralization and women fertility in Empat Lawang district, South Sumatra Province Indonesia

In order to explore why decentralization works and does not work, we used a case study of decentralization and women fertility in *Empat Lawang* district South Sumatra province. *Empat Lawang* district is one of proliferated regencies in South Sumatera Province, Indonesia. *Empat Lawang* became its own district after proliferate from Lahat District in 2007. The population of this district continues to grow every year. Based on population projection, *Empat Lawang* population in 2015 were 238.118 people with annual population growth rate of 1.38%. Total Fertility Rate (TFR) of *Empat Lawang* is 2.58 which is still above the target of Millennium Development Goals of 2.1 TFR. Primary data were collected through in-depth interviews with key informants; Head of Family Planning Board, Family Planning fieldworker (PLKB), Women in reproductive age (150-49 years old) with more than 5 children reside in the district. Second, secondary data were collected from annual report and official documents by Family Planning Board of *Empat Lawang* district.

#### 3.5. Mixed method analyses

This study uses mixed method analysis to address research questions. First, in order to examine whether decentralization relates to women fertility, multilevel logit regression is used. This study used the multilevel regression analyses for examining the association of decentralization and woman fertility mainly due to its commonly use in social sciences and nested structural of data. Snijders and Bosker (1999) constituted that the model is used mainly in the social science (e.g. sociology, education, economics, and human security). This analysis is an appropriate approach to analyze data with complex patterns of variability which come from different levels of the hierarchy, with a focus on a nested sources of variability, e.g. woman fertility within households across districts.

By using this analysis, this study provided with several advantages. First, this analysis can be used to address multilevel heterogeneity, assuming that the

association between the dependent variable and its covariates vary between district and individual level (Ballas & Tranmer, 2012). Hence, the model account for the clustering of individuals in district by separating their variance in woman fertility from the districts' variance (Rabe-Hesketh & Skrondal, 2012). Second, the model addresses the contextual analysis which is a development in the social sciences that focusing on the effects of the social context on individual characteristics (Snijders & Bosker, 1999). Third, this model can address structural fallacy due to its nested data structure. Using this model is thus the most appropriate to test hypothesis about the effects of varying districts and individual characteristics on woman fertility.

Furthermore, this study used two-level logistic regression with the dichotomous outcome variable and explanatory variables in individual and districts, as parts of multilevel logistic regression. Snijders and Bosker (1999) suggested using multilevel logistic regression for the dichotomous outcome variable. The regression equation of the models can be written as follows. Considering an individual  $i$  nested in district  $j$ , the model is:

$$E_{ij}^* = \beta_0 + \sum \beta_j W_j + \beta_{ij} X_{ij} + \mu_j + \epsilon_{ij}$$

With:  $E_{ij}^* = \text{logit}(P(E_{ij}^* = 1))$ ,  $W_j$  is a set of district characteristics,  $X_{ij}$  is a set of individual characteristics,  $\mu_j$  is a random intercept varying over districts with mean zero and variance  $\sigma_\mu^2$  and,  $\epsilon_{ij}$  is normally distributed with zero and variance  $\sigma_\epsilon^2$ . By developing this model, the anticipated result may be presented like this: The probability of woman fertility decreases or increases significantly with fiscal decentralization, administrative decentralization, and political decentralization, adjusting the effect of all individual and district determinants. Multilevel models were carried out using Generalized Linear Latent and Mixed Models (GLLMM) commands using Stata 13.

Second, in order to elaborate reasons why decentralization works and does not work, a case study of decentralization and women fertility in *Empat Lawang* district South Sumatra province was conducted. There are two research focuses of case study in this research. First, to elaborate political, fiscal and administrative issues of decentralization at *Empat Lawang* district that challenges for family planning and reducing women fertility. Second, to reveal individual voices regarding proximate and social determinants of women fertility in the district.

## 4. Results

### 4.1. Descriptive statistics and multilevel logistic regression results

Table 2 presents summary statistics for the key variables used for all levels. Survey data from *Susenas* 2014 shows that 45% of women in reproductive age are having 2 or less than 2 children, while 55% of them are having more than 2 children. Special allocation fund for family planning is only granted to districts with some criteria, therefore the range of log of special allocation

fund varies from 0 to 21.26. Log of family planning expenditures also varies across districts, with a range between 16.22 to 24.07. In 2014, the available PLKB range from 1 to 198 per each district. For the same year, the number of family planning clinics also varies with a range between 0 to 298, which means that in some districts there was no clinic available. In this study, political decentralization is measured by the age of local election that supposedly reflected the level of democracy maturity in each district. The age of local election range from 0 – 8 years old per 2012.

