MUSLIM FERTILITY IN INDONESIA
A FEATURE OF PROXIMATE DETERMINANTS
OF JAVA-BALI [1]

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Abstrak

Studi ini mencoba melihat dan mengurai perbedaan dan faktor yang mempengaruhi fertilitas muslim di Indonesia, khususnya Jawa dan Bali. Bersamaan dengan itu, dicoba pula melihat seberapa dalam pengaruh itu memberikan kontribusi pada fertilitas muslim tersebut.

Praktek dan kebijakan fertilitas secara umum banyak berhubungan dan dipengaruhi oleh agama. Coale (1973) mengemukakan bahwa gereja memainkan peranan yang demikian penting di dalam mempengaruhi percepatan dan waktu transisi fertilitas di Eropa. Demikian juga hal yang terjadi di negara-negara Sub-Sahara Afrika, penurunan fertilitas sangat tergantung pada sistem kepercayaan agama di sana.

Di negara Arab yang penduduknya kebanyakan beragama Islam, tingkat fertilitasnya lebih besar dari negara non-Arab. Sementara itu, di negara-negara Islam pun tingkat fertilitasnya juga tidak kalah besar dari negara non-islam. Bersamaan dengan tingginya tingkat fertilitas ini, baik di negara Arab dan Islam, tingkat pendidikan dan kesehatan penduduknya sangat memprihatinkan.

Di Indonesia, jumlah penduduk muslim dari tahun ke tahun terus mengalami penurunan, 86.3 persen tahun 1995 (Jawa dan Bali 92.3 persen). Namun secara absolut jumlah ini terus meningkat tahun 1995 penduduk muslim Indonesia sekitar 167 juta dan 111 juta berada di Jawa dan

Bali. Sedangkan tingkat fertilitas muslim Indonesia juga masih yang terbesar dibanding dengan yang non muslim.

Kebijakan kependudukan Indonesia yang mayoritas penduduknya beragama Islam, mengarah pada pembangunan sumber daya manusia. Tujuannya agar pembangunan nasional yang sedang berlangsung lebih efektif dan punya nilai lebih, serta meningkatkan kualitas kehidupan bangsa. Upaya ini ditempuh dengan cara mengontrol tingkat pertumbuhan penduduk melalui upaya penurunan tingkat fertilitas dan mortalitas.

Melalui program Keluarga Berencana upaya ini telah banyak menunjukkan hasil. Meningkatnya kesehatan keluarga (terutama ibu dan anak) serta terwujudnya keluarga kecil bahagia dan sejahtera merupakan gambaran dari keberhasilan ini. Keluarga muslim Indonesia adalah yang terbanyak merasakan peningkatan ini.

Melalui penelusuran data dan melihat pada berbagai upaya penerapan program tadi, telah ditemukan bahwa ada perbedaan gambaran fertilitas muslim pada masing-masing propinsi di Jawa dan Bali. Bali memperlihatkan angka fertilitas muslimnya yang paling tinggi, kemudian diikuti oleh Jawa Barat dan yang paling rendah adalah propinsi Jawa Timur. Sedangkan konstribusi pada menurunnya angka fertilitas, praktek pemakaian kontrasepsi modern menempati posisi paling tinggi. Konstribusi faktor *postpartum infecundability* menempati posisi kedua dan yang paling akhir adalah konstribusi dari indek perkawinan. Indek perkawinan ini menunjuk pada semakin tingginya umur kawin pasangan suami istri muslim Indonesia.

ملخس

تبحث هذه المقالة عن الا ختلا ف والعاملة التى تؤثر فى خصـب المسلم بإندونيسيا وخاصـة بجاوه وبـالى. وتبحـث أيضـا عن مـدى تـأثير العاملـة فـى الخصـب.

انّ عملية الخصب وتقريرات متعلقة به على الوجه العام مرتبطة ومتأثرة

بالدين. قال كول Coale إن الكنيسة تلعب دورا هاما فى تـأثير تسريـع الخصـب بأوربا. وهكذا ما يقع فى بعض دول أفريقيا بأن هبوط الخصب متعلق بالتقاليد والدين.

الخصب فى البلدان العربية التى كـان معظم سكانها مسلمين أعلـى مـن الخصب فـى البلدان غير العربيـة. وفى نفس الحـال ان الخصـب فـى البـلاد الاسلامية أعلى من مستوى الخصب فـى البـلاد غير الاسلامية. رغـم ارتفـاع مدى خصب المسلم فى البلاد العربية والاسلامية كـانت مستوى تربيـة سكانها وصحتهم لا تزال رديئة.

