

Contraceptive Choice in Indonesia: 1987 and 1991

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Abstract. *This study investigates socioeconomic, cultural, demographic and programmatic factors influencing contraceptive choice in Indonesia using the 1987 National Indonesia Contraceptive Prevalence Survey (NICPS) and 1991 Indonesia Demographic and Health Survey (DHS) data. The study shows a consistency of factors affecting current method used across the two surveys using Bulatao's conceptual scheme (1989). These factors are the number of living children, fertility intentions, age at survey, duration of marriage, education, current work status, religion, the province and place of residence, whether a programme implementer visits in the six months before the survey, whether a woman has regular access to the mass media and her husband's occupation. Higher number of living children and not wanting any more children are related to a greater choice of long-term methods and less choice of short-term; and traditional methods-results compatible with a greater need for limiting childbirth rather than spacing. Religiousness is identified with greater preference for short-term methods as these methods can be used by the users themselves without having to see a male doctor. Access is related to preference for long-term methods. The preference in the rural areas for long-term methods in fact is higher than in the urban areas, resulting from the strong promotion and provision of these methods there.*

Keywords: conceptual scheme; multinomial logistic regression; odds ratio; contraceptive choice; short-term method; long-term method; traditional method.

1. Introduction

In the past two decades Indonesia has experienced a notable fertility decline. The total fertility rate (TFR) declined from 5.6 children per woman in late 1960s to 3.0 children per woman in early 1990s. This decline has been attributed to the success of the National Family Planning Programme in promoting the acceptance and practice of family planning which was initiated officially in 1970. The Indonesian Family Planning Programme has been acknowledged as one of the most successful family planning programmes in the developing countries, partly due to the political commitment from the government to control population growth (Warwick 1988).

Contraceptive use has been continuously increasing. Prior to the official implementation of the programme, modern birth control methods were virtually unknown to the Indonesian people (Gille and Pardoko 1966). Afterwards contraceptive prevalence increased from below five percent in 1970, to seven, 18 and 31 percent in 1973, 1976 and 1979 respectively (Ross and Poedjastoeti 1983). The results from the Indonesian DHS showed that this prevalence increased to a relatively high rates of 47.7 and 49.7 percent in 1987 and 1991 respectively (Demographic and Health Surveys *et al.* 1989, 1992).

The increase of contraceptive use in Indonesia involves a substantial increase of the use of modern contraceptive methods. The report of the National Family Planning Coordinating Board (*Badan Koordinasi Keluarga Berencana Nasional 1992*) indicated that the IUD was the most used method in 1969-1970 but was replaced by the pill in 1977-1978. Growing concerns about the side-effects of the pill and some religious objections to using the IUD led to the increase in the use of the injection which was promoted for the first time in the mid-1970s which gained popularity in the 1990s. In the mid-1980s, the NFPCB introduced sterilisation and Norplant into the programme. Use of these two methods has increased notably. The condom, which was used by 18 percent of contraceptors in the 1969-1970, was only used by two percent of contraceptors in the early 1990s. Use of other modern methods of contraception or traditional methods is persistently low. The pill, IUD and injection were the three leading methods used in 1991.

It has been found that current contraceptive use is influenced by socio-economic, demographic and programmatic factors of users (*e.g.* Choe and Park 1989; Samosir 1993). It has been found that current contraceptive use is influenced by socio-economic, demographic and programmatic factors. But, differences are found between factors influencing the choice of use or non use of contraceptive method and factors influencing the decision to use short term or long term method. Factors which influence significantly the choice of use or non use of contraception may not significantly influence the adoption of short term or long term method. Thus, it is also important to examine which factors and with what relative strength, predict whether a couple will use short-term methods such as pills, injections and condoms, or long-term methods such as IUD, Norplant and sterilisation, or traditional methods such as periodic abstinence, withdrawal, herbs and massage. This study is designed for this purpose.

2. Data and Methodology

The data in the analysis come from the 1987 National Indonesia Contraceptive Prevalence Survey (NICPS) and the 1991 Indonesia Demographic and Health Survey (DHS). The 1987 NICPS was conducted in May through July

1987 and interviewed 11,884 ever married women aged 15-49 years in 20 out of 27 provinces in Indonesia, while the 1987 Indonesia DHS was carried out in May through July 1991 and interviewed 22,909 ever married women aged 15-49 in all provinces (Demographic and Health Surveys *et al.* 1989, 1992). All women who were currently married at the time of the surveys were included in the analysis (10,907 women in the 1987 NICPS and 21,109 women in the 1991 Indonesia DHS).

In this analysis, Bulatao's conceptual scheme (Bulatao 1989) of contraceptive choice is used. That is, those couples select a type of contraceptive method based on their contraceptive goals, competence, evaluation and access. Contraceptive goals are the number of living children and fertility intentions; contraceptive competence includes age, duration of marriage, education and current work status; the indicator of contraceptive evaluation is religion; and contraceptive access is the province and place of residence at the time of the survey, place of residence before a woman was aged 12, whether a programme implementer visits in the six months before the survey, whether a woman has access to the mass media regularly and husband's occupation. Although reading a newspaper regularly can also be assumed to be an indicator of contraceptive competence, in this article it is included in the contraceptive access category.

This study employed multinomial logistic regression model. This model is a generalisation of the binary logistic regression model (Hosmer and Lemeshow 1989). It is used to describe the relationship between a multi-categorical response variable and a set of explanatory variables. Suppose that the response variable Y takes one of the mutually exclusive and exhaustive categories $0, 1, 2, \dots, J$. In the binary logistic regression model, a binary outcome is parameterised in terms of the logit of $Y = 1$ versus $Y = 0$. In the $J + 1$ category model, Y is parameterised in terms of the logit of $Y = j$ versus $Y = 0$, where $j = 1, 2, \dots, J$. Thus there will be J logit functions. The group coded $Y=0$ serves as the reference outcome. The logit for comparing $Y = j$ to $Y = m$ where $j \neq m$ can be obtained as the difference of the logit of $Y = j$ versus $Y = 0$ and the logit of $Y = m$ versus $Y = 0$.