Table 2. Descriptive statistics of sample

	Mean	SD	Range
Women Fertility	0.45	0.49	0/1
District (n = 497)			
Log of Special Allocation Fund on Family Planning	18.70	6.07	0-21.26
Log of Family Planning Expenditures	21.52	1.09	16.12-24.07
PLKB	19.10	25.82	1-198
Family Planning Clinics	48.01	38.82	0-298
Age of Local Election	6.26	1.98	0-8
Islam majority population	0.79	0.30	0-0.99
Individual			
Household size	4.63	1.80	1-30
Electricity	0.91	0.27	0/1
Health Insurance	0.46	0.49	0/1
Poor household	0.33	0.47	0/1
Women in Reproductive Age (n = 291,636)			
Age	31.53	9.91	15-49
Log income	2.41	5.25	0-17.72
Age at first marriage	15.42	9.51	0-49
Primary School	0.28	0.44	0/1
High School	0.23	0.42	0/1
Senior High school	0.24	0.43	0/1
Married	0.70	0.45	0/1
Contraception user	0.41	0.49	0/1
Employed	0.50	0.49	0/1
Urban	0.45	0.49	0/1

Source: *Susenas* 2012 and official statistics

Islam majority population refers to those regencies/municipalities with population mostly Muslims. For this purpose, the ratio of Muslim to the total population of a district/municipality was calculated, range from 0 to 99 %. Taken into account, household size that range from 1-30 persons per household. The availability of electricity and health

insurance are made into dummy variables, in which 91% of surveyed household reported to have electricity and 46% of household were insured. A dummy variable of household prosperity was constructed to determine whether poor household is likely to have more children or not. For this purpose, household expenditure per

capita is accounted, and the result show that only 33% of household reported to be poor household.

From total 291,636 respondents, 70% of them are married but only 41% of them are using contraception. Fertility is generally lower for women with more schooling, we found 28% of respondents only have primary education, 23% have high school level education and 24% have senior high school education. Women employment and her income also take into account as factors that influence fertility. 50% of respondents are employed with log income range between 0 – 17.72 (the mean income is IDR251,918).

From the survey, 45% of respondents are living in urban area.

Table 3 presents the regression result of logit and multilevel logit analyses, and shows that the standard error for the one level logit coefficient is lower than the multilevel regression coefficient. However, the estimation of one level logit is less robust than the multilevel one, because it ignores the nested structure of the data. All of decentralization variables are not significant means that decentralization have no association with women fertility with exception of total number of family planning clinics in district. The result shows that fertility is higher in those districts with more clinics available (0.004,  $p < 0.05$ ).

Table 3. Results of Logit and Multilevel Logit Regression of Women Fertility

	Logit				Multilevel Logit			
	Coef	SE	CI 95%		Coef	SE	CI 95%	
District (n = 497)								
Log of Special Allocation Fund on Family Planning	0.00*	0.00	0.00	0.00	-0.00	0.00	-0.01	0.00
Log of Family Planning Expenditures	0.02*	0.00	0.00	0.03	0.03	0.03	-0.02	0.09
PLKB	-0.00*	0.00	-0.00	-0.00	-0.00	0.00	-0.00	0.00
Family Planning Clinics	0.00*	0.00	0.00	0.00	0.00*	0.00	0.00	0.00
Age of Local Election	0.00	0.00	-0.26	-0.21	-0.00	0.01	-0.03	0.02
Islam majority population	0.47*	0.02	0.44	0.52	0.68*	0.09	0.50	0.87
Individual								
Household size	-0.59*	0.00	-0.59	-0.58	-0.55*	0.00	-0.56	-0.55
Electricity	0.37*	0.02	0.32	0.41	0.29*	0.02	0.24	0.34
Health Insurance	-0.13*	0.01	-0.15	-0.10	-0.11*	0.01	-0.13	-0.08
Poor household	-0.16*	0.01	-0.18	-0.13	-0.29*	0.01	-0.32	-0.26
Women of Reproductive Age (n = 291,636)								
Age	-0.18*	0.00	-0.19	-0.18	-0.19*	0.00	-0.20	-0.19
Log income	0.00*	0.00	0.00	0.01	0.00	0.00	-0.00	0.00
Age at first marriage	0.31*	0.00	0.31	0.32	0.34*	0.00	0.34	0.35
Primary School	0.21*	0.01	0.18	0.24	0.22*	0.01	0.18	0.25
High School	0.06*	0.01	0.03	0.10	0.09*	0.01	0.06	0.13
Senior	-0.08*	0.01	-0.12	-0.05	-0.03*	0.01	-0.07	-0.00
Married	0.84*	0.02	0.80	0.89	0.79*	0.02	0.75	0.84
Contraception user	-0.29*	0.01	-0.32	-0.27	-0.46*	0.01	-0.49	-0.44
Employed	0.18*	0.01	0.15	0.20	0.19*	0.01	0.17	0.22
Urban	-0.09*	0.01	-0.12	-0.07	-0.16*	0.01	-0.19	-0.13
Variance								
Individual					0.65	0.02	0.61	0.69
District					0.11	0.00	0.10	0.12

Source: *Susenas* 2012 and official statistics, \* $p < 0.05$

Furthermore, all of household and individual characteristics show significant association. Household size is negatively associated with fertility, means that the smaller the household is the more likely to have more children (-0.55,  $p < 0.05$ ). Having electricity is more likely to increase fertility (0.29,  $p < 0.05$ ) whereas having health insurance apparently decreasing fertility (-0.11,  $p < 0.05$ ). Poor household variable also negatively associated with fertility (-0.29,  $p < 0.05$ ). This is because the wealthier households, where wealth takes the form of income from physical assets and land, tend to have more children (Schultz 1994, Schultz 2005).