كان عدد السكان المسلمين بإندونيسيا اذا قارنَّا بغيرالمسلمين فى المائة ينقص كل سنة، فى سنة ١٩٩٥ عددهم ٨٦،٣ من مائة وفى جاوه وبالى ٩٢،٣ من مائة. مهما كان كذلك، فإن عددهم يزيد كل سنة، فى سنة ١٩٩٥ عددهم حوالى ١٦٧ مليونا ومنهم ١١١ مليونا يعيشون بجاوه وبالى.

تقريرات الحكومة الاندونيسية المتعلقة بالسكان توجّه إلى بناء مهارات الأفراد. الغرض منها ليكون البناء الوطنى الجارى أحسن ذا نتيجة أكـثر فـترفع نوع حياة الشعب. لأجل الوصـول إلى هذا الغرض قامت الحكومـة بتحديد نمـوّ عدد السكان بطريقة إسقاط مستوى الخصب والموت.

أظهر السعى نجاحه بوسيلة تحديد النسل. زيادة صحـة الأسرة وخاصـة الأمهات والأولاد ثم وجود الأسرة الصغيرة السعيدة كلاهمـا دليـلان مـن دلائل نجاح السعى. وفى هذا الحين إن الأسرة الإسلامية هـى أكـثر من يشـعر بهـذه الثمرة.

بطريقة النظر إلى التفاصيل والنظر إلى عمليـة البرنامج وصـل الكـاتب إلى معرفة الاختلاف فى خصب المسلم بين الأقاليم الموجودة بجاوه وبالى.

ومنها يظهر بأن اقليم بالى أرفع مستوى خصب المسلم ثم تبعـه جـاوه الغربيـة. وكان جاوه الشرقية أقل خصب من غيره. ومن العوامـل المؤثـرة فـى الخصـب تحديد النسل وعمر الزواج.

INTRODUCTION

Indonesia is the largest archipelago and the fifth most populous country in the world. It consists of five main islands and 30 smaller groups. The new figure for the total number of islands is more than 17.000 according to the Indonesian Naval Hydro-Oceanographic office. This figure is an increase from the official figure so far known, that is 13.667. The archipelago is on a crossroad between two oceans, the Pacific and the Indian, and bridges two continents, Asia and Australia. This strategic position has always influenced the cultural, social, political and economic life of the country.

The archipelago is divided into three groups. The islands of Java, Sumatra and Kalimantan, and small islands in-between, lie on the Sunda Strait which begins on the strait coasts of Malaysia and Indo-China, where the sea depth does not exceed 700 feet. Irian Jaya which is part of the islands of New Guinea, and the Aru Islands lie on the Sahul strait, which stretches northwards from the Australian coasts. Here the sea depth is similar to that of the Sunda Strait.

The climate and weather of Indonesia is characterized by two tropical seasons, which vary with the equatorial air circulation (the Walker circulation) and the meridian air circulation (the Hardley circulation). The displacement of the latter follows the north-south movement of the sun and its relative position from the earth, in particular from the continents of Asia and Australia, at certain periods of the year. These factors contribute to the displacement and intensity of the InterTropical Convergence Zone (ITCZ) which is an equatorial trough of low pressure that produces rain. Thus, the west and east monsoons, or the rainy and dry seasons, are a prevalent feature of the tropical climate (*Department of Information*, 1994).

1. Population

The population policy is directed towards development of the population as human resources in order that the national development can be effective and valuable, while the quality of life gradually improves. Meanwhile, the control of population growth is carried out through efforts to lower the birth and mortality rates, especially that of infant and child. These efforts in particular have been implemented through family planning programs which also have the purpose of improving the welfare of mother and child and at the same time creating a small, happy and prosperous family (*Goverment Regulation*, 1994).

The birth rate declined drastically from 33.5 per 1,000 people in 1983 to 28.7 in 1988 and lately decreased to 27.3 in 1990. In the meantime, the fertility rate also declined from 4.6 per 1,000 women of childbearing age in 1980 to 3.3 in 1990 (*INDONESIA*, 1994).

Several factors including a rising living standard, higher educational levels and improved health services, contributed to the birth rate decline. But the greatest proportion is attributeable to the increasing number of people participating in family planning, especially the new eligible couples. Morever, contraception has become more widespread and effective, making it easier to plan families; and strerilization of men and women has also become more common (*INDONESIA*, 1994).

