

Targeting the Poor in Times of Crisis: The Indonesian Health Card

Supplemental appendix

Robert Sparrow, December 2007

Susenas consumption data

Two complications arise concerning the household expenditure data recorded in the Susenas. First, to make per capita consumption of households in different regions comparable, it is necessary to apply some spatial price deflator. Lanjouw *et al.* (2002) suggest using the poverty line as price deflator.¹ *Real* household expenditure is then expressed as

$$C^R = C^N \frac{PL_{Indonesia}}{PL_{region}}$$

where C^N is nominal household expenditure, PL_{region} is the poverty line of the specific region and $PL_{Indonesia}$ is the national poverty line.

The argument behind this approach is that regional poverty lines capture spatial differences in the cost of living, in that they reflect the level of expenses required to obtain some reference level utility in each region. I use the poverty lines from Pradhan *et al.* (2001).² The poverty lines and the ensuing spatial cost of living index are given in table A.1 below.

The second complication is that in the 1999 Susenas about one third of the households received a more detailed consumption questionnaire than the other households. This consumption module is incorporated in the Susenas every three years. The implication is that measurement error of expenditures is more severe for households that are not included in the consumption module. Following Pradhan (2001) per capita expenditure quintiles are constructed by generating two separate rankings for each sample and reconstructing population weights for the *core-only* sample.³

¹ Lanjouw P, Pradhan M, Saadah F, Sayed H, and Sparrow R. 2002. Poverty, Education and Health in Indonesia: Who Benefits from Public Spending? In: Morriison C (ed). *Education and Health Expenditures, and Development: The cases of Indonesia and Peru*. Paris: Development Centre Studies, OECD Development Centre, pp. 17-78.

² Pradhan, M, A. Suryahadi, S. Sumarto, and L. Pritchett. 2001. Eating Like Which 'Joneses'? An Iterative Solution to the Choice of Poverty Line Reference Group. *Review of Income and Wealth* 47: 473-487.

³ Pradhan, M. 2001. Welfare analysis with a proxy consumption measure - Evidence from a repeated experiment in Indonesia. Tinbergen Institute Discussion Paper 092/2, Amsterdam.

Tables

Table A.1. Urban and rural poverty lines and cost of living index, 1999, by province

Province	Poverty lines (Indonesian Rp.)			Cost of living index	
	Urban	Rural	Total	Urban	Rural
Aceh	74,087	70,199	71,008	1.14	1.20
North-Sumatra	83,462	74,460	78,186	1.01	1.14
West-Sumatra	85,361	78,499	80,227	0.99	1.08
Riau	92,643	82,033	85,693	0.91	1.03
Jambi	85,216	77,004	79,260	0.99	1.10
South-Sumatra	85,579	79,962	81,667	0.99	1.06
Bengkulu	86,026	77,966	80,056	0.98	1.08
Lampung	88,877	78,637	80,265	0.95	1.08
Jakarta	102,814	-	102,814	0.82	-
West-Java	94,405	86,024	89,635	0.90	0.98
Central-Java	85,009	78,461	80,566	0.99	1.08
Yogyakarta	92,644	83,304	87,933	0.91	1.01
East-Java	85,024	80,020	81,637	0.99	1.06
Bali	97,794	94,405	95,580	0.86	0.90
NTB	87,783	84,718	85,296	0.96	1.00
NTT	84,144	77,856	78,739	1.00	1.09
West-Kalimantan	93,380	87,982	89,155	0.91	0.96
Central-Kalimantan	95,514	85,587	87,842	0.89	0.99
South-Kalimantan	86,921	82,932	84,139	0.97	1.02
East-Kalimantan	96,070	92,977	94,533	0.88	0.91
North-Sulawesi	87,474	82,179	83,581	0.97	1.03
Central-Sulawesi	81,251	76,802	77,784	1.04	1.10
South-Sulawesi	84,561	74,376	77,274	1.00	1.14
South-East-Sulawesi	86,630	80,279	81,718	0.98	1.05
Maluku	102,797	100,169	100,821	0.82	0.84
Irian-Jaya	88,486	97,129	94,906	0.96	0.87
Indonesia	90,490	81,184	84,537		

Source: Pradhan *et al.* (2001).