Let x be the vector of covariates and $\pi_j = \Pr(Y = j|x)$ be the conditional probability of $Y = j$ given x , $j = 0, 1, 2, \dots, J$. The logit function can be denoted as

$$g_j(x) = \ln \left[\frac{P(Y = j|x)}{P(Y = 0|x)} \right] = \ln \left[\frac{\pi_j}{\pi_0} \right] = \beta_j + \sum_{k=1}^K \beta_{jk} x_k$$

Hence

$$\pi_j = \pi_0 \exp(g_j(x))$$

for $j = 0, 1, 2, \dots, J$.

Since the categories 0, 1, 2, ..., J for the dependent variable Y are mutually exclusive and exhaustive the sum of π_j equals one. With β_0 and $\beta_{\alpha k}$ for all covariates equal zero, then the probability of $Y = 0$ is

$$\pi_0 = \frac{1}{1 + \sum_{j=1}^J \exp(g_j(x))} = \frac{1}{1 + \sum_{j=1}^J \exp(\beta_j + \sum_{k=1}^K \beta_{jk} X_k)}$$

Substituting π_0 to π_j results

$$\pi_j = \frac{\exp(g_j(x))}{1 + \sum_{j=1}^J \exp(g_j(x))} = \frac{\exp(\beta_j + \sum_{k=1}^K \beta_{jk} X_k)}{1 + \sum_{j=1}^J \exp(\beta_j + \sum_{k=1}^K \beta_{jk} X_k)}$$

for $j = 1, 2, \dots, J$.

In modelling current contraceptive choice, there are four possible outcomes: not currently using, using a short-term method (pill, injection or condom), using a long-term method (IUD, Norplant or sterilisation) and using a traditional method. The reference category for the response variable is the non currently using contraception. No method users are included in order to allow comparisons of choosing a specific method and no method. Multinomial logistic regression is used in this study.

The probability of choosing a contraceptive at the time of the survey is assumed to be influenced by the factors considered above. For example, women who had been married for shorter periods would be expected to be less likely to use long-term methods, while those who had been married for longer periods would be expected to be more likely to choose long-term methods either to space a subsequent birth or to cease childbearing altogether. Women with more children would be expected to be the most likely to choose long-term methods whereas nulliparous women may choose short-term or traditional methods or none at all.

This analysis only uses main factor as covariates. Thus, the model is additive. This model has specific character that is changes in the dependent variable across categories in each covariate is the same.

The number of factors used in the final model is limited since the package used to analyse (LIMDEP) these data only allows a limited number of covariates in the model. Sensible final models are achieved by regrouping the categories in each factor. For example, education is recoded into two groups

(none and incomplete primary, complete primary and higher); access to the mass media is collapsed into one factor that is whether a woman has regular access to the mass media through newspapers, radio or television. These decisions were based on an exploratory analysis of the data.

3. Contraceptive Choice Differential in Indonesia: 1991

Table 1 displays the distribution of users by current contraceptive method and by selected socio-economic and demographic characteristics in 1991. Contraceptive methods are grouped as no method, short-term modern methods (pills, injection and condom), long-term modern methods (IUD and Norplant), permanent modern methods (female and male sterilisation) and traditional methods. Compared to the results from the 1987 NICPS, the percentage of no method, short-term modern method and traditional method users declined and the percentage of long-term modern method users increased in 1991. The changes in contraceptive method mix might result from the strong promotion of effective methods of contraception (IUD, Norplant and sterilisation) in this period.

Those who have a greater number of children are older and those who have been married longer would be expected to use birth limiting methods more. But the 1991 Indonesia DHS results do not show these expected patterns for Indonesia. The results indicate that Indonesian users prefer to use birth spacing methods, either short or long-term, although they wish to limit their births. Permanent methods, namely sterilisation, are not yet common for Indonesian couples.

Table 1
PERCENTAGE DISTRIBUTION OF WOMEN BY SELECTED SOCIOECONOMIC
AND DEMOGRAPHIC CHARACTERISTICS AND CURRENT METHOD USED:
INDONESIA, 1991

Characteristic	No method	Pill, condom and injection	IUD and Norplant	Sterilisation	Traditional methods
Number of living children					
None	92.3	6.5	0.7	0.0	0.5
One	51.7	32.4	13.4	0.4	2.1
Two	40.5	33.8	21.1	1.6	3.0
Three	41.2	30.1	21.2	4.5	2.9
Four or more	48.4	24.0	17.5	6.9	3.2
Age in years					
15-19	70.0	23.6	5.2	0.3	0.9
20-24	49.0	34.6	14.5	0.3	1.6
25-29	46.4	34.0	16.0	1.1	2.4
30-34	43.2	31.3	18.8	3.9	2.8
35-39	42.5	27.2	21.2	5.4	3.8
40-44	51.7	18.0	20.0	6.9	3.5
45-49	72.6	8.4	11.2	5.4	2.5