According to the 1985 Inter-Census Population Survey (*SUPAS*, 1985), the expectation of life at birth for a man was 57.9 years and 61.5 years for a woman, representing a rise of about 13 years since the early 1960's, and 7 years or more since the early 1970's. The expectation of life for 1988 was 63 years, and for 1990 was estimated 64 years.

Postponement of conception in marriages, and a trend towards later marriage have also become more popular. The available data show that the average age for marriage rose from 20.1 in 1980, to 21.2 in 1985, and 22.1 in 1987.

In the meantime, the growth of Muslim in Indonesia, according to the censuses, has been going down in percentages but not in absolute numbers (see table 1). In 1980, Indonesia's Muslim population of 87.1 percent went down to 86.9 in 1985 and then became 86.7 percent in 1990. However, in absolute numbers, the Muslim population grew from 128,463.8 (1985) and 156,389.5 (1990) (*BPS*, 1994).

TABLE 1
NUMBER OF MUSLIM POPULATION
IN JAVA-BALI PROVINCE
1980-1995 (in million)

PROVINCE	1980	1985	1990	1995*
Jakarta	5.495	6.710	8.061	9.433
	(84.5)	(85.1)	(85.7)	(86.3)
West Java	26.932	30.121	33.504	36.384
	(98.1)	(97.7)	(97.3)	(96.9)
Central Java	24.383	25.733	27.537	28.949
	(96.1)	(95.5)	(94.9)	(94.3)
Yogyakarta	2.542	2.680	2.855	3.003
	(92.4)	(91.2)	(90.0)	(88.8)
East Java	28.197	30.230	32.143	33.602
	(96.6)	(96.7)	(96.8)	(96.9)
Bali	0.128	0.143	0.157	0.210
	(5.2)	(5.4)	(5.6)	(5.8)
BALI	87.677	95.617	104.257	111.581
	(93.5)	(92.9)	(92.6)	(92.3)
INDONESIA	128.464	142.556	156.389	167.332
	(87.1)	(86.9)	(86.7)	(86.3)

Notes : Percentages in all Parentheses; * Projection.
Source : Central Bureau of Statistics (*BPS*, 1994).

Some provinces such as Java-Bali showed interesting trends; other provinces did not show much change, some increased and others de-creased. The Muslim population of Jakarta, 84.5 percent (1980) increased to 85.1 percent (1985) and 85.7 percent (1990). But in the province of west Java the Muslim population dropped sharply from 98.1 percent (1980) to 97.7 percent (1985) and 97.3 percent (1990). Muslim population in Java Bali itself is the same as that in Indonesia as a whole, where there have been some decreases in percentages from the year 1980 to 1995, or maybe in the coming years.

2. Studies on Religion and Fertility

It is generally recognised that religion has a profound impact on fertility decisions and practices. In reviewing the results of the European Fertility Project, Coale (1973) notes that the church played an important role in influencing the speed and timing of the fertility transition in Europe. He maintains that the moral acceptance of birth control was one of the necessary conditions for a major decline in marital fertility. Similarly, Lesthaeghe (1980) argues that in England, the church's gradual accomodation to the altered facts allowed 'fertility to fall more closely in line with what one might expect on the basis of formal economic reasoning'.

The various hypotheses regarding the studies on religion and fertility can be dichotomised into the characteristics and particularized theology (norms) hypotheses. The characteristic hypothesis contends that the effect of religious affiliation on fertility merely reflects social, economic and demographic differences between the members of different religious groups. Thus, when these social, economic and demographic differences are statistically controlled, the fertility differentials by religious affiliation will vanish or be reduced to insignificance (Freedman, Whelpton & Smith, 1961; Petersen, 1969).

The particularised theology (or norms) hypothesis maintains that religious differences in fertility due to differences in taught religious doctrines, so that a religion whose doctrines are pronatalist and proscribe contraception and abortion will have members whose fertilities are higher than those of a religion whose doctrine is not explicitly pronatalist and permits contraception (Goldscheider et al., 1988; Kirk, 1967). Thus, this hypothesis suggests that fertility differentials by religious affliation are due to differences in religious group norms about family size, norms regarding the proximate determinants of fertility, as well as practise relating to these proximate determinants.