Table A.2. Spearman's rank correlation coefficients for district poverty indicators

	BKKBN 1997	BPS 1996	BPS 1999
BPS 1996	0.6757**		
BPS 1999	0.6402**	0.9103**	
Δ BPS 99-96	0.0859	0.0571	0.4249**

Number of observations: 293 districts.

** significant at 1%

Table A.3. Within-district targeting of JPS health cards to households, and determinants of utilisation for outpatient treatment (probit marginal effects)

Unit of analysis	(1)	(2)	(3)	(4)	(5)	(6)
	Health card	Health card	Utilisation (Heckman Probit)	Utilisation (selection term)	Utilisation (no selection term)	Utilisation (no exclusions)
	Household	Individual	Individual	Individual	Individual	Individual
Female			0.0185 [0.0070]**	0.0172 [0.0017]**	0.0172 [0.0017]**	0.0172 [0.0017]**
Age			-0.0023 [0.0009]**	-0.0021 [0.0002]**	-0.0021 [0.0002]**	-0.0021 [0.0002]**
Age squared			0.00004 [0.00002]**	0.00004 [0.000002]**	0.00004 [0.000002]**	0.00004 [0.000002]**
Female head of household	0.0197 [0.0029]**	0.0185 [0.0031]**	-0.0022 [0.0051]	-0.0020 [0.0045]	-0.0015 [0.0043]	-0.0015 [0.0043]
Education head of household (reference = none / primary not completed)						
Primary	-0.0075 [0.0019]**	-0.0052 [0.0021]*	0.0084 [0.0054]	0.0078 [0.0034]*	0.0077 [0.0033]*	0.0076 [0.0033]*
Junior secondary	-0.0241 [0.0023]**	-0.0219 [0.0026]**	0.0002 [0.0060]	0.0002 [0.0056]	-0.0007 [0.0050]	-0.0006 [0.0050]
Senior secondary	-0.0407 [0.0023]**	-0.0400 [0.0024]**	0.0082 [0.0103]	0.0077 [0.0079]	0.0057 [0.0060]	0.0056 [0.0060]
Higher	-0.0474 [0.0035]**	-0.0503 [0.0033]**	-0.0034 [0.0153]	-0.0031 [0.0148]	-0.0058 [0.0125]	-0.0059 [0.0124]
Head of household unemployed	0.0152 [0.0086]+	0.0152 [0.0094]	-0.0059 [0.0125]	-0.0055 [0.0112]	-0.0051 [0.0112]	-0.0048 [0.0112]
Member of household ill last month	0.0119 [0.0019]**	0.0125 [0.0021]**	0.0914 [0.0295]**	0.0821 [0.0040]**	0.0826 [0.0039]**	0.0825 [0.0039]**
Log household size	-0.0082 [0.0022]**	-0.0129 [0.0026]**	-0.0456 [0.0159]**	-0.0424 [0.0047]**	-0.0429 [0.0044]**	-0.0429 [0.0044]**

(Table A.3. continued)