continued

Table 1- continued

Characteristic	No method	Pill, condom and injection	IUD and Norplant	Sterilisation	Traditional methods
Duration of marriage in years					
Less than five	59.3	27.3	11.3	0.1	2.0
5 - 9	44.5	34.4	17.3	0.9	2.9
10 - 19	42.0	32.6	18.6	4.3	2.6
20 or longer	58.6	16.5	16.6	5.6	2.8
Want more children					
Yes	58.3	28.7	11.0	0.0	2.0
No	45.1	26.5	20.1	5.4	3.0
Visited by family planning implementers					
Yes	40.5	33.8	19.9	3.2	2.7
No	54.4	24.7	15.1	3.3	2.6
Education					
None	63.5	20.0	13.2	2.4	1.0
Incomplete primary	52.8	27.6	15.1	2.5	2.1
Complete primary	45.5	31.6	17.2	3.3	2.3
Secondary or higher	40.0	27.3	21.2	5.6	5.9
Husband's education					
None	64.8	18.5	13.3	2.0	1.4
Incomplete primary	53.2	27.6	15.4	2.2	1.6
Complete primary	49.7	28.9	16.1	3.1	2.1
Secondary or higher	41.0	29.1	19.7	5.2	5.0
Watch television regularly					
Yes	44.2	30.8	17.7	4.0	3.3
No	59.9	22.0	14.5	2.1	1.5
Read newspaper regularly					
Yes	40.5	30.1	19.0	5.4	4.9
No	54.0	26.3	15.5	2.4	1.8
Listen to the radio regularly					
Yes	46.4	29.9	17.2	3.6	2.9
No	57.1	22.9	15.2	2.8	2.0
Religion					
Islam	50.3	28.7	15.9	2.7	2.4
Non-Islam	50.6	16.9	20.7	7.3	4.6
Place of residence until aged 12					
Urban	42.8	29.3	17.4	5.6	5.0
Rural	52.2	26.9	16.2	2.7	2.0
Husband's occupation					
Agriculture	46.1	30.3	15.8	4.2	3.6
Non-agriculture	54.7	24.3	17.2	2.3	1.5
Current work status					
Yes	48.6	26.8	18.2	3.7	2.7
No	49.4	26.3	18.6	2.8	2.9
Never worked	52.9	28.7	13.1	3.1	2.3
Worked before married					
Yes	48.7	26.6	18.7	3.2	2.8
No	51.7	28.0	14.5	3.3	2.4
Weighted number of women	10,622	5,775	3,474	687	552

The results from the 1991 Indonesia DHS show that only 3.3 percent of currently married women use sterilisation at the time of the survey. Short-term modern methods are the leading method among users in almost all groups except among users aged 40-44 and those who had been married for 20 years or longer. Long-term modern methods are most common among the later groups.

Use of short-term methods is highest among women who had three children or less, aged 20-39, had been married for less than 20 years, wanted more children, were visited by family planning implementers, had incomplete primary education or higher, had husbands with incomplete primary or higher education, watched television, read newspapers and listened to the radio regularly, were Muslim, lived in urban areas until they were aged 12, had husbands who worked in agriculture and had no work experience.

Use of long-term modern methods is low among those who had no children and were aged 15-19. Those who had been married for less than five years, wanted more children, were not visited by the programme implementers, were low educated, had low-educated husbands, did not watch television, did not listen to the radio and did not read a newspaper regularly, were Muslim, lived in rural areas until aged 12, had husbands who worked in agriculture, did not work themselves and did not work before they were married all use long-term modern methods less than other women.

Use of permanent methods is low. As expected, use of these methods is highest among women with three children or more, who were 35 years or older, had been married for 20 years or longer and those who did not want any more children. Highly educated couples, those who read newspapers regularly, were non-Muslim and lived in urban areas until aged 12 also use these methods more than other women.

Use of traditional methods is also low but is highest among highly educated couples, those who read newspapers regularly and who had lived in urban areas until age 12. This is not surprising since these groups of women might be concerned about the side-effects of modern contraceptive methods more than other women and hence prefer to use traditional methods, such as periodic abstinence, based on their better knowledge about how to practice them.

4. Factors Affecting Contraceptive Choice in Indonesia in 1987 and 1991

The results of multinomial logistic regression analysis for current method choice are summarised in Table 2-Table 4. Tables 2 and 3 show the parameter estimates and t-ratios for six comparisons of choice of contraceptive in Indonesia in 1987 and 1991. Table 4 gives the estimated probability of using each method in Indonesia in 1987 and 1991 for different categories of each covariate holding other covariates constant at their means.

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Table 2
PARAMETER ESTIMATES AND T-RATIOS (IN BRACKETS) FOR THE MULTINOMIAL LOGISTIC REGRESSION MODEL FOR SIX COMPARISONS OF CHOICE OF CONTRACEPTIVE: INDONESIA, 1987

Covariate	Short-term Versus no method	Long-term Versus no method	Traditional Versus no method	Long-term Versus short-term	Long-term Versus traditional	Short-term Versus traditional
Overall	-2.34 (-14.43)	-2.08 (-11.62)	-2.32 (-8.26)	0.26 (1.33)	0.24 (0.80)	-0.02 (-0.07)
Age at survey (in years)						
15-19	1.41 (7.66)	0.24 (0.93)	0.35 (0.90)	-1.18 (-4.40)	-0.11 (-0.26)	1.06 (2.66)
20-29	1.20 (9.73)	0.35 (2.74)	0.31 (1.39)	-0.85 (-6.03)	0.04 (0.19)	0.89 (3.91)
30-39	1.01 (10.26)	0.55 (5.77)	0.44 (2.61)	-0.46 (-4.10)	0.11 (0.63)	0.57 (3.19)
40-49	0.00	0.00	0.00	0.00	0.00	0.00
Number of living children						
None	-2.98 (-17.98)	-5.15 (-8.80)	-2.52 (-8.18)	-2.17 (-3.60)	-2.63 (-4.01)	-0.46 (-1.35)
One	-0.75 (-9.89)	-0.68 (-7.52)	-0.73 (-4.85)	0.07 (0.68)	0.05 (0.34)	-0.01 (-0.08)
Two or more	0.00	0.00	0.00	0.00	0.00	0.00
Duration of marriage (in years)						
0 - 9	0.44 (3.76)	0.36 (2.83)	-0.05 (-0.23)	-0.08 (-0.61)	0.41 (1.81)	0.49 (2.19)
10 - 19	0.50 (5.34)	0.36 (3.80)	0.19 (1.14)	-0.13 (-1.27)	0.17 (1.00)	0.31 (1.75)
20+	0.00	0.00	0.00	0.00	0.00	0.00
Wanted more children						
Yes	0.00	0.00	0.00	0.00	0.00	0.00
No	0.23 (3.36)	0.70 (8.71)	-0.19 (-1.52)	0.48 (5.73)	0.89 (6.60)	0.42 (3.23)
Visited by family planning personnel						
Yes	0.43 (6.36)	0.36 (4.82)	0.24 (1.86)	-0.07 (-0.93)	0.12 (0.94)	0.19 (1.49)
No	0.00	0.00	0.00	0.00	0.00	0.00
Province of residence						
DKI Jakarta	0.32 (2.64)	0.97 (6.49)	-0.30 (-1.44)	0.65 (4.11)	1.27 (5.45)	0.62 (2.84)
West Java	0.61 (5.76)	0.58 (3.92)	-0.43 (-1.86)	-0.03 (-0.21)	1.01 (3.91)	1.05 (4.37)
Central Java	0.52 (4.60)	1.36 (9.65)	-0.55 (-2.01)	0.84 (5.61)	1.91 (6.64)	1.07 (3.86)
DI Yogyakarta	0.62 (4.72)	2.29 (15.76)	1.89 (9.70)	1.66 (10.63)	0.40 (1.87)	-1.27 (-6.20)