In Sub-Saharan Africa, the region with the highest desired family size, birth rate, and annual population growth rate (Mott & Mott, 1980; Bongaarts et al., 1991; Goliber, 1985), Caldwell & Caldwell (1987) contend that the timing of fertility transition will almost certainly depend on religious and secular changes at the individual level and on altered goverment policies, and that Sub-Saharan Africa may offer greater resistance to fertility decline due to cultural reasons which 'have much to do with a religious belief system that operates directly to sustain high fertility'.

In Arab countries where the majority are Muslims, their fertility level is higher than in non-Arab countries (Omran, 1980). Hence, he also said that health status indicators in these countries are worse. The unusual features of Arab demography have been attributed to Islam and to the low status of women in the region. One of the strongest statement about the status of Arab countries as 'negative outlets' comes from Caldwell's analysis. In trying to decide what determines that a country shall become a superior or a poor health achiever, Caldwell finds that "the first contrast to strike the reader ... is the religion of the two groups" (1968). Contrasting Islam with Buddhism and Hinduism, he argues that the poor health performance of Islamic countries is the result of the influence of their religion on the societal values related to women and children. Arab countries discussed are those countries in which Arabic is the official language, and predominantly Muslim (Obermeyer, 1992).

In Islamic Countries, in the meantime, Lutz (1987) and Nagi (1984) note that religion is the most important factor in the determination of fertility among Muslim women which seems to be true to a great extent. But Obermeyer (1992) observes a weaker role of religion in determining the fertility of Muslim women. It is political will and power of individual countries which will determine the future fertility levels, especially in the Arab Countries. Past data already indicated a declining fertility among Arab women, except in a few countries like Saudi Arabia, Sudan, Syria, Iran, Libya, and Yemen.

Muslim fertility has been found to be higher than that of non-Muslims (Mazur, 1967; Kirk, 1967; Caldwell, 1968; Matras, 1973; Rizk, 1973); other studies find the opposite (Gaisie, 1972; Mabogunje, 1972; Page, 1975; Podlewski, 1975; Sembajwe, 1980; Bailey, 1986). Today Muslim jurists support measures to prevent conception, and in several Muslim countries religious leaders have endorsed family planning programs. Abortion and sterilization still meet strong opposition from religious authorities.

In India, one-sixth of its population are Muslims. John and Pat Cadwell (1988) found that the Muslim fertility is higher than in other religions and the resistance to the family planning program is also stronger. In their survey area, the Muslims point out that their morality was divinely revealed, is spelled out in a Book, is immutable, and cannot be influenced by goverment or bureaucracies.

Concerning fertility control in Indonesia, culture and religious values can create an important barrier for family planning practices (Warwick, 1986), especially the first time it is launched. Most Indonesians are Muslims and hold traditional cultural values. Both Islamic and cultural traditions are dominant in decision making regarding household life. Nevertheless, from 1971 to 1985, family planning programs that coordinated private and semigovernmental family planning activities succesfully increased the proportion of couples practising contraception. According to program statistics, the proportion increased from 2.8 percent in 1971 to 62.2 percent in 1985 (Warwick, 1986).

Studies on religion and demographic issues like fertility in Indonesia can be said to be very few. Suyono et. al. (1984) found that the highest proportion of contraceptive use was among Protestants (43.8 percent) and the lowest proportion was among Muslims. Also Papanek et al., (1974) have identified that Jakarta's Catholic and Protestant women have less children than Muslim women.

3. Objectives of The Study

This study will try to accomplish the following objectives: first, examining the differential and proximate determinant of Muslim fertility within each of the provinces of Java-Bali; and second, examining the contribution of the main proximate variables to reduction of Muslim fertility in each of the provinces of Java-Bali.

4. Data and Methods

The main source of data will be the 1991 Indonesia demographic and Health Survey (IDHS). This survey was conducted by the Indonesia Central Bureau of Statistics, the National Family Planning Board and the Ministry of Health covering 27 provinces of Indonesia.

A sample of about 27,000 households were selected from the 1991 Indonesia Demographic and Health Survey to get 26,858 eligible women. among them, 22,909 were succesfully interviewed. From this sample, there are 13,911 Muslim respondents and of them, 6,832 Muslim respondents are located in Java-Bali. With reference to the Indonesia Demographic and Health Survey report (IDHS, 1992), concerning the equality of the data, it states that there is no evidence of severe underreporting of the birth numbers of all respondents.