Unsurprisingly, fertility is likely to decrease with age (-0.19,  $p < 0.05$ ). Age at first marriage positively associated with fertility (0.34,  $p < 0.05$ ). Log of income shows positive association, but it is not significant (0.002,  $p > 0.05$ ). Marriage obviously increasing fertility (0.79,  $p > 0.05$ ). The woman who use contraception tend to have less children than those who are not using contraception (-0.46,  $p > 0.05$ ). Level of education was found to be significantly associated with fertility level. Women with low-level education (primary: 0.22  $p < 0.05$ ; junior high: 0.09  $p < 0.05$ ) were found to be more likely to have more children than women who had tertiary education (senior high school -0.03  $p < 0.05$ ). Employed women tend to have more children than those who are not (0.19,  $p > 0.05$ ), this could be due to the wealth factor where a wealthier woman can afford more children. Place of residence in urban area is negatively associated with fertility (-0.16,  $p > 0.05$ ), it means that women who lived in urban area are more likely to have less children than those who lived in rural area. Fertility

is higher in Islam majority population (0.68,  $p < 0.05$ ). However, because almost every region in Indonesia has Islam majority population, this variable is hard to interpret.

4.2. Results of case study: decentralization and women fertility in Empat Lawang district

From the interview with the Head of Family Planning Board of Empat Lawang, some fiscal, administrative and political issues of family planning during decentralization are identified. Fiscally, family planning programs in Empat Lawang District had been carried out with very limited budget, no budget was allocated from district own revenue, and inefficiency in budget allocation as most spending was allocated for building infrastructures rather than community-oriented program. Administratively, decentralization affects the allocations of human resources particularly number of PLKB. Lack of competencies of non-civil servant PLKB is another human resource issue. Politically, decentralization affects policy and decision-making. Empat Lawang mayor hold most of the control regarding family planning programs. Therefore, the accomplishment and the pattern of how programs can be carried out are greatly depending on his will. The next section illustrates findings from case study.

4.3. Fiscal Issues

Table 4 summarizes main fiscal issues faced by Family Planning Board of Empat Lawang district. The highlights of fiscal issues are limited budget and inefficient budget allocation of family planning

Table 4. Fiscal issues faced by Family Planning Board of Empat Lawang district

No	Source of problem	Impacts
1.	Special Allocation Fund covered most infrastructure programs	<ul style="list-style-type: none"> <li>Family Planning Board of Empat Lawang depends mostly on Special Allocation Funds to fund the infrastructures program such as the construction of family planning counseling hall, procurement of information car unit, service car unit, PLKB motorbike etc.</li> </ul>
2.	Community-oriented programs in Empat Lawang are greatly depend on the amount of General Allocation Fund granted to the Family Planning Board of Empat Lawang	<ul style="list-style-type: none"> <li>The larger the funds granted to Family Planning Board of Empat Lawang, the larger the portion given to the community-oriented programs.</li> <li>When Family Planning Board of Empat Lawang is granted below 2,5 billion rupiah, only 50% of the funds can be used to fund the community-oriented programs which is not sufficient.</li> </ul>

Sources: interviews with key informants

The central government with General Allocation Funds (DAU) and Special Allocation Funds (DAK) funds Family Planning programs in Empat Lawang District. DAU can be used to fund every program

whereas DAK is specifically granted for infrastructures purpose. Family Planning Board also aided by BKKBN South Sumatera Province by sharing funds. Table 5 shows Family Planning Board of Empat Lawang annual

budget from 2010 to 2014. Local government has not provided any funds from local revenue which means that local government has no fiscal capacity to support family planning program in the district. not always prioritized education in their allocations of budget.

Inefficiency in budget allocation is also shown in *Empat Lawang* district government. Family planning spending in the district consists of into two major categories, which are routine expenditures and community-oriented expenditures. Routine expenditures consist of operational expenses in which civil servants

salaries take the biggest portion out of it. Community-oriented expenditures, on the other side, reserved to fund community-oriented programs, such as family planning services, counseling, information dissemination and many others programs that touch the population directly. This imbalance proportion reflects the inefficiency in budget allocation. Table 6 shows the annual budget allocation of Family Planning Board, in which only small portion allocated for services or community-oriented programs.

Table 5. Source of funds on family planning programs in *Empat Lawang* district

No	Source of Funds	Total Budget (in millions)				
		2010	2011	2012	2013	2014
1	Central Government (Balance Funds)					
1.1	General Allocation Funds	1.971	2.205	3.304	3.158	3.232
1.2	Special Allocation Funds	752	861	812	850	1.356
2	Local Government					
2.1	Local Revenue	0	0	0	0	0
	Total	2.723	3.066	4.116	4.007	4.588

Sources: FP Board of *Empat Lawang* District, 2016

Table 6. Budget allocation on family planning programs in *Empat Lawang* district

No	Source of Funds	Total Budget (in millions)				
		2010	2011	2012	2013	2014
1	Family Planning routine expenditures					
1.1	Personnel expenditures	686	1.434	2.326	2.062	1.907
1.2	Personnel expenditures	236	121	120	89	71
1.3	Goods and Service expenditures	268	305	406	411	413
1.4	Capital expenditures	225	236	164	181	245
	Total	1.414	2.096	3.015	2.742	1.635
2	Community-oriented expenditures					
2.1	Personnel expenditures	457	349	370	162	164
2.2	Goods and Service expenditures	799	859	2.135	2.379	2.260
2.3	Capital expenditures	739	1.197	922	786	1.436
	Total	1.995	2.405	3.427	3.327	3.860
3	Routine + Community-oriented	3.409	4.501	6.442	6.069	6.495

Source: FP Board of *Empat Lawang* District, 2016

#### 4.4. Administrative Issues

Table 7 summarizes main administrative issues faced by Family Planning Board of *Empat Lawang* District. The highlight of administrative issue is lack of quantity and quality of PLKB.