continued

Table 2-continued

Covariate	Short-term Versus no method	Long-term Versus no method	Traditional Versus no method	Long-term Versus short-term	Long-term Versus traditional	Short-term Versus traditional
East Java	0.70 (6.37)	1.35 (9.63)	-0.14 (-0.59)	0.65 (4.38)	.49 (5.76)	0.84 (3.43)
Bali	0.24 (1.50)	1.94 (12.45)	-0.21 (-0.75)	1.70 (9.65)	2.15 (7.23)	0.45 (1.50)
Outer Java and Bali I	0.15 (1.48)	0.49 (3.58)	0.35 (1.96)	0.33 (2.29)	0.13 (0.65)	-0.20 (-1.07)
Outer Java and Bali II	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -
Place of residence						
Urban	0.06 (0.82)	-0.15 (-1.89)	0.56 (4.44)	-0.21 (-2.49)	-0.71 (-5.34)	-0.51 (-3.86)
Rural	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -
Place of residence before aged 12						
Urban	0.07 (0.96)	0.14 (1.77)	0.28 (2.28)	0.07 (0.88)	-0.14 (-1.09)	-0.21 (-1.69)
Rural	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -
Education						
None or some primary	-0.32 (-5.15)	-0.66 (-9.57)	-0.69 (-5.90)	-0.35 (-4.76)	0.03 (0.24)	0.38 (3.11)
Complete primary or higher	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -
Husband's education						
None or some primary	-0.18 (-2.98)	-0.23 (-3.33)	-0.26 (-2.13)	-0.05 (-0.61)	0.03 (0.27)	0.08 (0.63)
Complete primary or higher	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -
Religion						
Islam	0.03 (0.32)	-0.73 (-7.60)	-0.43 (-3.01)	-0.77 (-7.25)	-0.30 (-2.02)	0.47 (3.07)
Non-Islam	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -
Have access to the mass media						
Yes	0.41 (5.91)	0.39 (5.19)	0.46 (3.09)	-0.01 (-0.17)	-0.07 (-0.43)	-0.05 (-0.34)
No	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -
Currently working						
Yes	0.15 (2.73)	0.25 (4.18)	0.12 (1.13)	0.11 (1.64)	0.14 (1.29)	0.03 (0.31)
No	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -	0.00 -

Note: - = reference category

Table 3
PARAMETER ESTIMATES AND T-RATIOS (IN BRACKETS) FOR THE MULTINOMIAL
LOGISTIC REGRESSION MODEL FOR SIX COMPARISONS OF CHOICE OF
CONTRACEPTIVE: INDONESIA, 1991

Covariate	Short-term Versus no method	Long-term Versus no method	Traditional Versus no method	Long-term Versus short-term	Long-term Versus traditional	Short-term Versus traditional
Overall	-2.60 (-25.11)	-2.09 (-18.57)	-2.90 (-13.36)	0.51 (4.02)	0.80 (3.54)	0.30 (1.32)
Age at survey						
15-19	1.35 (10.17)	0.21 (1.09)	-0.11 (-0.30)	-1.14 (-5.63)	0.32 (0.81)	1.46 (3.91)
20-29	(1.02) (11.92)	0.18 (1.95)	-0.04 (-0.24)	-0.84 (-8.34)	0.22 (1.20)	1.06 (5.82)
30-39	0.83 (11.87)	0.36 (5.22)	0.25 (1.88)	-0.47 (-5.89)	0.10 (0.76)	0.58 (4.12)
40-49	0.00	0.00	0.00	0.00	0.00	0.00
Number of living children						
None	-3.18 (-24.39)	-4.89 (-12.67)	-2.67 (-8.85)	-1.71 (-4.25)	-2.22 (4.57)	-0.51 (-1.58)
One	-0.58 (-10.86)	-0.81 (-11.81)	-0.67 (-5.21)	-0.23 (-3.17)	-0.14 (1.04)	0.09 (0.68)
Two or more	0.00	0.00	0.00	0.00	0.00	0.00
Duration of marriage (in years)						
Less than 10	0.56 (6.76)	0.40 (4.39)	0.34 (1.92)	-0.16 (-1.60)	0.07 (0.38)	0.23 (1.26)
10-19	0.56 (8.68)	0.32 (4.74)	0.22 (1.64)	-0.25 (-3.26)	0.10 (0.75)	0.35 (2.54)
20 or longer	0.00	0.00	0.00	0.00	0.00	0.00
Wanted more children						
No	0.32 (6.890)	0.77 (13.30)	0.30 (2.78)	0.45 (7.57)	0.47 (4.10)	0.02 (0.14)
Yes	0.00	0.00	0.00	0.00	0.00	0.00
Visited by family planning personnel						
Yes	0.56 (14.04)	0.54 (11.76)	0.29 (3.25)	-0.02 (-0.40)	0.25 (2.78)	0.27 (3.04)
No	0.00	0.00	0.00	0.00	0.00	0.00
Province of residence						
DKI Jakarta	0.22 (2.65)	0.78 (8.30)	-0.18 (-1.10)	0.56 (5.65)	0.96 (5.58)	0.41 (2.40)
West Java	0.49 (6.49)	0.30 (2.95)	-0.75 (-3.09)	-0.19 (-1.88)	1.05 (4.17)	1.24 (5.10)
Central Java	0.15 (1.72)	0.84 (8.97)	-0.50 (-2.07)	0.69 (6.84)	1.34 (5.41)	0.65 (2.64)
DI Yogyakarta	0.56 (5.38)	1.65 (16.01)	1.97 (13.74)	1.09 (10.42)	-0.31 (-2.21)	-1.40 (-9.70)