This study will only deal with the proximate determinants of Muslim fertility in the provinces of Java-Bali. In the analysis, Bongaarts model of the proximate determinants of fertility (1978; Bongaarts and Potter, 1983) will be applied.

THE PROXIMATE DETERMINANTS OF MUSLIM FERTILITY

Any detailed and comprehensive analysis of factors influencing fertility requires a distiction between two classes of determinants: proximate variables and socio-economic and environmental background variables. the latter includes social, cultural, economic and environmental variables, and the former consists of all the biological and behavioral factors through which social economic and environmental variables affect fertility. If a proximate determinant changes, then fertility necessarily changes (assuming other proximate determinants remain constant), and this is not necessarily the case for a socio-economic determinant. Consequently, fertility differences among populations and trends in fertility over time can always be traced to variation in one or more of the proximate determinants (Davis and Blake, 1956; Bongaarts and Potter, 1983).

The eleven intermediate fertility variables introduced by Davis and Blake (1956) and have been reclassified by Bongaarts (1978) into seven variables and grouped into three broad categories as follows :

I.   Exposure Factors
   1. Proportion married among females
II. Deliberate Marital Fertility Control Factors
   2. Contraception
   3. Induced abortion
III. Natural Marital Fertility Factors
   4. Lactational infecundability
   5. Frequency of intercourse
   6. Sterility
   7. Spontaneous intrauterine mortality.

According to Bongaarts, the proportion married is intended to measure the proportion of women of reproductive age engaged in sexual intercourse regularly.

Any deliberate practise - including abstention and sterilization - undertaken to reduce the risk of a conception is considered contraception, and the induced abortion includes any practice that deliberately interrupts

the normal course of gestation. The absense of contraception and induced abortion implies the existence of natural fertility. The lactational infecundability is the period in which a breastfeeding woman would remain infecundable (i.e., unable to conceive) after pregnancy until the normal pattern of ovulation and menstruation is restored. The duration of the period is function of the duration and intensity of lactation.

Normal variations in the rate of intercourse is measured by frequency of intercourse factor. The variations include those due to temporary separation or illness and exclude the effect of voluntary abstinence - total or periodic - to avoid preqnancy.

Women are sterile before menarche, the beginning of menstrual function, and after menopause. Sterility refers to women's sterility before reaching menopause for raeasons other than contraceptive sterilization. Spontaneous intrauterine mortality comes from the failure of all conception to results in a live birth (abortion or stillbirth).

Bongaarts suggests that the above factors are not equally important in their effect on fertility. Only four of them (proportion married, contraceptive use and effectiveness, induced abortion and post-partum infecundability) are the most important in explaining the variations in fertility levels among population.

According to Bongaarts, if all women are married throughout their reproductive period, used no conception, had no induced abortion and experienced no lactational infecundability, they would achieve their maximum fertility level approximately by 15.3 children per-woman, an average, with relatively little variation among population (13-17) births per-women.

The basic variables and concept used in the model can shown graphically as below :

LEVEL OF FERTILITY   FERTILITY INHIBITING
                                                     EFFECT OF :
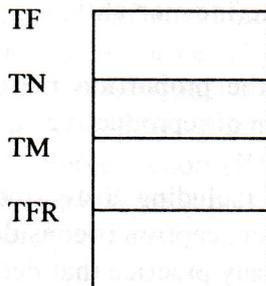
TF

        Postpartum infecundability
TN

        Contraception and abortion
TM

        Marriage
TFR

Figure (3.1)   Relationships between the Fertility Inhibition
Effect of the Proximate   Variables and Various
Measures of Fertility.

The above figure is divided into 4 segments. The one at the bottom indicates the observed TFR. Moving upward, the height of the next segment indicates the level of fertility that would be if all women were in a union during the whole of their reproductive years (total marital fertility rate). If no women in union practised contraception or induced abortion, fertility will   arise to top of next segment. The height represents the total natural marital fertility rate (TN). The top segment of the figure indicates the fertility level one would observe if none of the proximate determinants is exerting a fertility reducing effect (i.e., if all the indices are equal to 1).

The fertility effect of the four most important proximate determinants are measured in the model by four indices : Ca, Cc, Cm, and Ci. The model is as follows :

$$TFR = Cm \times Cc \times Ca \times Ci \times TF$$

Where TFR = total fertility rate, Cm = index of Marriage, Cc = index of contraception, Ca = Index of induced abortion, Ci = index of postpartum infecundability, and TF = total fecundity rate (for the detail calculations, see : Bongaart and Potter, 1983).