The most important factors to carry out the family planning programs in *Empat Lawang* District are PLKB and family planning services facilities. PLKBs are

known as the “tip of the spear” in family planning. Therefore, the quantity and the quality of PLKB are very important. Table 8 shows ratio of PLKB to villages and women of reproductive age in the district. For example, in *Tebing Tinggi* sub-district, 8-16 PLKBs have to take care 7431-18393 WRA.

Table 7. Administrative issues faced by Family Planning Board of *Empat Lawang* district

No	Source of problem	Impacts
1.	The number of civil servant PLKB is very limited	<ul style="list-style-type: none"> <li>• Most of villages in <i>Empat Lawang</i> district do not have a civil servant PLKB. Therefore, the district has to recruit some non-civil servant PLKB to cover the family planning services in villages</li> </ul>
2.	The quality of non-civil servant PLKB is very low	<ul style="list-style-type: none"> <li>• Non-civil servant PLKB does not have the same skills and responsibilities as a civil servant one, this influence greatly to the quality of family planning services in <i>Empat Lawang</i>.</li> <li>• The lack of skills and responsibilities in communicating with village's population make some of family service programs organized by Family Planning Board of <i>Empat Lawang</i> left unknown.</li> </ul>
3.	The changes in status of civil servant PLKB after decentralization	<ul style="list-style-type: none"> <li>• Civil servant-PLKB become a local government's employee.</li> <li>• Many of experienced civil servant-PLKB chooses to transfer to another post that gives more opportunity in both career and income.</li> <li>• The recruitment of civil servant-PLKB is based on the quota given to <i>Empat Lawang</i> government.</li> </ul>

Source: interviews with key informants

Table 8. Ratio PLKB to villages and women of reproductive age in *Empat Lawang* District

No	Sub-district	Villages	2011		2012		2013		2014	
			WRA	PLKB	WRA	PLKB	WRA	PLKB	WRA	PLKB
1	Tebing Tinggi	26	15958	14	18393	14	14062	8	15582	10
2	Talang Padang	13	3263	6	2626	6	5225	8	3010	8
3	Pendopo	19	15925	11	15484	11	10555	14	11537	17
4	Pendopo Barat*	10					4007	11	4303	9
5	Ulu Musi	14	8961	8	9699	6	5368	6	5591	5
6	Sikap Dalam*	11				3	4655	3	5386	5
7	Pasemah Air Keruh	15	5666	7	5699	7	5848	7	5598	8
8	Muara Pinang	22	7668	8	7678	12	7971	14	9064	18
9	Lintang Kanan	16	8634	6	7533	6	8323	9	8516	12
10	Saling*	10					4212	7	4554	7
	Total	156	66075	60	67112	65	70226	87	73141	99

Source: FP Board of *Empat Lawang* District, \* proliferated sub-district

An interview with a PLKB from Ulu Musi subdistrict was conducted to address this issues:

*“The number of PLKB for Empat Lawang right now is still not enough. For Ulu Musi district, I am the only civil servant PLKB. This district is consist of 14 villages, so we really need to have more civil servant PLKB. My target villages, Desa Galang has more than 300 households while Desa Tanjung Agung, is classified as high density population with more than 1000 household. We cannot really rely on our non civil servant PLKB, because they lack in skills and knowledge. More importantly, we cannot expect them to*

*have the same responsibilities as ours, and the people in village usually more prefer the civil servant.” (Ari Andika, July 16<sup>th</sup>, 2016).*

Almost all of PLKBs in *Empat Lawang* are non-civil servant with inadequate skills and responsibilities. The district has very limited family planning facilities, with no increasing number from year to year. These two indicators illustrate that the basic service performance of family planning programs in *Empat Lawang* district is

still weak and insufficient. Table 9 describes the distribution of basic service performance of family planning program in the district.

Table 9. Basic service performance of family planning programs in *Empat Lawang* district

No	Performance Indicators	2010	2011	2012	2013	2014
1.	PLKB					
1.1	Total PLKB	60	60	65	87	99
1.2	Total Villages	156	156	156	156	156
1.3	PLKB/Villages ratio	1: 3	1: 3	1: 3	1: 2	1: 2
1.4	PLKB with Basic Training Certificate	-	-	-	7	-
1.5	PLKB with University education	11	13	12	13	25
1.6	PLKB with senior high school education	49	47	53	74	74
1.7	Total of Civil servant PLKB	1	-	-	2	-
1.8	Total of non-civil servant PLKB	59	60	65	85	99
2.	Family Planning services facilities					
2.1	Hospital	0	0	1	1	1
2.2	Community Health Center (district)	8	8	9	9	9
2.3	Community Health Center (village)	12	12	12	12	12
2.4	Community Health Post					
	Family Planning clinics	80	80	80	80	80

Source: FP Board of *Empat Lawang* District, 2016

The Head of Family Planning Board of *Empat Lawang* explains this issue:

*“This year (2016) we have 118 non-civil servants PLKB and 9 civil servants PLKB for 156 villages. However, the performance and competency of these PLKB are still far from enough, because more than 90% of them are non civil servants that obviously have a very limited skills and knowledge of family planning service. Our office can only give them an adequate portion of task that appropriate with their capacity, we cannot ask*

*more responsibilities like those civil servants PLKB.” (Sulni, July 16<sup>th</sup>, 2016)*

#### 4.5. Political issues

Table 10 summarizes main political issues faced by Family Planning Board of *Empat Lawang* District. The highlight of political issue is the will of the Regent to accomplish the family planning programs.