continued

Table 3-continued

Covariate	Short-term Versus no method	Long-term Versus no method	Traditional Versus no method	Long-term Versus short-term	Long-term Versus traditional	Short-term Versus traditional
East Java	0.32 (3.68)	1.44 (16.05)	0.20 (1.00)	1.12 (11.73)	1.24 (5.99)	0.12 (0.57)
Bali	0.59 (4.80)	1.97 (18.92)	-0.20 (-0.70)	1.38 (11.73)	2.17 (7.74)	0.79 (2.73)
Outer Java and Bali I	0.08 (1.62)	0.13 (2.21)	-0.07 (-0.69)	0.05 (0.82)	0.20 (1.79)	0.15 (1.39)
Outer Java and Bali II	0.00	0.00	0.00	0.00	0.00	0.00
Place of residence						
Urban	0.03 (0.61)	-0.14 (-2.25)	0.21 (2.01)	-0.17 (-2.67)	-0.35 (-3.19)	-0.18 (-1.67)
Rural	0.00	0.00	0.00	0.00	0.00	0.00
Place of residence until aged 12						
Urban	0.07 (1.28)	0.22 (3.69)	0.20 (1.97)	0.15 (2.47)	0.02 (0.17)	-0.13 (-1.30)
Rural	0.00	0.00	0.00	0.00	0.00	0.00
Education						
None or some primary	-0.34 (-7.66)	-0.65 (-12.86)	-0.72 (-7.18)	-0.32 (-5.89)	0.07 (0.68)	0.39 (3.78)
Complete primary or higher	0.00	0.00	0.00	0.00	0.00	0.00
Husband's education						
None or some primary	-0.11 (-2.55)	-0.22 (-4.35)	-0.22 (-2.08)	-0.11 (-2.00)	0.00 (0.01)	0.11 (1.02)
Complete primary or higher	0.00	0.00	0.00	0.00	0.00	0.00
Religion						
Islam	0.39 (7.08)	-0.42 (-7.50)	-0.36 (-3.55)	-0.81 (-12.74)	-0.06 (-0.62)	0.75 (7.11)
Non-Islam	0.00	0.00	0.00	0.00	0.00	0.00
Have access to the mass media						
Yes	0.51 (11.00)	0.53 (9.82)	0.70 (5.67)	0.02 (0.30)	-0.17 (-1.34)	-0.19 (-1.51)
No	0.00	0.00	0.00	0.00	0.00	0.00
Currently working						
Yes	0.21 (5.46)	0.26 (6.12)	0.24 (2.97)	0.06 (1.26)	0.02 (0.24)	-0.04 (-0.45)
No	0.00	0.00	0.00	0.00	0.00	0.00
Husband's occupation						
Agriculture	-0.10 (-2.22)	0.07 (1.39)	-0.38 (-3.63)	0.17 (3.12)	0.45 (4.17)	0.28 (2.61)
Non-agriculture	0.00	0.00	0.00	0.00	0.00	0.00