The analysis will be focused only on three out of the four variables of the model, since no data is available on the prevalence of abortion in Indonesia as a whole, and especially the Muslim population in Java-Bali provinces.

The components of the marriage index are demonstrated in the following table.

TABLE 2
AGE SPECIFIC FERTILITY AND
TOTAL FERTILITY RATES JAVA-BALI MUSLIMS FOR FIVE
YEARS BEFORE THE SURVEY (1987-1991)

Age Group	Jakarta	West Java	Central Java	Yogya karta	East Java	Bali
15-19	0.090	0.101	0.092	0.178	0.084	0.267
20-24	0.164	0.194	0.212	0.181	0.171	0.267
25-29	0.161	0.175	0.175	0.154	0.131	0.200
30-34	0.114	0.149	0.131	0.113	0.081	0.200
35-39	0.085	0.114	0.092	0.066	0.063	0.089
40-44	0.026	0.069	0.036	0.040	0.033	0.025
45-49	0.011	0.011	0.012	0.005	0.012	0.033
TFR	3.272	4.069	3.752	3.685	2.877	5.403

Source : Estimated from the 1991 IDHS tape.

Data table 2 indicates that the total fertility rates (TFR) differ from one province to another. They range from 2.9 births per-Muslim woman in East-Java to 5.4 births in Bali province. Age spesific fertility rates in each province vary with the woman's age. The lowest childbearing rate is in age group 45-49 or in the oldest age group i.e., 5 births per-100- Muslim women, and then age group 40-44 years. Otherwise, fertility reaches a maximum childbearing is at the age groups 15-19 and 20-24 years in Bali province and at the age group 20-24 years in CentralJava province.

The marriage pattern is of significant importance in explaining the shape of the age specific fertility rates (ASFR), because the proportion of marriage varies substantially with age. This proportion is usually the lowest in the age group 45-49 years, because women will have been near menopause ages, and also reasons of child care-cost and future-cost, family size, health problems, and so on. It is therefore one of the principally correlative reasons for the relatively low fertility rate in this age group.

TABLE 3
AGE SPECIFIC MARITAL FERTILITY AND
TOTAL FERTILITY RATES OF JAVA-BALI MUSLIMS FOR FIVE
YEARS BEFORE THE SURVEY (1987-1991)

Age Group	Jakarta	West Java	Central Java	Yogya karta	East Java	Bali
15-19	0.107	0.115	0.098	0.178	0.087	0.267
20-24	0.180	0.203	0.227	0.189	0.177	0.267
25-29	0.182	0.183	0.184	0.164	0.137	0.213
30-34	0.126	0.158	0.142	0.116	0.087	0.200
35-39	0.095	0.123	0.102	0.071	0.071	0.100
40-44	0.030	0.076	0.041	0.043	0.038	0.029
45-49	0.014	0.012	0.016	0.006	0.016	0.033
TMFR	3.668	4.350	4.047	3.835	3.062	5.539

Source : Estimated from the 1991 IDHS tape.

A contribution, which cannot be ignored, in the reduction of fertility rates is the proportion married that usually declines in the older age groups as a result of marital disruption.

To eliminate the above fertility rates to only married Muslim women, the table (2) will be related to the above table (3).

Table 3 shows that the total marital fertility rates (TMFR) range from 3.1 births per-Muslim woman in East-Java to 5.5 births in Bali Province. The age specific marital fertility rates (ASMFR) reach a minimum at all age groups 45-49 years, except in Bali province where the age group 40-44 years has lower ASMFR. The ASMFs are at the age groups 15-19 and 20-24 years in Bali province and at the age group 20-24 years in Central-Java province.

Table 4 indicates that the prevalence of contraceptive use in Yogyakarta province is the highest proportion (66 percent) and the lowest (45 percent) in the Central-Java province. In Bali, East-Java and West-Java provinces are 51%, 51%, and 48% respectively. Otherwise the proportions of contraceptive use in these provinces are not followed by the levels of its contraceptive use effectiveness. The Yogyakarta province reaches a highest proportion in contraceptive usage but in the level of its

effectiveness it only reaches 84 percent of third ranking. The highest level of contrceptive use effectiveness is obtained by East-Java province while the proportion of contraceptive use is in the third ranking, and the lowest level of use effectiveness is in the West-Java province (82 percent).

