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The Impact of Health Card Program on Access to Reproductive Health Services: An Indonesian Experience¹

Submitted by:

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Abstract:

Health card program aims to protect the poor in Indonesia during the Asian economic crisis. Health cards were targeted and allocated exclusively to the poor that would provide free access to public health services. The impact of health card program to reproductive health services was rarely discussed by previous studies that pay more attention on health card utilization for both inpatient and outpatient. Using Indonesian family life survey (IFLS) data 1997-2000 from RAND Corporation, this study aims to evaluate the impact of health card program during Asian economic crisis on access to reproductive health services and answer the question whether who had health card really have better access to reproductive health services. Discussion in this paper limit on antenatal care, place of delivery and contraceptive use which are only reproductive health components that covered by health card program. Using combination between descriptive analysis and multivariate analysis, this study found that the health cards were not well targeted and distributed. The study also found that, generally, there is no significant effect of health card ownership to access to reproductive health services.

Key word: health card, antenatal care, contraceptive, place of delivery

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1. INTRODUCTION

1.1. Background of Study

The Indonesian economic crisis began in 1997 when the rupiah depreciated rapidly and brought Indonesia into the economic crisis of 1998. The devaluation of the rupiah increased levels of debt of private companies as well as increased operational cost resulting in bankruptcies. These conditions stimulated a reduction in labor demand, rising unemployment, and, indirectly, a loss of social security coverage. Prices of goods and services increased greatly during the year, which decreased quality of life the lower income population as well as pushed lower middle income population to be below population line (Strauss et al, 2002; Frankenberg et al, 2002; Pritchett and Suryahadi, 2002; Sparrow, 2006).

The crisis negatively affected the health sector from both supply and demand sides. For the supply side, WHO (1998) and AUSAID (2002) reported that the Indonesian provinces and district health offices experienced a reduction in operating budgets, which resulted in a cut in the budget for preventive programs. According water et al (2003) and AUSAID (2002), health services providers faced the increasing in operation costs, extraordinary increasing in pharmaceutical and medical supplies costs, and reduced supplies of modern health services. On the demand side, the severity of the crisis affected households' health care utilization and expenditures. Frankenberg et al. (2002) and AUSAID (2002) found that household consumption was going down in 1998, with decreasing investments in human capital (health and education) as well as decreasing utilization of modern health care services.

In response to the crisis, there were a series of publication about social safety net programs that were initiated or reconfigured in Indonesia. Some of programs were designed to reach all population and some were targeted to reach the poor only (Strauss, 2002). The health component of the Indonesian Social Safety Net program, the health card program, was started in September 1998 and initiated to protect the poor from the effects of the economic crisis through a targeted price subsidy and a public spending component. The health cards entitled all household members to the price subsidy at public health care providers. (Saadah et al, 2001; AUSAID, 2002; Sparrow, 2006; Somanathan 2008)

Most of previous studies on the impact health cards for protecting the poor during Indonesian economic crisis focus on targeting of health cards distribution (Lanjauw et al 2001; Pritchett and Suryahadi, 2002; Sparrow, 2006; and Sparrow, 2008) and utilization of health cards and its impact to outpatient (Saadah et al, 2001; Sparrow, 2006; Saadah et al, 2007). Other studies focus on the impact of health cards on children's health care (Somanathan, 2008) and health care consumption (Johar, 2007).

The issues were rarely discussed in previous Indonesia cases studies. Therefore, this thesis focus on the impact of the health card program on access to reproductive health services like contraception, pre-natal care and assistance at birth. Base on discussion above, we can hypothesize the health cards were distributed accurately to targeted beneficiaries and used it as purposes. We also expect that who received health cards should have better access to reproductive health services.

Research question on this paper focus on to answer the question did the poor who had health card really have better access to reproductive health services? If so why? If not, Why not? From the research questions, the research objective as follow:

- General Research objective: Evaluating the impact of the health card program on access to reproductive health services like access to contraception, pre-natal care and assistance at birth.
- Specific Research Objectives:
 - Measure the performance of health card's targeting and distribution.
 - Exploring the utilization of health card for reproductive health services.
 - Evaluating whether the poor who have health card have better access to reproductive health services or not.

1.2 Research Hypothesis

- Health cards were received by the poor only.
- Health cards utilized by the poor as intended.
- The poor who have health card have better access to reproductive health service

2. LITERATURE REVIEW

2.1. Social Safety Net-Health Card Program In Indonesia

2.1.1. Program Design

The health component of the Indonesian Social Safety Net program (JPS-BK), health cards program, was designed to prevent the decline of health and nutritional status as a result of the economic crisis. The community health centers (Puskesmas) and the village midwives are the key actors of the program. The health card program was designed to allow poor households to obtain at least basic health care services. As demand side intervention, the health card provides access to health services to the program beneficiaries by the use of a health card (Strauss et al, 2002; Sparrow, 2006).