Note: - = reference category

Table 4
ESTIMATED PROBABILITIES OF CURRENT METHOD CHOICE:
INDONESIA, 1987 AND 1991

Characteristic	No method		Short-term methods		Long-term methods		Traditional methods	
	1987	1991	1987	1991	1987	1991	1987	1991
Overall	0.54	0.56	0.26	0.26	0.16	0.15	0.04	0.03
Age at survey								
15-19	0.46	0.47	0.38	0.39	0.12	0.12	0.04	0.02
20-29	0.49	0.52	0.33	0.32	0.15	0.13	0.04	0.02
30-39	0.50	0.54	0.27	0.27	0.18	0.16	0.05	0.03
40-49	0.68	0.68	0.13	0.15	0.14	0.14	0.04	0.03
Number of living children								
None	0.95	0.96	0.03	0.03	0.00	0.00	0.01	0.01
One	0.60	0.62	0.20	0.23	0.16	0.13	0.03	0.02
Two or more	0.42	0.45	0.29	0.30	0.22	0.21	0.05	0.03
Duration of marriage (in years)								
0 - 9	0.52	0.53	0.28	0.28	0.17	0.16	0.04	0.03
10 - 19	0.51	0.54	0.28	0.29	0.16	0.15	0.05	0.03
20 +	0.61	0.65	0.20	0.20	0.14	0.13	0.05	0.03
Wanted more children								
Yes	0.59	0.52	0.25	0.27	0.11	0.18	0.05	0.03
No	0.51	0.63	0.26	0.24	0.19	0.10	0.04	0.03
Visited by family planning personnel								
Yes	0.46	0.47	0.31	0.32	0.18	0.18	0.04	0.03
No	0.56	0.60	0.25	0.24	0.15	0.13	0.04	0.03
Province of residence								
DKI Jakarta	0.56	0.53	0.25	0.26	0.16	0.19	0.03	0.02
West Java	0.55	0.53	0.32	0.34	0.10	0.12	0.03	0.01
Central Java	0.50	0.54	0.27	0.24	0.20	0.21	0.02	0.02
DI Yogyakarta	0.32	0.34	0.19	0.23	0.33	0.30	0.16	0.13
East Java	0.47	0.43	0.31	0.23	0.19	0.31	0.03	0.03
Bali	0.46	0.34	0.19	0.24	0.33	0.41	0.03	0.02
Outer Java and Bali I	0.61	0.60	0.23	0.25	0.10	0.11	0.06	0.03
Outer Java and Bali II	0.67	0.62	0.21	0.24	0.07	0.10	0.05	0.03
Place of residence								
Urban	0.53	0.57	0.26	0.27	0.14	0.13	0.06	0.03
Rural	0.54	0.56	0.25	0.26	0.17	0.15	0.03	0.03
Place of residence before aged 12								
Urban	0.52	0.54	0.26	0.26	0.17	0.17	0.05	0.03
Education								
None or some primary	0.59	0.62	0.24	0.25	0.13	0.12	0.03	0.02
Complete primary or higher	0.47	0.50	0.27	0.27	0.20	0.18	0.05	0.04
Husband's education								
None or some primary	0.57	0.59	0.24	0.25	0.15	0.13	0.04	0.03
Complete primary or higher	0.52	0.55	0.27	0.26	0.17	0.16	0.04	0.03
Rural	0.55	0.57	0.26	0.26	0.15	0.14	0.04	0.03
Religion								
Islam	0.55	0.56	0.26	0.28	0.14	0.13	0.04	0.03
Non-Islam	0.47	0.57	0.22	0.19	0.26	0.21	0.05	0.04
Have access to the mass media								
Yes	0.52	0.53	0.27	0.28	0.17	0.16	0.04	0.03
No	0.62	0.66	0.21	0.21	0.13	0.12	0.03	0.02
Currently working								
Yes	0.52	0.53	0.27	0.27	0.17	0.16	0.04	0.03
No	0.56	0.59	0.25	0.25	0.15	0.14	0.04	0.03

Note: * Calculated by evaluating the regression equation for each value of the variable of interest (for example urban, rural), holding other variables in the model constant at their means.

The results of the analyses on current method choice in 1987 and 1991 are fairly consistent. As has often been found (e.g. Kahn *et al.* 1989; Zablan *et al.* 1989; DaVanzo *et al.* 1989; Gajanayake 1989), the results for Indonesia indicate that the type of method chosen is also strongly a function of socio-economic, cultural, demographic and programmatic factors. Most of these factors affect contraceptive choice in the expected direction.

From the 1987 NICPS and 1991 IDHS, it is found that short-term methods are used most by contraceptors except among women who were aged 40-49 and non-Muslims. After controlling for all factors, the average probability (that is the probability when all covariates are set equal to their mean values) of choosing short-term, long-term and traditional methods in 1991 is 0.26, 0.15 and 0.03 respectively (Table 4), which is similar to the results in 1987.

Age at survey affects choice of short-term and long-term methods in both years. It is a significant factor in choosing traditional methods over no method in 1987 but it is not in 1991. Older women are more likely to use no method as opposed to a short-term method. Women who aged 30-39 are the most likely to opt for long-term methods as well as traditional methods. Younger women preferred short-term methods to long-term methods and preferred long-term methods to traditional methods. The estimated probability of choosing contraception by age in 1987 and 1991 is displayed in Figure 1.

As one would expect, the number of living children has a positive effect on the choice of all methods (see also Figure 2).

The difference is large between those who had no children and those who had children while it is small between women with two children and women with three children or more. The reasons for the low use of contraception among childless women is clear. They want to have children. The recommended family size by the programme which is two children might contribute to the smaller differences in choice of contraception between those who had two children and those who had three children or more. Those who had at least two children preferred long-term methods to short-term and traditional methods and preferred short-term methods to traditional methods.

Duration of marriage influences the choice of short-term and long-term methods but it does not affect the choice of traditional methods significantly in both surveys. Those who had been married for shorter periods are more likely to use all methods of contraception over no method. They are more likely to use long-term and short-term methods over traditional methods and are less likely to use long-term methods over short-term methods than those who had been married for 20 years or longer (Figure 3).