Table 10 Political issues faced by Family Planning Board of *Empat Lawang* District

No	Source of problems	Impact
1.	Frequent changes of the Board structures and nomenclature	<ul style="list-style-type: none"> <li>Frequent changes in structure and nomenclature in Family Planning Board of <i>Empat Lawang</i> subsequently followed by the changes of personnel’s task and function routines.</li> </ul>
2.	The compulsion to coordinate every Central government’s program and policy with the Regent	<ul style="list-style-type: none"> <li>Every program and policy that came from Central Government has to be coordinated first with the mayor. This indicates that Family Planning Board <i>Empat Lawang</i> cannot adopt said program and policy immediately.</li> </ul>
3.	The priority and supports from Regent and local government are not reflected fiscally	<ul style="list-style-type: none"> <li>The priority and supports from mayor that not reflected fiscally means that generally, Family Planning Board of <i>Empat Lawang</i> rarely granted enough funds to carry out their community-oriented programs.</li> </ul>

- 
- |                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>4. Family Planning Board of <i>Empat Lawang</i> is autonomous; the relationship with Central BKKBN and Province BKKBN is limited to coordination only.</p> | <ul style="list-style-type: none"> <li>• Without commando relationship as carried out in centralization era, Family Planning Board of <i>Empat Lawang</i> have to formulate its own programs, adjust its policies and programs with the local government's regulation and more importantly defend its own programs to gain sufficient funds.</li> </ul>                                                                                                                |
| <p>5. The pattern and accomplishment of Family Planning programs in <i>Empat Lawang</i> is greatly depend on Regent</p>                                       | <ul style="list-style-type: none"> <li>• The accomplishment of family planning programs in <i>Empat Lawang</i> is not only depends on the performance of Family Planning Board, but also greatly depend on the support of mayor himself. Even when the performance of Family Planning Board of <i>Empat Lawang</i> is at its best, without the support from the mayor government, some programs cannot be conducted thus effect the overall accomplishment.</li> </ul> |
- 

*Source: interviews with key informants*

Political autonomy measures the discretionary power in political decision making awarded to each district. For *Empat Lawang* District, as the result of local election, district mayor is the person who had the most power in policy and decision making in all aspects of administration including family planning. This is the reason why the accomplishment of family planning programs is not only depend on Family Planning Board as the local government agency responsible for the matter, but also greatly depend on the mayor and his will.

*4.6. Other proximate and socio economic determinants within community and families during decentralization*

In order to gain information about other socio-economic issues within community and families that influence women fertility in *Empat Lawang* district during decentralization, five respondents were interviewed. All respondents are women in reproductive age (15-49 years old) with more than five children, indicating high fertility level. Table 11 summarized the result of the interviews.

Table 11. Proximate and social economic determinants of women fertility in *Empat Lawang* district during decentralization

No	Determinants	Explanation
1.	Marital Status	Women fertility directly influenced by marital status, married women obviously more fertile than unmarried women.
2.	Contraception use	The use of contraception directly influences women fertility. Qualitative data obtained by interviewing five respondents (women with more than five children) shows that the all respondents were initially use contraception, however, due to various factors, all of them eventually stop using it.
3.	Age at first marriage	Age of first marriage influence women fertility. Two of respondents with 10 children married at a very young age.
4.	Level of education	The level of education influence women fertility. All of respondents have low level of education.
5.	Employment	Employment influences women fertility. All respondents are employed, but the employment is not permanent.
6.	Income	The amount of income influences women fertility. All of respondent's income are insufficient to square the household expenses and necessities.
7.	Place of residence	Place of residence influences women fertility. All of respondents live in rural area.

*Source: interviews with key informants*

We found that all respondents are married and initially using contraception. However, due to various factors, all of them eventually stop using it. Interviews with two respondents that have 10 children confirm this proposition.

*“I used contraception after I gave birth to my fourth child, but sometimes I forgot to take my pills or I could not have the contraception shot (injection method) right away due to my economic situation. During that time I had not use any contraception, I got pregnant again.” (Rusmanilawati, July 14<sup>th</sup> 2016)*

*“I got married with my first husband when I was 12 years old, but I have finished my junior high school despite that. I work as a cleaning service now and I got IDR1,000,000 per month as salary.” (Rusmanilawati, July 14<sup>th</sup> 2016)*

*“I have never attended school and I got married when I was 14 years old. I and my husband are working on our farm to make a living; we cannot predicted our monthly income, maybe around IDR2,000,000.” (Mursyidah, July 17<sup>th</sup> 2016)*

Age at first marriage unsurprisingly determine fertility, where two of respondents with 10 children married at a very young age. Level of education apparently also influences high-level fertility, where all of respondents received low education. The same pattern also applies on employment and income. The interviews result shows that even though all of respondents are employed, the employment is not permanent and the income is insufficient.