According Saadah et al (2001) Strauss et al (2002) Sparrow (2006), the types of services covered by the health card include:

- a) Basic health services, medical attention as first treatment or referrals, family planning services, immunization and other basic health services.
- b) Basic maternal health care and referrals for pregnant mother, delivery care, post and neo-natal care.
- c) Nutritional improvement through food supplementation to undernourished poor families.
- d) Eradication of communicable diseases such as malaria, tuberculosis and diseases that could be prevented through immunization.
- e) Revitalization of Posyandu (integrated health post), a health post improvement program to prevent negative effects of the crisis on the nutrition and health status of mothers and young children.

2.1.2. Distribution and Implementation

The health card program followed a partly decentralized targeting process, involving both geographic targeting at district level and community based individual targeting at village level. Households that were categorized as vulnerable to economic shocks were targeted to receive health cards. (Saadah et al, 2001; Sparrow, 2006)

The amount of subsidy for public health care providers to be distributed across districts and number of health cards to be issued base on National Family Planning Coordinator Agency (BKKBN) headcount's per-district. The headcount was calculated

based on the survey data to investigated number of poor (Saadah et al, 2001; Sparrow, 2006)

At the district level committees were formed to deal with the allocation of funds to the health clinics, community health center (Puskesmas) and village midwives. The district committees were also responsible to allocate health cards and BKKBN's poverty measurement criteria guidelines to villages where the village leaders headed village allocation committees (Saadah 2001; Sparrow, 2006).

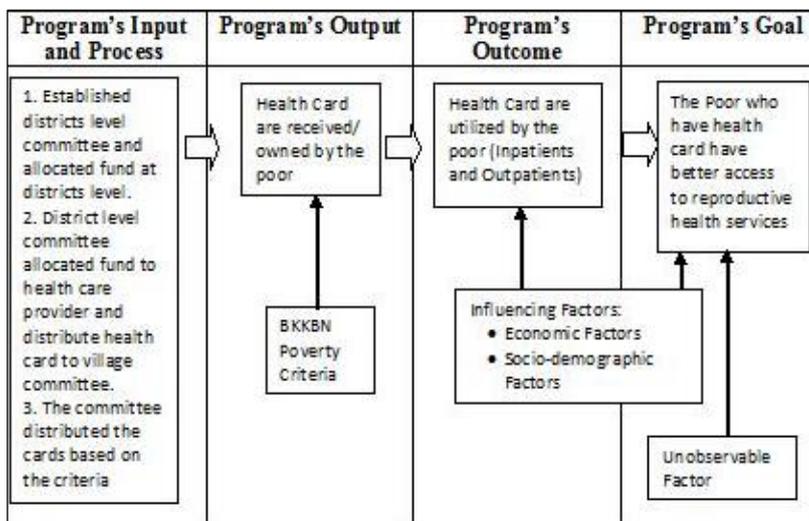
The poverty measurement criterias of BKKBN to identify targeted households is called "*prosperity measurement status* for identifies the poor based on who meet with one of the following criteria (Strauss, 2002; Sparrow, 2006), such as: unable to have 2 meals a day, unable to afford health services, the head of the household lost his job due to retrenchment or households with school age children drops out due to the crises

The village committees (consisting of village staff, family planning workers, village midwives, and community activists) distributed to the villagers base on the BKKBN's poverty criteria above. The identified poor households are given health cards signed by the head of the community health post (Posyandu) and the head of the village. This card is valid for one year and can be extended as long as the households meet those criteria (Strauss, 2002; Sparrow, 2006)

2.2. M&E Framework and Research Conceptual Framework

Because this thesis is a evaluation research, the monitoring and evaluation framework of the health card program (figure 2.2) is designed in order to develop research conceptual framework for this thesis. There are four components of monitoring and evaluation frameworks. First is program's input and process that provide summary of program activities (more detail information about health card program can be found at chapter 2.2), second is program's output, third is program's outcomes and fourth is program's goal.

Figure 2.2. Monitoring and Evaluation Framework



On the figure 2.2 can be seen that this thesis focus on evaluating whether the health card program achieve the goal for improving access to reproductive health services or not.

This thesis is also investigating the program output (health card targeting and distribution) and the program outcomes (health card utilization) as well as the effect of the program output and program impact for achieving the program goal controlling by some independent variables.