The average duration of breastfeeding in the Central-Java province is the highest duration (24.6 months per-Muslim woman), while Jakarta is the lowest duration (18.1 months per-Muslim woman). If Jakarta has the lowest duration of breastfeeding, it is reasonable, since it is an urbanized province and the proportion of women working has the biggest percentage in this province than that in other provinces. Likewise, in the case of average duration pattern of postpartum infecundability is the same as the duration pattern of breastfeeding respectively.

TABLE 4
ESTIMATES OF FERTILITY MEASURERS, AND PROXIMATE DETERMINANTS AND ITS INDEXES JAVA-BALI MUSLIMS, 1991

	Jakarta	West Java	Central Java	Yogya karta	East Java	Bali
Prop. Using Cont (u)	0.488	0.477	0.447	0.659	0.505	0.508
Contr. Use-Effect (e)	0.845	0.818	0.845	0.838	0.880	0.836
Total Abortion (TA)	-	-	-	-	-	-
Mean Dur of Breasfeed	18.1	21.3	24.6	23.6	22.3	19.2
Duration of Post-Inf (i)	11.9	14.7	17.5	16.7	15.5	12.8
Index of M (Cm)	0.892	0.935	0.927	0.961	0.940	0.975
Index of C (Cc)	0.555	0.579	0.592	0.404	0.520	0.541
Index of Ind.Ab (Ca)	-	-	-	-	-	-
Index of Post.inf (Ci)	0.658	0.602	0.558	0.566	0.588	0.639
Observed TF	10.04	12.48	12.29	16.71	10.1	16.02
Observed TFR	3.272	4.069	3.752	3.685	2.877	5.403
Observed TM	3.668	4.350	4.047	3.835	3.062	5.539
Observed TN*	6.606	7.513	6.836	9.493	5.888	10.238
Estimated TN	10.070	9.210	8.507	8.690	8.996	9.777
Estimated TM	5.587	5.333	5.036	3.510	4.678	5.289
Estimated TFR	4.984	4.986	4.668	3.374	4.397	5.157

*TN = Total Natural Marital Fertility (Ci x TF)
Source : Estimated from the 1991 IDHS tape.

Table 4 also indicates the fertility inhibiting effect of the proximate determinants on Muslim fertility, in the provinces of Java-Bali, and observed (from the 1991 IDHS) total fertility rates (TFR) as well as the estimated total fecundity (TF). The estimation of observed TFR and TF from examining the 1991 IDHS are calculated using the previous equation. The first level of fertility inhibiting effect is marriage in all provinces, at an average 90 percent. The second level is reached by duration of postpartum infecundability in all provinces out of Central-Java province.

The second level is obtained by duration of postpartum infecundability in all provinces out of the Central-Java province, i.e., instead of the contraceptive practices. Otherwise, the third level is the contraceptive practices in all provinces out of Central-Java province i.e., instead of the duration of postpartum infecundability. It is important to note here that the smallest fertility inhibiting effect in Yogyakarta province is the contraceptive practice (40 percent), since we know that the proportion of women using contraception in this province is the highest magnitude (66 percent). This is a proof that the contraceptive use effectiveness here significantly supports the fertility inhibiting factors.

TABLE 5
NUMBER OF MUSLIM BIRTHS AVERTED
FROM TF TO OBSERVED TFR AND THE PERCENTAGE
CONTRIBUTION OF EACH INDEX FOR JAVA-BALI, 1991

PROVINCE	C_m	C_c	C_i	TF-TFRobsy
Jakarta				
% Reduction	10.19	52.49	37.32	6.8
Birth Averted	0.7	3.6	2.5	
West Java				
% Reduction	5.99	48.74	45.27	8.4
Birth Averted	0.5	4.1	3.8	
Central Java				
% Reduction	6.39	44.16	49.45	8.5
Birth Averted	0.6	3.8	4.2	

Yogyakarta

% Reduction	2.63	59.95	37.42	13.0
Birth Averted	0.3	7.8	4.9	

East Java

% Reduction	4.96	52.45	42.59	7.1
Birth Averted	0.4	3.7	3.0	

Bali

% Reduction	2.33	56.49	41.18	10.6
Birth Averted	0.3	5.9	4.4	

Source : Calculated using data from table 4

In the meantime, the observed estimates and model estimates of TFR have some different discrepancies in all province. Expect in Yogyakarta and Bali provinces where their discrepancies are fewer, 0.3 birth per-Muslim woman while in the other provinces 0.9 birth per-Muslim woman. It means that the difference of total fertility levels (estimated and observed) in Yogyakarta and Bali provinces have a good fit of the model estimates, otherwise, the other provinces have a poor fit. One can also look at the observed total fecundability (TF), where the levels are far from the range (13-17) births per-woman, as mentioned in Bongaarts model.