	(1)	(2)	(3)	(4)	(5)	(6)
Household composition						
(reference = share of males age 18-60)						
Share of males age < 6	0.0313 [0.0074]**	0.0298 [0.0082]**	0.0428 [0.0203]*	0.0397 [0.0141]**	0.0408 [0.0140]**	0.0407 [0.0140]**
Share of females age < 6	0.0269 [0.0078]**	0.0234 [0.0085]**	0.0304 [0.0185]±	0.0282 [0.0145]±	0.0291 [0.0145]*	0.0290 [0.0145]*
Share of males age 6-12	0.0014 [0.0063]	-0.0008 [0.0070]	0.0431 [0.0207]*	0.0401 [0.0122]**	0.0400 [0.0122]**	0.0397 [0.0122]**
Share of females age 6-12	0.0116 [0.0065]±	0.0100 [0.0071]	0.0230 [0.0152]	0.0213 [0.0124]±	0.0218 [0.0124]±	0.0215 [0.0124]±
Share of males age 13-17	0.0119 [0.0069]±	0.0194 [0.0077]*	0.0022 [0.0153]	0.0020 [0.0143]	0.0028 [0.0142]	0.0026 [0.0142]
Share of females age 13-17	-0.0062 [0.0071]	-0.0015 [0.0080]	-0.0124 [0.0173]	-0.0115 [0.0156]	-0.0117 [0.0156]	-0.0117 [0.0156]
Share of females age 18-60	0.0018 [0.0057]	-0.0057 [0.0066]	0.0047 [0.0141]	0.0044 [0.0130]	0.0043 [0.0129]	0.0044 [0.0129]
Share of males age > 60	0.0150 [0.0059]*	0.0056 [0.0071]	-0.0129 [0.0143]	-0.0120 [0.0125]	-0.0119 [0.0125]	-0.0117 [0.0125]
Share of females age > 60	0.0102 [0.0059]±	0.0129 [0.0070]±	-0.0389 [0.0206]±	-0.0362 [0.0139]**	-0.0357 [0.0140]*	-0.0354 [0.0140]*
Agriculture main source of income	-0.0090 [0.0021]**	-0.0094 [0.0022]**	-0.0060 [0.0038]	-0.0056 [0.0034]±	-0.0059 [0.0033]±	-0.0060 [0.0033]±
Per capita expenditure quintile						
(reference = quintile 1, poorest)						
Quintile 2	-0.0150 [0.0024]**	-0.0162 [0.0025]**	0.0009 [0.0047]	0.0009 [0.0043]	0.0002 [0.0039]	0.0001 [0.0039]
Quintile 3	-0.0255 [0.0026]**	-0.0284 [0.0027]**	-0.0030 [0.0049]	-0.0028 [0.0050]	-0.0039 [0.0042]	-0.0041 [0.0042]
Quintile 4	-0.0418 [0.0027]**	-0.0454 [0.0028]**	-0.0063 [0.0058]	-0.0058 [0.0066]	-0.0077 [0.0047]	-0.0079 [0.0047]±
Quintile 5, richest	-0.0657 [0.0029]**	-0.0663 [0.0028]**	-0.0125 [0.0073]±	-0.0112 [0.0092]	-0.0141 [0.0058]*	-0.0145 [0.0058]*

(Table A.3. continued)

	(1)	(2)	(3)	(4)	(5)	(6)
BKKBN criteria						
Can worship according to faith	-0.0191 [0.0041]**	-0.0192 [0.0044]**	0.0150 [0.0086]+	0.0140 [0.0045]**	0.0135 [0.0043]**	0.0134 [0.0043]**
Eat basic food twice a day	-0.0059 [0.0079]	-0.0123 [0.0087]	0.0116 [0.0110]	0.0108 [0.0086]	0.0103 [0.0085]	0.0102 [0.0086]
Different clothing school/work/leisure	-0.0023 [0.0052]	-0.0019 [0.0057]	-0.0231 [0.0117]*	-0.0215 [0.0083]**	-0.0216 [0.0083]**	-0.0217 [0.0083]**
Floor made of material other than earth	-0.0548 [0.0033]**	-0.0556 [0.0036]**	0.0127 [0.0104]	0.0123 [0.0062]*	0.0100 [0.0037]**	0.0108 [0.0038]**
Access to modern medical care	0.0291 [0.0025]**	0.0330 [0.0028]**	0.0368 [0.0133]**	0.0337 [0.0039]**	0.0346 [0.0034]**	0.0346 [0.0034]**
Living conditions						
House made out of bamboo	0.0419 [0.0036]**	0.0415 [0.0039]**	0.0034 [0.0050]	0.0031 [0.0052]	0.0045 [0.0043]	0.0047 [0.0043]
Access to clean drinking water	-0.0077 [0.0029]**	-0.0071 [0.0030]*	0.0113 [0.0076]	0.0106 [0.0053]*	0.0104 [0.0052]*	0.0103 [0.0051]*
Closed sewer	-0.0229 [0.0025]**	-0.0242 [0.0026]**	-0.0026 [0.0048]	-0.0024 [0.0047]	-0.0034 [0.0042]	-0.0031 [0.0042]
Access to electricity	0.0183 [0.0029]**	0.0176 [0.0031]**	-0.0161 [0.0100]	-0.0149 [0.0056]**	-0.0140 [0.0049]**	-0.0139 [0.0050]**
Village characteristics						
Rural area	-0.0154 [0.0039]**	-0.0181 [0.0041]**	-0.0089 [0.0067]	-0.0084 [0.0061]	-0.0088 [0.0060]	-0.0096 [0.0061]
IDT village	-0.0061 [0.0035]+	-0.0076 [0.0037]*	0.0090 [0.0062]	0.0083 [0.0046]+	0.0081 [0.0045]+	0.0077 [0.0045]+
Nr. of primary health clinics	-0.0058 [0.0031]+	-0.0055 [0.0033]+	0.0119 [0.0073]	0.0111 [0.0049]*	0.0108 [0.0048]*	0.0109 [0.0048]*
Nr. of auxiliary health clinics	-0.0093 [0.0026]**	-0.0081 [0.0027]**	0.0171 [0.0084]*	0.0159 [0.0039]**	0.0156 [0.0038]**	0.0158 [0.0038]**
Nr. of doctors per 1,000 inhabitants	0.0067 [0.0045]	0.0085 [0.0047]+	0.0065 [0.0060]	0.0060 [0.0054]	0.0064 [0.0053]	0.0065 [0.0053]