Figure 2.3. Research Conceptual Framework

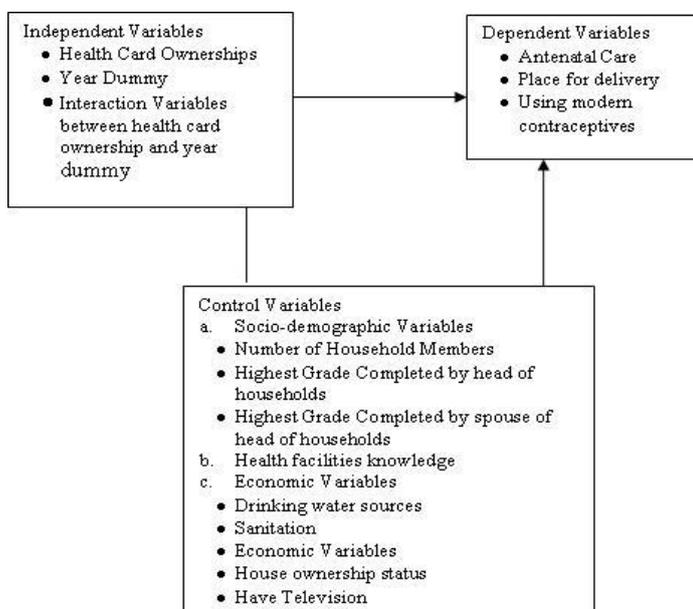


Figure 2.3, research conceptual framework, shows the hypothetical relationship between dependent variables (program goal), program variables (program outcomes and program output) and independent variables.

3. DATA AND METHODOLOGY

3.1. Data

The major data source for this thesis is Indonesian Family Life Survey (IFLS) from RAND Corporation in Santa Monica, USA. The data is longitudinal survey data at household and community level. In this thesis, data at the household level is used because this thesis focuses on analysis from side. To investigate the impact of the health card, IFLS second wave (1997) is used as baseline data before intervention and IFLS third wave (2000) is used as post-intervention year. The sample size of IFLS second wave is 7619 Households and IFLS third wave is 10435 Households. For multivariate analysis, panel data are constructed from the longitudinal data.

For analysis, there are four versions of datasets. First is data set for descriptive analysis. The data is raw data set for univariate and bivariate analysis. Second is panel data set for indentifying the effect of independent variables and control variables to antenatal care. Third is panel data set for indentifying the effect of independent variables and control variables to place delivery, public health facility or the others. The fourth is panel data set for indentifying the effect of independent variables and control variables to utilization modern contraceptives.

3.2. Methods

Two methods of analysis we employed in this study. First, descriptive statistics described the individual and households' characteristics, the descriptive statistics cover univariate and bivariate analysis. Second, Inference statistics cover bivariate and multivariate analysis.

The multivariate analysis focuses on examining the effect of intervention and independent variables on dependent variables. The major approach for multivariate analysis in this thesis is identifying difference-in-difference estimator. To construct panel dataset for identifying difference and difference estimators, the new entries is taken out from 2000 data and take the drop out cases out from 1997 data and merging both dataset to create panel dataset for the multivariate analysis with consideration of sample selection bias. The bias was tested using logistic regression to identify whether the dropping case will change the characteristics of observation or not.

4. RESULT AND DISCUSSION

This chapter presents the interpretation and discussion from data analysis. Part three is divided as two parts: 4.1 provide descriptive analysis of health card ownership and utilization and 4.2 provide multivariate analysis of the impact of health card ownership to antenatal care, place delivery and modern contraceptive.

4.1. Descriptive analysis of health card ownership and utilization

As discussed on chapter two, the health card program followed a partly decentralized targeting process. Households that were categorized as vulnerable to economic shocks were targeted to receive health cards. It means health card allocated for the poor household to protect them from the effect of crisis (Saadah et al, 2001; Sparrow, 2006).

For evaluating the accuracy of targeting and allocation, wealth quintiles is use to identify the poor and non poor. The poorest and second poorest quintiles are categorized as poor, the rest quintiles are non poor or wealthier.

Wealth quintile in this study was constructed from economic variables such as using electricity, have television, own house, access to improve water, access to improve sanitation, asset and expenditure. Those variables were combined using principal component analysis.

Table 4.1 Tabulation between wealth quintiles and health card ownerships

Wealth Index		hhs have kartu sehat	
Quintiles		0. No	1. Yes
Poorest	N	1070	323
	%	18.82	25.25
Second	N	1076	317
	%	18.93	24.78
Middle	N	1135	257
	%	19.96	20.09
Fourth	N	1160	233
	%	20.40	18.22
Richest	N	1244	149
	%	21.88	11.65
Total	N	5685	1279
	%	100.00	100.00

Chi Square: Significant at 0.001

Table 4.1 shows that only 50% of all health cards were distributed to the poor (first and second poorest quintiles). The remaining health cards were miss-targeted and distributed to wealthier quintiles. The miss-targeting might be happen in local level when head of village that have rights to select who should receive health cards, gave health cards to head of villages' relatives or friends.