Figure 1. Estimated Probabilities of Choosing Method by Age

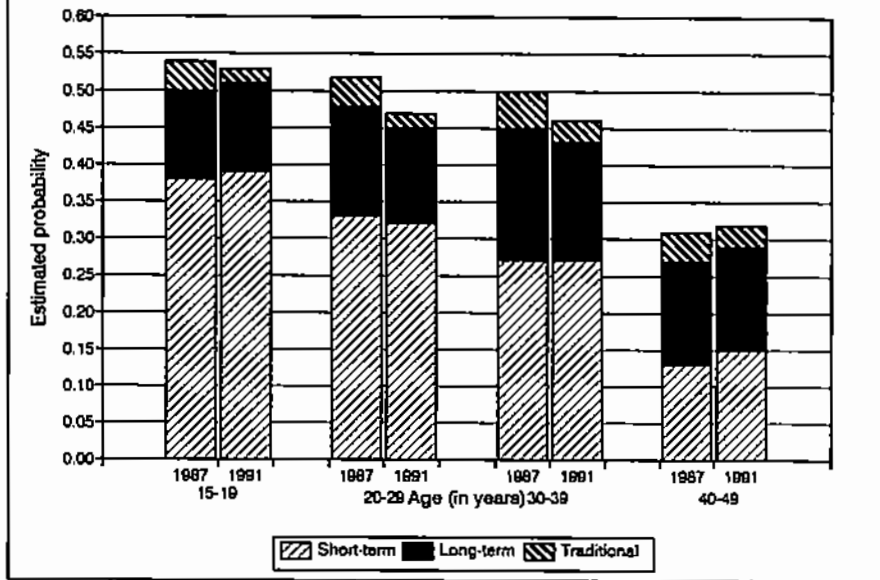


Figure 2. Estimated Probabilities of Choosing Method by Number of Children

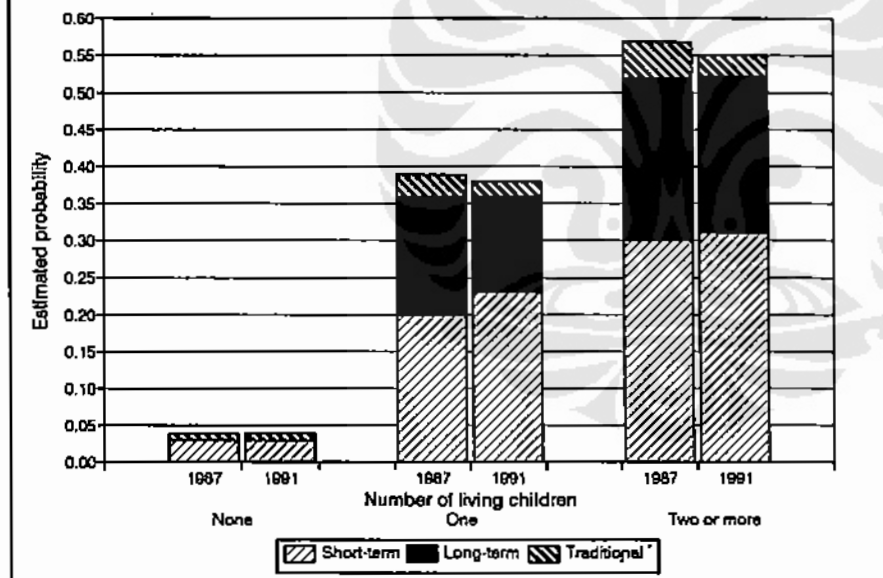
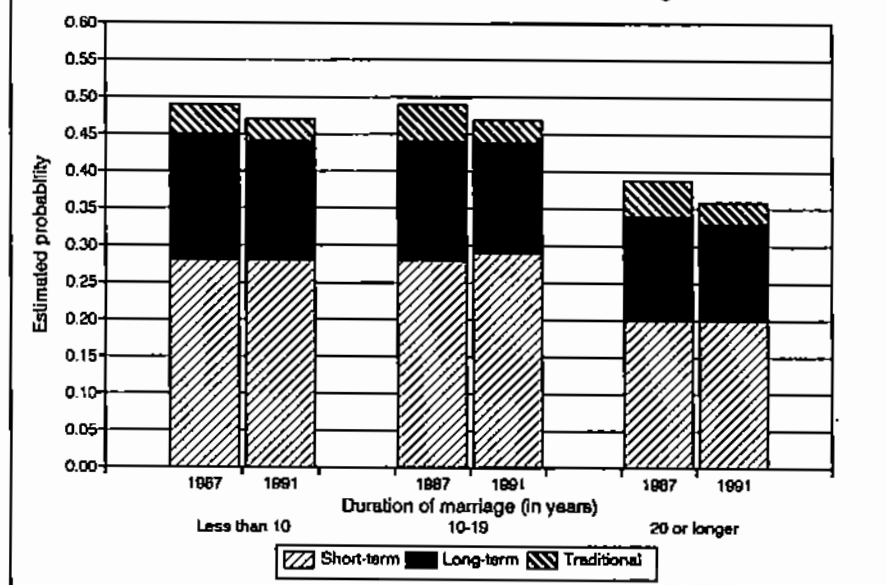


Figure 3. Estimated Probabilities of Choosing Method by Duration of Marriage

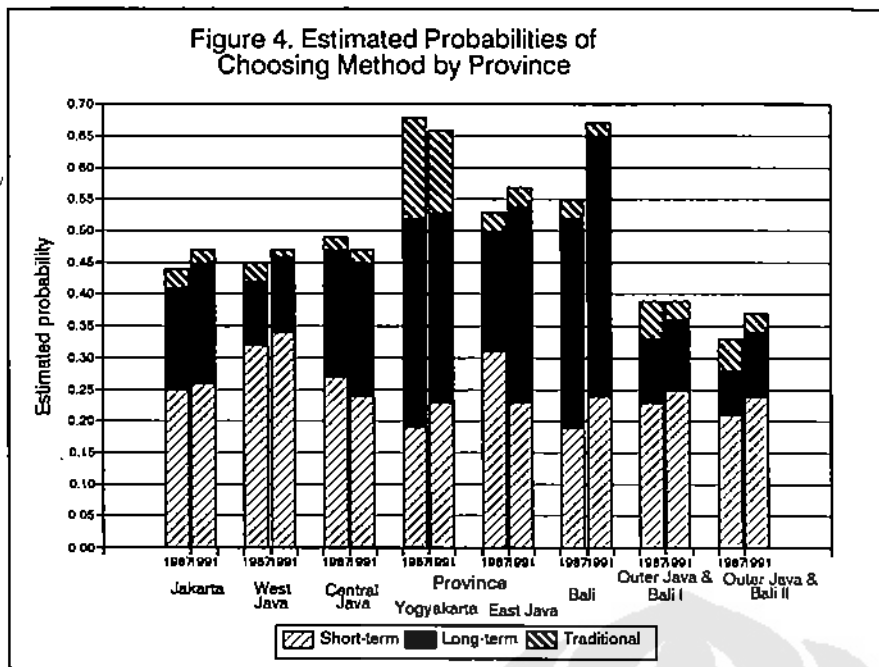


Fertility intentions, whether a woman wants to have more children or not, significantly affects the choice of all methods in 1987 and 1991. The effect of this factor is stronger in choosing long-term methods. As one might expect, those who did not want any more children are more likely to use long-term methods over short-term and traditional methods and are more likely to use short-term methods over traditional methods.