## **5. Discussion and conclusion**

The topic of fertility determinants and its impacts to population has become a common topic in social studies both in developed and in developing countries. However, the association between fertility with policy factors such as decentralization is rarely being discussed. Using the condition of radical decentralization of Indonesia, this study examines the association between fiscal, administrative and political decentralization with women fertility. The main results show that none of those three types of decentralization have significant association toward women fertility, means that decentralization have no association with decreasing or increasing women fertility. However, all of proximate determinants and socio-economic factors in both the household level and individual level are significant.

This result confirms the findings of previous studies argued that decentralization process in Indonesia, which commonly known as “regional

autonomy” has a major flaw in design and preparation. The rush preparation and poorly designed laws of decentralization did not take into account the inequality of region’s capacity, so they cannot be imposed effectively and conversely produce perverse effects, especially for poor and less developed regions. Furthermore, they have no clear general framework on how to carry out the goals of the reform (Alm et.al, 2001). Various issues arise during the short implementation period such as unclear division of authorities among the tiers of government causing a struggle for authorities among them, inefficient resource allocation caused by the low capacity and demoralization of civil servants within the regional governments, widening disparity among regions, and stronger primordial ties based on ethnic and religion. (Suwondo, 2002; Seymour &Turner, 2002; Yappika, 2006).

The findings of qualitative data also confirm the result of quantitative one. *Empat Lawang* district is facing similar typical problem in implementing decentralization. Fiscally, the intergovernmental transfer and grants consist of General Allocation Fund (DAU) and Special Allocation Fund (DAK) remains to be the most important revenue resource for the family planning programs in *Empat Lawang* district. Moreover, the absence of local revenue in funding the programs and inefficiency in budget allocation means that *Empat Lawang*’ s government is lacking in fiscal capacity, merely depend on the transfer from central government.

Administratively, the human resources in *Empat Lawang* district are very limited in both quantity and quality. To compensate the highly limited number of civil servant PLKB, Family Planning Board of *Empat Lawang* district recruited some non-civil servant PLKB, with inadequate skills and knowledge. This matter confirms the finding of Seymour and Turner (2002) who stated “the capability of human resources, especially those at the districts and municipalities are not ready yet”.

Politically, the elected Regent holds most power in the region. The accomplishment of family planning programs in *Empat Lawang* is not only depend on Family Planning Board as the local agency responsible to the matter, but also greatly depend on the Regent’s will. Moreover, there is no citizen’s control over the performance of the government as there is no ‘recall’ mechanism provided for the incumbent government if they perform badly. These entire problems combined resulting in weak performance on family planning programs; this is why decentralization that supposedly brings a better condition to the community is not

associated with family planning goals such as decreasing fertility.

Furthermore, the significant connections between proximate determinants and socio-economic factors with women fertility is unsurprisingly confirm many studies related to the topic. The two proximate determinants used in this study are marital status and the use of contraception. It is broadly demonstrated that these two factors determine the core of exposure to the risk of pregnancy (Bay et.al, 2003). Marriage represents the primary context with where fertility occurs (McDevitt, 1996). There is a consensus that the use of contraception is the most important factor that explains the strong fertility decrease that took place in the last decades in the world, particularly in the last 30 years (Cesare & Vignoli, 2006; Guzman et.al, 2001).

The negative association between poor household and fertility confirm the findings of Schultz (1994, 2005). This is because the wealthier households, where wealth takes the form of income from physical assets and land, tend to have more children. However, having electricity is more likely to increase fertility, contradicts the finding of Grimm et.al (2014) who found evidence that the availability of electricity increases exposure to TV and by this channel reduces fertility. The positive connection between Islam majority populations with fertility suggest that Muslim people tend to have more children than non-Muslim people. However, Jeffery and Jeffery (1997) and Weeks (1988) assert that different fertility rates among Hindus and Muslims in India actually result from the differences in region, residence and schooling. They do not result from the differences in religious matters or autonomy of the women. Moreover, almost every region in Indonesia has Islam majority population, that makes this variable is hard to interpret.

It has been widely discussed that there is a strong relation between women's education level and fertility control. Studies of fertility differentials in both developed and developing countries indicate a negative relationship between the level of education attained by women and their fertility (Goldstein, 1972; Hessian, 1970; Jordan, 1976; Rodriguez and Cleland, 1980; Jain, 1980). Women with higher education postpone marriage and have lower fertility levels. Being employed apparently increasing fertility; this contradicts the findings of Brewster and Rindfuss (1996) that show the negative effect of women's employment on fertility using data from industrialized countries. This result might be contradicted because Indonesia's women mostly come from agricultural work with less work hours than industrialized countries. It was also found

that women in rural areas are more likely to give birth to more children than those in the urban areas. Women in rural areas may want large families to ensure that someone will help with domestic and agricultural activities and provide financial security in old age. In urban areas, women may begin to limit their fertility because of the costs associated with child breeding. Living in urban areas may change women's values as they are expected to the modern health sector, family planning, and more western attitudes (Acsadi and Johnson-Acsadi, 1990).