Table 4.2 Tabulation between wealth quintiles and health card utilization for inpatients

Wealth Index Quintiles		Use HC for Inpatient	
		0. No	1. Yes
Poorest	N	25	10
	%	5.33	50.00
Second	N	56	6
	%	11.94	30.00
Middle	N	72	3
	%	15.35	15.00
Fourth	N	128	1
	%	27.29	5.00
Richest	N	188	0
	%	40.09	0.00
Total	N	469	20
	%	100.00	100.00

Chi Square: Significant at 0.05

Table 4.2 shows that only 80% from who use health cards for inpatients were the poor (first and second poorest quintiles). The remaining health cards were miss-utilized by who were in wealthier quintiles and did not have rights to use health cards. Miss-utilization shows that there is no good verification system on health services providers, when the providers allow who have health card get the free inpatient services even they are not the poor.

Table 4.3 Tabulation between wealth quintiles and health card utilization for outpatients

Wealth Index Quintiles		Use HC for outpatient	
		0. No	1. Yes
Poorest	N	288	24
	%	13.17	26.37
Second	N	368	28
	%	16.83	30.77
Middle	N	442	16
	%	20.22	17.58
Fourth	N	494	20
	%	22.60	21.98
Richest	N	594	3
	%	27.17	3.30
Total	N	2186	91
	%	100.00	100.00

Chi square: significant at 0.01

Table 4.3 shows that only 57% from who use health cards for outpatients were the poor (first and second poorest quintiles). The remaining health cards were miss-utilized by who were in wealthier quintiles and did not have rights to use health cards. Miss-utilization shows that there is no good verification system on health services providers, when the providers allow who have health card get the free outpatient services even they are in a wealthier economic status.

4.2. Multivariate analysis

4.2.1. The Impact of health card ownership on antenatal care

To explore the impact of health card ownership on antenatal care, seven models of multiple regressions are used. Each model has different purposes that can be seen at the following explanation. The result of logistic regression of the following models can be seen at table 4.4.

Table 4.8 regression coefficients and standard errors from multiple regression analysis of The impact of health card ownership on antenatal care.

Independent Variables	Model 1 Coefficient (Standard Error)	Model 2 Coefficient (Standard Error)	Model 3 Coefficient (Standard Error)	Model 4 Coefficient (Standard Error)	Model 5 Coefficient (Standard Error)	Model 6 Coefficient (Standard Error)	Model 7 Coefficient (Standard Error)
health card ownership	-0.2324 (-0.2587)	-0.4496 (0.4441)	-0.6261 (0.4636)	-0.6010 (0.4547)	-0.4128 (0.4594)	-0.5927 (0.4788)	-0.5497 (0.4617)
year dummy		-0.0190 (0.2236)	-0.0992 (0.2335)	-0.5205* (0.2617)	-0.1990 (0.2445)	-0.6494* (0.2869)	-0.5157* (0.2598)
Interaction variable		0.3214 (0.5515)	0.4585 (0.5735)	0.6937 (0.5721)	0.3445 (0.5712)	0.6180 (0.5964)	0.6286 (0.5803)
know where is public hospital.			0.2895 (0.2508)			0.1565 (0.2598)	
know where is private hospital			0.3395 (0.2669)			0.0443 (0.2758)	
know where is public/ auxiliary health center			-0.7587 (0.4712)			-0.8675 (0.4817)	-0.7374 (0.4666)
know where is private clinic			-0.2258 (0.3621)			-0.3486 (0.3812)	
know where is private physician			0.0622 (0.2456)			-0.0130 (0.2557)	
know where is midwife			0.5431* (0.2515)			0.5888* (0.2645)	0.7458** (0.2467)
know where is nurse			0.1100 (0.2339)			0.0799 (0.2436)	
know where is traditional birth attendant			-0.0039 (0.2537)			0.1634 (0.2683)	
know where is traditional practitioner			-0.1673 (0.2356)			0.0519 (0.24889)	
know where is pharmacy			0.4012 (0.2555)			0.2594 (0.2687)	
know where is posyandu			0.5494 (0.3003)			0.4888 (0.3109)	
household size				0.1328** (0.0455)		0.1429** (0.0488)	0.1404** (0.0462)
highest education hhh				0.6896 (0.3614)		0.4374 (0.3827)	0.8667** (0.2963)
highest education shh				0.2672 (0.3991)		0.3801 (0.4259)	
house ownership					0.2929 0.2585	0.2207 (0.2758)	
using electricity					0.5194 0.3034	0.3793 (0.3294)	
have television					0.2620 0.2338	0.1177 (0.2572)	
improve water source					0.3223 0.2208	0.2873 (0.2427)	
improve sanitation					-0.2191 (0.2311)	-0.1609 (0.2468)	
<i>constant</i>	0.5279*** 0.1114	0.5366*** 0.1515	0.0497 0.5366	-0.3383 0.3222	-0.2385 0.3755	-1.3268 0.7053	-0.2671 0.5632
Log Likelihood	-278.7017	-278.5184	-267.1242	-269.4201	-272.1993	-256.7999	-263.9404
N	420	420	420	420	420	420	420
LR Chi2	0.80	1.17	23.96	19.36	13.81	44.60	30.32
Prob>Chi2	0.3709	0.7609	0.0464	0.0036	0.0870	0.0030	0.0001
Pseudo R2	0.0014	0.0021	0.0429	0.0347	0.0247	0.0799	0.0543