The data presented in table 4 can also demonstrate the number of births averted due to each proximate determinant and its percentage contribution as indicated in the above table 5.

Table 5 shows that the difference between the observed fecundity (TF) and the observed TFR in the varied provinces is the result of the fertility inhibiting effect of the proximate determinants demonstrated. The magnitude of the fertility inhibiting effect being accounted for by each proximate determinant in each province is given in the parentheses. The percentage reduction in fertility from the observed TF to observed TFR in each province states that biggest reduction in all provinces, except Central-Java as more attributed to contraceptive practices than other proximate determinants : where 50 percent or more of the reduction of contraceptive practices are the provinces of Jakarta (53%), Yogyakarta (60%), East Java (52%), and Bali (56%). The provinces that have not

more than 50 percent in the reduction are West-Java (49%) and Central-Java (44%) provinces. For Central-Java province, the biggest reduction is replaced by the postpartum infecundability contribution.

At the same time, the reduction of marriage pattern in all provinces is not more than 10 percent; even Yogyakarta, East Java and Bali provinces are not more than 5 percent. It means that the reduction of fertility inhibiting effect of marriage variable is a very small contribution, and that it reaches 10 percent reduction only in Jakarta province.

In the absolute births averted allocated by the marriage pettern for all provinces are not more than one birth. Otherwise, the absolute births averted as contributed by the contraceptive practices range from 4 to 8 births per-Muslim woman, a very high level of reduction. A moderate birth reduction as allocated by the postpartum infecundability factors ranges from 3 to 5 births per-Muslim woman.

CONCLUSION AND POLICY RECOMENDATIONS

Clearly, if this study is consistent with the model and looking at the discrepancies, the conclusion will be that proportion married, contraception and pospartum infecundability are not the most important proximate determinants of the fertility, except in Yogyakarta and Bali provinces, as indicated in this finding. errors exceeding 0.9 birth per-Muslim woman in the TFR is not unusual, and other existing methods for estimations fertility are therefore preferable.

The level variance in fertility that is not explained by the three principal proximate determinants maybe due to several factors according to Bongaarts and Potter (1983) :

1. Errors in the measurement of the proximate determinants in general.
2. Errors in the specification of the model. In other words, the assumptions made the model less than fully accurate.
3. Induced abortion that is followed in the model, perhaps, results in an upward bias in the model estimates of TFR.

The table 5, although it gives the other conclusion that the program of Family Planning in Indonesia has a significant role in lowering the fertility level in Java-Bali islands, it is still unreasonable. Because the calculation of these figures remains depending on the numbers in the table

4. Thus the table 5 cannot provide a conclusion and the other methods for estimations fertility are still preferable.

In view of the above conslusion and another consideration, some specific measures that goverment may want to consider should include :

(a) Strong educational campaigns should be mounted to educate and persuade the population to accept the benefits of small family size. Means for achieving small family size should be made available;

(b) mother and child health and family planning programs should be integrated, wherever possible, in other sectoral areas within the framework of rural and urban development programmes. Special attention should be given to birthspacing and to a significant reduction of child deaths, which are also important determinants of fertility;

(c) Existing programmes to reduce fertility need to be strengthened and improved to achieve their desired objectives. However, attention should also be given to reduce problems of infertility and of child deaths where they exist;

(d) Where there are no clear programmes and policies to regulate fertility, formulation of relevant policies should be given some consideration;

(e) Women's social status should be improved to enable them to participate at all levels in the socio-economic development activities of the country.

Action on the above-listed measures would be of great help in improving the life of the Muslim people of Java's provinces, and Indonesia as a whole. Many Indonesian Muslim leaders have recently begun to change their perception of population and family planning issues. They no longer want to treat family planning programmes in isolation but as part of other programmes and policies on health, education, family welfare, standard of living, employment, environment and use of resources. This emphasizes the revised approach to development which has to take into account population, environment and resources. The Provincial Government has to face a considerable challenge in its development efforts.

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