This study was made with a number of limitations that should be taking into consideration. First, because this study only uses one-year data, we cannot illustrate the trends and a meaningful relationship between my dependent and independent variables. The future research could add two or more years to make a trend and find more meaningful relationship between those variables. Second, due to its cross-sectional design, we have to be careful on how to interpret the associations. The estimated coefficient should be viewed as a measure of association rather than of causation. The causal effect of decentralization and fertility is something which future research should investigate further. Third, this study did not take the characteristics of husband into account; therefore, future research may add those characteristics to make the research contextually richer.

Despite these limitations, this study has been able to contribute to the existing literature of decentralization and fertility as well as for demographic policy in a developing country. First, this study used a large sample of districts, household and individuals to capture the association of decentralization and women fertility that generalizable to all districts in Indonesia. By using multilevel analysis, this study able to account simultaneously for household and districts government factors on women fertility. Moreover, the addition of qualitative data from *Empat Lawang* District is able to give clearer picture of how the implementation of decentralization affected family planning programs in district level.

Second, most of the studies both in developed and developing countries analyze fertility with behavioral and socio-economic factors only. This study contributes to this part by trying to associate fertility with contextual factors such as government policies and reforms. The fact that decentralization is not associated with women fertility may indicate that decentralization may not the best way to decrease women fertility in Indonesia. Therefore, in order to decrease fertility to the universal replacement level of 2.1 TFR, the government of

Indonesia should make adjustment in their decentralized family planning and population control programs. To revitalize the family planning, the government should first reformulate the vision, mission and values to respond to the new realities of decentralized Indonesia and achievement of the goal of replacement level fertility (Hull & Mosley, 2009).

Third, this study highlights that increasing human capital of women may be one of the best way to decrease women fertility. The national and local governments should continue to improve human capital through improving access to higher education and providing better employment for women.

## References

- Arun, A. & Ribot, J., "Analyzing Decentralization: A Framework with South Asian and West African Cases", *Journal of Developing Areas*, Vol. 33 (1999), pp. 473-502.
- Ballas, D., & Tranmer, M. (2011). Happy people or happy places? A multilevel modeling approach to the analysis of happiness and well-being. *International Regional Science Review*, 0160017611403737.
- Baochang, G. 2007. China's local and national fertility policies at the end of the twentieth century. *Population and Development Review* 33 (1): 129-147.
- Bardhan, P. & Dilip, M. 2012. *Political Clientelism and Capture: Theory and Evidence from West Bengal, India (IGC Working Paper)*. International Growth Centre (IGC), London, UK.
- Borck, R. 2007. Federalism, fertility and growth: *CESifo working paper*, No. 2167
- Bongaarts, J. 1978. A Framework for Analyzing the Proximate Determinants of Fertility. *Population and Development Review* 4 : 105-132.
- Bongaarts, J & G.R. Potter, (1983): *Fertility, Biology and Behavior: An Analysis of the Proximate determinants*, Academic press, New York.
- Brueckner, J., *Fiscal Decentralization in LDCs: The Effects of Local Corruption and Tax Evasion*, Department of Economics, University of Illinois at Urbana-Champaign, (1999), mimeo.
- Cammack, M. & Tim, BH. 2002. Regional variation in acceptance of Indonesia's family planning program. *Population Research and Policy Review*: 565-585.
- Cesare, M. & Vignoli, JR. 2006. Micro Analysis of Adolescent Fertility Determinants: The Case of Brazil and Colombia. *Papeles de Poblacion* No. 48: 93-123.
- Chaurasia, A.R. 2011. *Fertility Transition in Districts of India. Evidence from District Level Household Survey 2007-08*. Studies in Population and Development.
- Chernichovsky, D. & Meesook, OI. 1981. *Regional aspects of family planning and fertility behavior in Indonesia*. Washington, D.C. (1818 H St., N.W., Washington 20433): World Bank.
- Collins, C.D., "Decentralization and the need for political and critical analysis", *Health Policy and Planning*, Vol. 48 (1989), pp.168-169.
- Davis, K. & Black, J. (1956). "Social Structure and fertility an analytic framework" *Economic Development and Cultural Change* 4, No.4, July, pp.211-235
- Dethier, J. (ed.), *Governance, Decentralization and Reform in China, India and Russia*, Kluwer Academic Publishers and ZEF (2000).
- Fesler, J.W. 1965. Approaches to the Understanding of Decentralization. *The Journal of Politics* 27 (3): 536-566.
- Goldstein, S. (1972). The influence of labour force Participation and Education on fertility in Thailand, *Population studies*, Vol. 25, No. 3(nov) 419-36.
- Grimm, M. , Sparrow, R & Tasciotti, L. 2014. Does Electrification Spur the Fertility Transition? Evidence from Indonesia. *Demography*, 52, 1773-1796.
- Guzman, J. 2001, *Diagnosis on sexual and reproductive health of adolescents Latin America and the Caribbean*. United Nations Fund for Population Activities (UNFPA) México.
- Hayes, AC. 2010. *The status of family planning and reproductive health in Indonesia*, 2010. UNFPA – ICOMP Regional Consultation.
- Hull, T.H. and Mosley, H. 2009. *Revitalization of family planning in Indonesia*. Bappenas, BKKBN and UNFPA.
- Jeffery, R. & Jeffery, P. 1997. *Population, Gender and Politics: Demographic Change in Rural North India*, Cambridge: Cambridge University Press.
- Jones, G. & Adioetomo, SM. 2014. *Population, Family Planning and Reproductive Health*. Background document for 2014-19 RPJM.