The programme, through the implementer's visit, also significantly affects contraceptive choice. The effect of the implementer's visit is stronger in choosing short-term methods than in choosing long-term methods. Those who had been visited by family planning implementers are more likely to use modern methods over traditional methods. In 1987, these women are more likely to use long-term methods over no methods but in 1991 the direction is reversed.

Province of residence is a significant predictor of the differentials in contraceptive choice in Indonesia in both years. Those living in Outer Java and Bali II are less likely to use modern contraception over no method than those living in other provinces. Those living in DI Yogyakarta are the most likely to use traditional methods. In both years, those living in Bali are the most likely to use long-term methods over short-term and traditional methods, while those living in DI Yogyakarta are the most likely to use traditional methods over short-term methods. Table 3 and Figure 4 show an increase of the use of both long-term and short-term methods in Bali, a decline in the use of short-term methods and an

increase in the use of long-term methods in East Java, and a decline in the use of traditional methods in DI Yogyakarta in this period.



There is no significant difference in the use of short-term methods in the urban and rural areas in both surveys, suggesting the widespread acceptance of these methods. The significant difference in the use of long-term methods is only present in 1991. Urban women were found to be less likely to use long-term methods over no method than rural women. Place of residence affects the choice of traditional methods significantly in both years. Surprisingly, those living in urban areas are more likely to use traditional methods over no method than those living in rural areas both in 1987 and 1991. Perhaps the strong promotion of the use of modern family planning methods in rural areas might result in this lower reliance on traditional methods in the rural areas than in urban areas. In both years, those living in the urban areas preferred short-term and traditional methods to long-term methods and preferred traditional methods over short-term methods. Promoting the use of the IUD and, recently, Norplant and sterilisation in order to reduce the burden on the government of supporting the provision of short-term methods might have increased the use of long-term methods especially in rural areas.

Place of residence until a woman was aged 12 affects contraceptive choice in 1987 and 1991. However, it is only significant in choosing traditional methods in 1987 and in choosing long-term methods. Those living in urban areas until they were aged 12 are more likely to use all methods of contraception over

no method. They are more likely to use long-term methods over short-term and traditional methods and less likely to use short-term methods over traditional methods. It might be because these women were more exposed to the idea of limiting childbearing whether it is for economic or educational reason.

Religion affects the choice of all methods of contraception. Muslim women are more likely to use short-term methods and less likely to use long-term and traditional methods. They preferred short-term and traditional methods to long-term methods and preferred short-term methods to traditional methods. The reason for this remains the same. Muslim women prefer to use contraceptive methods which they can practice themselves and without needing to see a male doctor.

Better-educated couples have a higher chance of using all methods over no method. The estimated probability of choosing a long-term method is slightly higher among couples who had complete primary or higher education than among those who had lower education (Table 3). Higher educated couples are more likely to choose long-term methods over short-term and traditional methods and are less likely to use short-term methods over traditional methods.

Regular access to the mass media affects contraceptive choice significantly in both surveys. Those who had regular access to the mass media through newspapers, radio or television are more likely to use all methods over no method. The estimated probability of choosing a long-term method is slightly higher among those who had regular access to the mass media than among other women (Table 3).

Work status influences contraceptive choice. Those who were working are more likely to use all methods over no method. They are more likely to use long-term methods over short-term and traditional methods.

Husband's occupation also affects choice of short-term and traditional methods in 1991. Those whose husbands were agricultural workers are slightly less likely to use short-term methods over no method and more likely to use long-term and traditional methods over no method than those whose husbands had non-agricultural occupations. As those whose husbands were agricultural workers were living in the rural areas, higher use of long-term methods among them might result from the strong promotion of long-term methods in rural areas.

5. Discussion

The analysis which is based on the 1987 NICPS and 1991 Indonesia DHS confirms that socioeconomic and demographic factors as well as programme interventions strongly affect contraceptive choice in Indonesia.

The factors influencing method choice are alike across the two surveys when reviewed from the perspective of Bulatao's (1989) four dimensions. Two measures considered to be indicators of contraceptive goals are the number of living children and fertility intentions. Higher number of living children and not wanting any more children are related to greater choice of long-term methods and less choice of short-term and traditional methods - results compatible with a greater need for limiting childbirth rather than spacing.

Age at survey, duration of marriage, education and current work status serve as likely indices of contraceptive competence. The results show greater competence is related to more choice of long-term methods as well as traditional methods, whichever index is used. It may be that more competent and knowledgeable women learn about the effectiveness of long-term methods and so choose long-term methods. They may also learn about possible side effects and problems with user satisfaction for long-term methods and so choose traditional methods.

Religion is the indicator used for the contraceptive evaluations dimension of Bulatao (1989). Indonesia's population is predominantly Muslims. Religiousness was identified with greater preference for short-term methods as these methods can be used by the users themselves without having to see a male doctor.

Contraceptive access may enable a higher percentage of women to make individual choices. The factors thought of as contraceptive access measures are the province and place of residence, whether a programme implementer visits in the six months before the survey, whether a woman has regular access to the mass media and her husband's occupation. Access is related to preference for long-term methods. The preference in the rural areas for long-term methods in fact is higher than in the urban areas, resulting from the strong promotion and provision of these methods there.

Finally, these findings suggest some policy recommendations. As the use of short-term methods is higher than the use of long-term methods in almost all the groups of women, promoting the use of long-term methods should be continued, especially among those who have more children. As the promotion of the use of modern methods through the mass media and family planning implementer's visit has a positive impact, this also should be continued and expanded.

Note

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