*= Significant at 0.05; **= Significant at 0.01; ***=Significant at 0.001

Model 1 on table 4.4 shows that there is no direct effect of health card ownership on antenatal care without controlling for other factors. The model is also not significant that shown by $\text{prob} > \chi^2$ more than 0.05.

Model 2 shows that there is no effect of health card ownership and dummy of program interventions periods as well as there is no combination effect between health card ownership and program duration on antenatal care without controlling for other factors. The model is also not significant that shown by $\text{prob} > \chi^2$ more than 0.05.

Model 3 show that there is no effect of health card ownership and dummy of program interventions periods as well as there is no combination effect between health card ownership and program duration on antenatal care controlling for knowledge of health facilities. In this model, can be seen that knowledge of where is midwife have significant effect on adequate antenatal care.

Model 4 show that there is no effect of health card ownership and dummy of program interventions periods as well as there is no combination effect between health card ownership and program duration on antenatal care controlling for socio-demographic variables. In this model can be seen household size have significant factor of antenatal care.

Model 5 show that there is no effect of health card ownership and dummy of program interventions periods as well as there is no combination effect between health card ownership and program duration on antenatal care controlling for economic variables. Model 5 also shows that there is no effect of economic factor on antenatal care.

Model 6 show that there is no effect of health card ownership as well as there is no combination effect between health card ownership and program duration on antenatal care controlling for all variables including knowledge of health facilities, socio-demographic and economic variables. But there is significant effect of dummy of program interventions periods (before and after). Consistent with model 3 and model 4, there is positive effect of knowledge where is midwife and household size.

Model 7 show that there is no effect of health card ownership as well as there is no combination effect between health card ownership and program duration on antenatal care controlling for selected knowledge of health facilities variables, socio-

demographic variables and economic variables. Consistent with model 6, there is significant effect of dummy of program interventions periods (before and after). Consistent with model 3, model 4 and model 6, there is positive effect of knowledge where is midwife and household size.

4.2.2. Impact of health card ownership to place delivery

To explore the impact of health card ownership on place of delivery, seven models of multiple regressions are used. Each model has different purposes that can be seen at the following explanation. The result of logistic regression of the following models can be seen at table 4.5

Model 1 on table 4.5 show that there is no direct effect of health card ownership on place of delivery without controlling for other factors. The model is also not significant that shown by $\text{prob} > \chi^2$ more than 0.05.

Model 2 show that there is no effect of health card ownership and dummy of program interventions periods as well as there is no combination effect between health card ownership and program duration on place of delivery without controlling for other factors. The model is also not significant that shown by $\text{prob} > \chi^2$ more than 0.05.

Model 3 show that there is no effect of health card ownership and dummy of program interventions periods as well as there is no combination effect between health card ownership and program duration on place of delivery controlling for knowledge of health facilities. In this model, can be seen that knowledge of where is public hospital have significant positive effect on delivery at public health facilities. In this model also can be seen that knowledge of where traditional birth attendants are has significant negative effect on delivery at public facilities. Interestingly, knowledge where traditional practitioners are has significant effect to delivery at public health facilities.

Model 4 show that there is no effect of health card ownership and dummy of program interventions periods as well as there is no combination effect between health card ownership and program duration on place of delivery controlling for socio-demographic variables. In this model can be seen that there is no socio-demographic variables have significant effect to delivery in public facilities.

Table 4.5 regression coefficients and standard errors from multiple regression analysis of the impact of health card ownership on place delivery.