- Khaleghian, P., "Decentralization and Public Services: The Case of Immunization", *World Bank Policy Research Working Paper 2989*, (2003), World Bank. Washington, D.C.
- Khan, Q. 2014. *Decentralization's effects on education, health and agriculture outcomes, and on distribution: Evidence from Ethiopia*. World Bank.
- Lakshminarayanan, R. 2003. Decentralisation and its Implications for Reproductive Health: The Philippines Experience. *Reproductive Health Matters*, Vol. 11 No. 21, pp. 96-107.
- Lieberman, S. S. (2002). *Decentralization and health in the Philippines and Indonesia*. An Interim Report, East Asia Human Development.
- Litvack, J, Junaid, A. & Richard, B. 1998. *Decentralization in Developing Countries*. The World Bank. Washington DC.
- Litvack, J., & Seddon, J. (1999). *Decentralization briefing notes*. World Bank Institute, Washington, DC.
- Mills, A., "Decentralization and Accountability in the Health Sector from an International Perspective: What are the Choices?", *Public Administration and Development*, Vol.14 (1994), pp. 281-292.
- Mize, LS. and Robey, B. (2006). *A 35 Year Commitment to Family Planning in Indonesia: BKKBN and USAID's Historic Partnership*. Baltimore: Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs.
- Peabody JW, Rahman MO, Gertler PJ, Mann J, Farley DO, & Carter GM., *Policy and Health: Implications for Development in Asia*, Cambridge University Press, Cambridge (1999).
- Rabe-Hesketh, S., & Skrondal, A. (2012). *Multilevel and longitudinal modeling using stata 3 ed* Volume 2: Categorical Responses Counts and Survival, Vol. 2. Tex: College Station.
- Rahayu, R., Iwu, U. & McDonald, P. 2009. Contraceptive use among married women in Indonesia. *International Conference on Family Planning: Research and Best Practices*.
- Randall, E. 2012. *Family Planning Programmes Review*.
- Rindfuss, R. R., Brewster, K. L. & Kavee, A. L. 1996. Women, Work and Children: Behavioural and Attitudinal Change in the United States, *Population and Development Review*, Vol. 22, No. 3, pp. 457-482
- Robalino, M. G., Picazo, O. F., & Voetberg, A. (2001). Does fiscal decentralization improve health outcomes? Evidence for cross country analysis. *World Bank Country Economics Department Series 2565*. The World Bank.
- Robinson, W. S. (2009). Ecological correlations and the behavior of individuals. *International Journal of epidemiology*, 38(2), 337-341.
- Saunders, M. & Sharma, S. 2008. *Mobilizing Political Support and Resources for Family Planning in a Decentralized Setting: Guidelines for Latin American and Caribbean Countries*. Washington, DC: Futures Group, USAID | Health Policy Initiative, Task Order 1.
- Schneider, A., 2003, Decentralization: Conceptualization and Measurement, *Studies in Comparative International Development*, Fall 2003, Vol. 38, No. 3
- Schultz, T. P. 1994. Marital Status and Fertility in the United States: Welfare and Labor Market Effects. *The Journal of Human Resources*, 29, 637-669.
- Schultz, T. P. 2005. Fertility and Income. *Center Discussion Paper No. 925*. Yale University.
- Seymour, R. & Turner, S. 2002. Otonomi Daerah: Indonesia's Decentralization Experiment. *New Zealand Journal of Asian Studies* 4 (December 2002), 33-51.
- Smith, B.C. 1985. *Decentralization: The Teritorial Dimension of the State*. George Allen & Unwin (Publishers). London.
- Sujarwoto, S., & Tampubolon, G. (2015). Decentralisation and citizen happiness: A multilevel analysis of self-rated happiness in Indonesia. *Journal of Happiness studies*, 16(2), 455-475.
- Sujarwoto, S. (2012). Political decentralization and local public services performance in Indonesia. *Journal of Public Administration and Governance*, 2(3), 55-84.
- Sujarwoto. S. (2016). Does Democracy Make You Happy? Multilevel Analysis of Self-rated Happiness in Indonesia. *Jurnal Studi Pemerintahan: Journal of Government and Politics*, 7(1).
- Sujarwoto, S., & Tampubolon, G. (2016). Spatial inequality and the Internet divide in Indonesia 2010–2012. *Telecommunications Policy*, 40(7), 602-616.

- Sujarwoto, s. (2017). Geography and Communal Conflict in Indonesia. *Indonesian Journal of Geography*, 49(1), pp. 86-96
- Uchimura, H. & Jutting, J.P. 2009. Fiscal Decentralization, Chinese Style: Good for Health Outcomes?. *World Development* Vol. 37, No. 12, pp. 1926-1934.
- Weeks, J, R. 1988. The Demography of Islamic Nations, *Population Bulletin*, Vol. 43, No. 4, pp.5-53.
- World Bank, World Development Report, *Making services work for poor people*, World Bank, Washington, DC, (2004).
- Yamamura, E. 2011. Corruption and Fertility: Evidence from OECD countries. *Journal of Economics and Econometrics* Vol. 54, No.2, 2011 pp. 34-57.