(Table A.3. continued)

	(1)	(2)	(3)	(4)	(5)	(6)
Nr. of midwives per 1,000 inhabitants	0.0066 [0.0037]+	0.0080 [0.0040]*	0.0243 [0.0127]+	0.0225 [0.0071]**	0.0229 [0.0074]**	0.0230 [0.0073]**
Health facilities easy to reach	0.0080 [0.0062]	0.0062 [0.0066]	0.0150 [0.0095]	0.0139 [0.0070]*	0.0140 [0.0070]*	0.0141 [0.0070]*
Majority of inter village traffic by land	0.0212 [0.0070]**	0.0232 [0.0073]**	0.0057 [0.0121]	0.0053 [0.0116]	0.0066 [0.0110]	0.0063 [0.0111]
BKKBN poverty rate in sub-district	0.0982 [0.0075]**	0.0984 [0.0079]**				-0.000007 [0.0101]
BKKBN poverty rate in district	0.0178 [0.0098]+	0.0071 [0.0101]				0.0122 [0.0127]
BPS poverty rate 1999	-0.0008 [0.0001]**	-0.0007 [0.0002]**	0.0007 [0.0004]*	0.0007 [0.0002]**	0.0007 [0.0002]**	0.0006 [0.0002]*
λ				-0.0070 [0.0166]		
ρ			-0.0558 [0.1305]			
Number of observations	185,608	777,289	76,684	76,684	76,684	76,684
Pseudo R-squared	0.10	0.10	0.09	0.09	0.09	0.09

Robust standard errors in brackets; + significant at 10%; * significant at 5%; ** significant at 1%.

Table A.4. Health card allocation simulations under different geographic targeting regimes

Targeting regime	Incidence				Share			
	(% coverage amongst Indonesian population)				(% share of total programme)			
	Current	BPS	BKKBN	Uniform	Current	BPS	BKKBN	Uniform
Quintile 1 (poorest)	18.67	20.23	18.57	16.04	34.21	36.90	33.43	28.84
Quintile 2	13.69	13.34	13.53	12.94	25.71	24.95	24.98	23.87
Quintile 3	10.49	10.08	10.53	11.09	19.76	18.91	19.50	20.51
Quintile 4	7.14	7.00	7.81	8.90	13.38	13.07	14.39	16.38
Quintile 5 (richest)	3.69	3.30	4.17	5.65	6.93	6.17	7.70	10.4
Urban	7.29	6.87	7.12	9.98	27.06	25.41	26.01	36.41
Rural	12.95	13.30	13.37	11.50	72.94	74.59	73.99	63.59
All	10.70	10.75	10.89	10.90	100.00	100.00	100.00	100.00

Table A.5. Health card outpatient utilisation simulations under different geographic targeting regimes

Targeting regime	Incidence				Share			
	(% utilisation amongst health card recipients)				(% share of total utilisation)			
	Current	BPS	BKKBN	Uniform	Current	BPS	BKKBN	Uniform
Quintile 1 (poorest)	6.43	7.48	7.27	6.94	33.43	37.11	33.94	28.11
Quintile 2	6.57	7.46	7.19	6.92	25.81	25.07	25.14	23.45
Quintile 3	6.58	7.02	6.72	7.04	19.94	17.97	18.45	20.61
Quintile 4	6.80	7.47	7.28	7.21	13.96	13.23	14.80	16.88
Quintile 5 (richest)	6.27	7.83	6.97	7.26	6.85	6.63	7.67	10.94
Urban	6.35	7.11	6.57	6.98	25.74	23.33	23.26	35.56
Rural	6.60	7.50	7.31	7.07	74.26	76.67	76.74	64.44
All	6.53	7.41	7.12	7.04	100.00	100.00	100.00	100.00