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	Coefficient (Standard Error)						
health card ownership	0.0424 (0.4213)	0.0232 (0.7954)	-0.8342 (0.8902)	0.0440 (0.8026)	-0.3945 (0.8442)	-0.7806 (0.9351)	-0.6049 (0.8531)
year dummy		0.3486 (0.3678)	0.3896 (0.4173)	-0.0236 (0.4267)	0.2484 (0.4345)	0.3213 (0.5734)	0.4831 (0.4451)
Interaction variable		-0.0883 (0.9442)	0.5042 (1.0641)	0.0406 (0.9716)	0.5282 (1.0082)	0.3812 (1.1445)	0.5562 (1.0491)
know where is public hospital.			2.2773** (0.7720)			2.1345** (0.7944)	2.3300** (0.7537)
know where is private hospital			0.3339 (0.4166)			0.3576 (0.4616)	
know where is public/ auxiliary health center			-0.1157 (0.7791)			-0.2828 (0.8799)	
know where is private clinic			-0.5605 (0.6183)			-1.0420 (0.6697)	
know where is private physician			-0.3669 (0.4087)			-0.5995 (0.4509)	
know where is midwife			-0.4558 (0.4569)			-0.2954 (0.5076)	
know where is nurse			-0.4844 (0.4528)			-0.4415 (0.4738)	
know where is traditional birth attendant			-1.3987** (0.4070)			-1.3506** (0.4450)	-1.2259*** (0.3844)
know where is traditional practitioner			0.9254* (0.4174)			1.20741** (0.4614)	0.7666* (0.3877)
know where is pharmacy			0.5207 (0.4351)			0.2895 (0.4893)	
know where is posyandu			1.1049 (0.6522)			1.2418 (0.6988)	
household size				0.0678 (0.0650)		-0.0081 (0.0746)	
highest education hhh				-0.5524 (0.5611)		-1.0147 (0.6286)	-0.5232 (0.4913)
highest education shh				1.4414* (0.5623)		1.3266* (0.6426)	
house ownership					0.7112 (0.5236)	1.0392 (0.5985)	
using electricity					1.6348 (1.0599)	1.0987 (1.1177)	
have television					0.7474 (0.4117)	0.7025 (0.5035)	0.7400 (0.4171)
improve water source					0.8083* (0.3648)	0.5224 (0.4480)	
improve sanitation					0.3706 (0.4109)	0.2403 (0.5075)	
<i>constant</i>	-1.9332*** 0.1835	-2.1026*** 0.2648	-3.9553*** 1.1710	-2.6038*** 0.5347	-5.1959*** 1.1707	-6.4359*** 1.7018	-4.0059*** 0.8412
Log Likelihood	-125.7808	-125.2846	-99.3196	-121.3882	-112.9377	-90.9328	-99.6007
N	330	330	330	330	330	330	330
LR Chi2	0.01	1.00	52.93	8.80	25.70	69.71	52.37
Prob>Chi2	0.9202	0.8007	0.0000	0.1854	0.0012	0.0000	0.0000
Pseudo R2	0.0000	0.0040	0.2104	0.0350	0.1021	0.2771	0.2082

*= Significant at 0.05; **= Significant at 0.01; ***=Significant at 0.001

Model 5 show that there is no effect of health card ownership and dummy of program interventions periods as well as there is no combination effect between health

card ownership and program duration on place of delivery controlling for economic variables. Model 5 also shows that there is no effect of economic factor on delivery in public facilities.

Model 6 show that there is no effect of health card ownership and dummy of program interventions periods as well as there is no combination effect between health card ownership and program duration on place of delivery controlling for all variables including knowledge of health facilities, socio-demographic and economic variables. Consistent with model 3, there is positive effect of knowledge of where is public hospital and knowledge where traditional practitioners are as well as significant negative effect of knowledge of where traditional birth attendant were on delivery in public facility.

Model 7 show that there is no effect of health card ownership and dummy of program interventions periods as well as there is no combination effect between health card ownership and program duration on place of delivery controlling for selected knowledge of health facilities variables, socio-demographic variables and economic variables. Consistent with model 3 and model 6, model 7 shows that there is positive effect of knowledge of where is public hospital and knowledge where traditional practitioners are as well as significant negative effect of knowledge of where traditional birth attendant were on delivery in public facility.

4.2.3. Impact of health card ownership to utilization of modern contraceptive

To explore the impact of health card ownership on place of delivery, seven models of multiple regressions are used. Each model has different purposes that can be seen at the following explanation. The result of logistic regression of the following models can be seen at table 4.6.

Model 1 show direct effect of having health cards on using modern contraceptives. People who have health card are more likely use modern contraceptive without controlling for other factors.

Model 2 show that there is positive effect of health card ownership and combination effect between health card ownership and program duration on utilization of modern contraceptives without controlling for other factors. Consistent with model 1, household who have health cards are more likely have use modern contraceptive.

Table 4.6 regression coefficients and standard errors from multiple regression analysis of the impact of health card ownership on utilization of modern contraceptive.

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	Coefficient (Standard Error)						
health card ownership	0.1947** (0.0683)	0.4325*** (0.1114)	0.3399** (0.1132)	0.4250*** (0.1114)	0.3461** (0.1127)	0.3128** (0.1139)	0.3174** (0.1133)
year dummy		-0.1042 (0.0551)	-0.1756** (0.0567)	-0.1697** (0.0605)	-0.1538* (0.0606)	-0.1793** (0.0657)	-0.1907*** (0.0567)
Interaction variable		-0.3530* (0.1420)	-0.2798 (0.1441)	-0.3246* (0.1426)	-0.1961 (0.1440)	-0.2068 (0.1453)	-0.2036 (0.1447)
know where is public hospital.			0.1237* (0.0626)			0.0843 (0.0636)	
know where is private hospital			0.0314 (0.0625)			-0.0067 (0.0634)	
know where is public/ auxiliary health center			0.1867 (0.1098)			0.1850 (0.1105)	
know where is private clinic			0.0266 (0.0780)			-0.0139 (0.0794)	
know where is private physician			0.0959 (0.0597)			0.0534 (0.0608)	
know where is midwife			0.1942** (0.0625)			0.1992** (0.0629)	0.2130*** (0.0620)
know where is nurse			0.0832 (0.0551)			0.0755 (0.0554)	
know where is traditional birth attendant			-0.0866 (0.0595)			-0.0133 (0.0617)	
know where is traditional practitioner			-0.2168*** (0.0570)			-0.1956*** (0.0574)	-0.1878*** (0.0566)
know where is pharmacy			0.0940 (0.0639)			0.0241 (0.0654)	0.0786 (0.0562)
know where is posyandu			0.4369*** (0.0710)			0.4366*** (0.0714)	0.4676*** (0.0683)
household size				-0.0049 (0.0117)		-0.0097 (0.0119)	
highest education hhh				0.0938 (0.0795)		-0.0669 (0.0832)	
highest education shh				0.1404 (0.0923)		0.0239 (0.0953)	
house ownership					-0.1263 (0.0734)	-0.1159 (0.0758)	
using electricity					0.0263 (0.0851)	-0.0534 (0.0870)	
have television					0.3906*** (0.0588)	0.3512*** (0.0626)	0.3531*** (0.0583)
improve water source					0.1410** (0.0548)	0.1406 (0.0575)	0.1417** (0.0549)
improve sanitation					0.0074 (0.0565)	-0.0141 (0.0574)	
<i>constant</i>	0.1258*** 0.0275	0.1756*** 0.0381	-0.5620*** 0.1202	0.1959** 0.0765	-0.0420 0.1086	-0.5882*** 0.1634	-0.6045*** 0.0825
Log Likelihood	-4377.6903	-4369.7141	-4305.5943	-4365.5847	-4328.3262	-4282.4358	-4288.5722
N	6350	6350	6350	6350	6350	6350	6350
LR Chi2	8.18	24.13	152.37	32.39	106.91	198.69	186.41
Prob>Chi2	0.0042	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.0009	0.0028	0.0174	0.0037	0.0122	0.0227	0.0213

*= Significant at 0.05; **= Significant at 0.01; ***=Significant at 0.001

Model 3 show that there is positive effect of health card ownership and but there is no combination effect between health card ownership and program duration on utilization of modern contraceptives controlling for knowledge of health facilities. Consistent with model 1 and 2, household who have health cards are more likely have

use modern contraceptive. But the periods variable show that household in 2000 are less likely use modern contraceptive. The model also show positive effect of knowledge of where is public hospital, midwife, traditional practitioners and posyandu are on utilization modern contraceptives

Model 4 show that there is positive effect of health card ownership and there is combination effect between health card ownership and program duration on utilization of modern contraceptives controlling for socio-demographic variables. Consistent with model 1, 2, and 3 household who have health cards are more likely have use modern contraceptive. Consistent with model 3, the year dummy show that household in 2000 are less likely use modern contraceptive. In this model also can be seen that there is no socio-demographic variables have significant effect to delivery in utilization of modern contraceptives.

Model 5 show that there is positive effect of health card ownership and dummy of program intervention periods, but there is no combination effect between health card ownership and program duration on utilization of modern contraceptives controlling for economic variables. Consistent with model 1, 2, 3 and 4, household who have health cards are more likely have use modern contraceptive. Consistent with model 3 and 4, the year dummy shows households in 2000 are less likely use modern contraceptive. The model also shows positive effect of having television and access to improve water on utilization modern contraceptives.

Model 6 show that there is positive effect of health card ownership and dummy of program intervention periods, but there is no combination effect between health card ownership and program duration on utilization of modern contraceptives controlling for all variables including knowledge of health facilities, socio-demographic and economic variables. Consistent with model 3, the model also show positive effect of knowledge of where is public hospital, midwife, traditional practitioners and posyandu on utilization modern contraceptives. Consistent with model 5, the model also shows positive effect of having television and access to improve water on utilization modern contraceptives.

Model 7 show that there is effect of health card ownership and but there is no combination effect between health card ownership and program duration on utilization

of modern contraceptives controlling for selected knowledge of health facilities variables, socio-demographic variables and economic variable.

Table 4.7 Adjusted Probability of having Health card to utilization of modern contraceptive

Have health card	Number of Observation	Adjusted Probability	Standar Error
No (0)	5299	0.5334	0.0279
Yes (1)	1051	0.5730	0.0634
LR Chi2	5.37		
Prob>Chi2	0.0205		

Table 4.14 Interaction effect between health cards ownership and year dummy

Variables	N	Mean	Std. Dev.	Min	Max
ie	6350	-0.0469	0.0036	-0.0517	-0.0410
se	6350	0.0339	0.0016	0.0311	0.0358
z	6350	-1.3788	0.0462	-1.5010	-1.3164

Adjusted probability result of health card ownership to modern contraceptive use show that 57% household that have health card will use modern contraceptive, it is clearly confirm that having health card is one of factor affecting the decision to use modern contraceptive during the crisis.

Figure 4.1 Interaction Effect

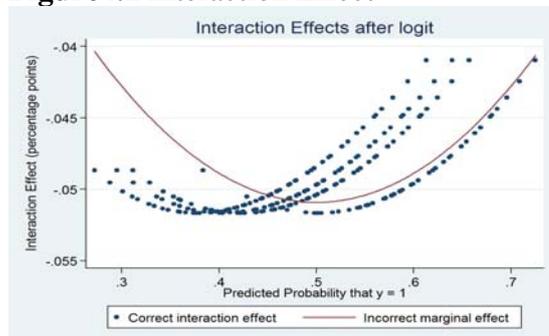
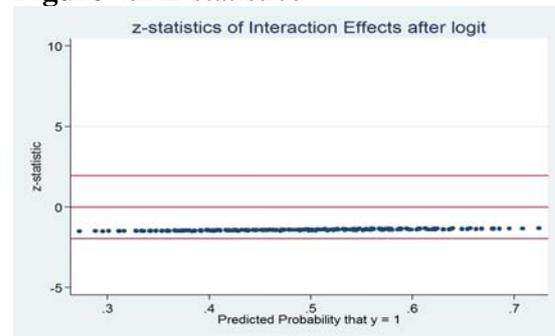


Figure 4.2 Z-statistics



From figure 4.1 can be seen the magnitude of interaction effect in wide range and vary depend on level of each covariates. The mean of interaction effect is -0.046 (Table 4.14). At figure 4.1 can be seen that the interaction effect can be found widely although none of them statistically significant according figure 4.2. It might be happen because from 1997 to 2000 is crisis periods, therefore the time effect of program intervention was neutralized by economic shock because of crisis.

From table 4.6 model 7 can be seen that both health card ownership and year dummy are highly statistically significant. However, the interaction variable is not statistically significant. From model 7, could be concluded that there is no interaction.

It might be happen because from 1997 to 2000 is crisis periods, therefore the time effect of program intervention was neutralized by economic shock because of crisis.

The other possible answer why the interaction effect are not is significant to contraceptive use are stability of contraceptive use in Indonesia. This argument is supported by Strauss et al (2002) and Frankenberg et al (1999) who found that the economic crisis did not affect a lot on the change of contraceptive uses. It means that neither economic crisis nor health card program have significant effect to utilization modern contraceptives.

5. CONCLUSION AND RECOMMENDATION

Chapter V is the conclusion of this study. There are two topic of this chapter, finding of the study and implication of this study

5.1. Conclusion

This paper not only found that the effectiveness of the program should be increase but also can be detect some part of the program that need to be improved. Some important point for the analysis as follow:

- Health card program have less performance on targeting and distribution.
- Health card program did not affect to secure adequate antenatal care of pregnant women.
- Knowledge where midwives is very important in securing access to adequate antenatal care.
- Health card program did not affect giving more access on delivery to public health facilities
- Knowledge of where is public hospital is very important to improve access on delivery in public facility.
- Health card program have positive effect on modern contraceptive use but the interaction impact between health card ownership and year dummy is not significantly improve utilization modern contraceptive.
- Knowledge where public hospital, midwife, traditional practitioners and posyandu is very important to improve the utilization of modern contraceptive.

- Interestingly, economic factors are not major constraint for reproductive health access. It is need more study to answer why it is happened.

5.2. Recommendation

5.2.1 For Further Social Safety Net Program

1. Improve the quality of targeting and distribution for further social safety net on health program. Program implementer should have individual level data base of targeted recipient of safety net and did let local level official decided the recipient freely.
2. Improve the quality monitoring for implementation of further social safety net on health program to avoid misallocation.

5.2.2 For Further Research

3. Conduct study with more sample size of pregnant women or who have delivery, especially to investigate the impact social safety net on health to antenatal care and place delivery.
4. Conduct further study on stable macroeconomic situation, to reduce the bias because of the effect of business cycle fluctuation. It will be better if the study conducted with randomized evaluation methods to avoid selection bias.

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