WORKING PAPER

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ABSTRACT

Social Health Insurance for the Poor:
Targeting and Impact of Indonesia's Askeskin Program

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A first step towards meeting Indonesia's ambition for universal health insurance was made in 2005 with the introduction of the Health Insurance for the Poor (Askeskin) program, a subsidized social health insurance for the poor and the informal sector. This scheme covered basic healthcare in public health clinics and hospital inpatient care. In this paper we investigate targeting and impact of the Askeskin program using household panel data. We find that the program is indeed targeted to the poor and those most vulnerable to catastrophic out-of-pocket health payments. The public health insurance improves access to healthcare in that it increases utilization of outpatient healthcare among the poor, while out-of-pocket spending seems to have increased for Askeskin insured in urban areas.

Keywords: Social health insurance, healthcare utilization, out-of-pocket health payments, targeting, impact evaluation, Indonesia
JEL Classification: G22, H55, I18

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ABBREVIATIONS

Asabri	*Asuransi Sosial Angkatan Bersenjata Republik Indonesia*	Social Insurance for the Police and the Military Personnel
Askes	*Asuransi Kesehatan*	Health Insurance (for civil servants)
Askeskin	*Asuransi Kesehatan Masyarakat Miskin*	Health Insurance for the Poor
BLT	*Bantuan Langsung Tunai*	Unconditional Cash Transfer
BPS	*Biro Pusat Statistik*	Statistics Indonesia
Jamsostek	*Jaminan Sosial Tenaga Kerja*	Employees' Social Security
JPS	*Jaring Pengaman Sosial*	Social Safety Net
OOP		out-of-pocket
Susenas	*Survei Sosial Ekonomi Nasional*	National Socioeconomic Survey

I. INTRODUCTION

The Indonesian government has recently revealed its ambition for universal health insurance by 2014 (Antara News, 2009). A first step towards meeting this ambition had already been made with comprehensive public health sector reforms in 2005, as social health insurance was expanded to the informal sector and the poor. This nationwide social health insurance for the poor (Askeskin) is intended to complement social health insurance schemes for public and formal private sector employees. But whereas the formal sector schemes are based on mandatory earnings-related contributions, the premiums for Askeskin were fully subsidized by a government health fund.

Although the public health sector had been heavily subsidized, with targeted price subsidies to the poor since the economic crisis of 1998 (e.g., Pradhan, Sadaah, and Sparrow, 2007), healthcare utilization and public spending in Indonesia falls behind its Southeast Asian neighbors, while inequality in healthcare utilization in the country is relatively high (O'Donnell et al., 2007). This inequality is of particular concern in light of Indonesia's adoption of fiscal and (partly) political decentralization in 2001, under which regime public service delivery is now largely dominated by *kabupaten* (district) administrations. As a result, a large variation in *kabupaten* public revenue implies a larger variation in public spending (Kruse, Pradhan, and Sparrow, 2009).

The combination of low utilization rates and high inequality may explain the observed patterns in private health spending. Out-of-pocket (OOP) health payments in Indonesia are relatively low compared to those in other Asian countries, as they account for 1.83% of the total household spending on average. However, this apparent low propensity to spend is accompanied by a high variation across the population, with the nonpoor allocating a larger share of their budget on OOP spending (Van Doorslaer et al., 2007).

The key objective of Askeskin was to improve access to healthcare and provide financial protection against health shocks and illnesses for poor households that lack access to formal insurance. With limited insurance coverage, the cost of required healthcare can have implications for both transient poverty and long-term poverty traps if households are resource and credit constrained. For example, if health payments are financed out of current income, but smoothing is imperfect, this may lead to increased transient poverty. On the other hand, if OOP payments cannot be completely financed through current income, households may resort to traditional coping strategies, such as depletion of assets and buffer stocks, or utilize social networks and incur debt (e.g., De Weerdt and Dercon, 2006; Flores et al., 2008). Such strategies can have long-term negative effects for the households' income generating capacity and their ability to cope with future shocks. A third possibility would be to forgo treatment altogether, which may have long-term consequences through reduced health and depreciation of human capital.

Previous studies for Indonesia have shown that with limited access to credit markets, households employ alternative coping mechanisms (Sumarto, Suryahadi, and Bazzi, 2008). However, while small idiosyncratic shocks seem insurable, full insurance is often not feasible (Sumarto, Suryahadi, and Widyanti, 2005). Moreover, when households are faced with covariate shocks and chronic illnesses, coping mechanisms are ineffective and informal insurance fails (e.g., Gertler and Gruber, 2002).

In general, the empirical literature suggests that health insurance can be effective in increasing utilization and reducing OOP health spending, although the evidence is sometimes mixed. For example, Wagstaff and Pradhan (2006) find that the introduction of social health insurance in

Vietnam during the 1990s has decreased OOP and catastrophic health spending, while increasing utilization and improving health outcomes. They argue that by reducing financial risk, households had to rely less on coping mechanisms such as savings. On the other hand, Wagstaff (forthcoming) finds no impact of Vietnam's recent healthcare fund for the poor on utilization, although it does seem to have reduced OOP health spending. For rural China, Wagstaff et al. (2009) find positive effects of a voluntary health insurance scheme on the use of health services between 2003 and 2005, but find no effect on OOP. Moreover, Wagstaff and Lindelow (2008) show that, in urban China, health insurance has in fact increased OOP and catastrophic payments, which they attribute to a combination of increased utilization and behavioral responses by healthcare providers.

Studies in Latin America find evidence of decreased OOP health payments and catastrophic healthcare spending in Mexico due to the *Seguro Popular* health insurance for the poor (Galárraga et al., 2008), and increased healthcare utilization in Colombia due to subsidized health insurance for the poor (Trujillo, Portillo, and Vernon, 2005; Giedion, 2007) and mandatory contributory based health insurance for the nonpoor (Giedion, Alfonso, and Diaz, 2007). For Indonesia, Hidayat et al. (2004) find a positive effect of mandatory formal sector health insurance on the utilization of outpatient care in the 1990s. Pradhan, Saadah, and Sparrow (2007) find that the targeted user fee waivers helped protect access to healthcare for the poor during the Indonesia's economic crisis in 1999.

In this paper, we will investigate the implications of Askeskin for access to healthcare and associated financial risk for the poor. We will first analyze targeting of Askeskin in terms of reaching those most in need of financial protection. We define need by the level of expected required health spending of households, given a demographic profile and health status. We then proceed with estimating the impact of Askeskin on outpatient healthcare utilization and OOP health payments. The analysis is based on a household panel (Susenas) of 8,582 households conducted in 2005 and 2006. The first wave of the survey was conducted just before the start of Askeskin, hence providing a baseline. Identification of treatment effects relies on a difference-in-difference approach combined with propensity score matching.

We find that the program is indeed targeted on the poor and those most vulnerable to catastrophic out-of-pocket health payments. Askesin has improved access to healthcare in that it increases utilization of public outpatient care. We do not find evidence of substitution effects from private to public care, while there does seem to be a positive impact on OOP payments in urban areas.

The next section describes the data and methods used for the analysis. Section 3 sets the context and describes the Askeskin program. Section 4 presents the results, while section 5 concludes.

II. DATA AND METHODS

2.1 Data

This analysis draws on a national socioeconomic survey (Susenas), conducted for a panel of households in 2005 and 2006 by the Statistics Indonesia (BPS). The 2005 wave of the panel includes 10,575 households that were subsequently revisited in 2006, yielding a balanced panel of 8,582 households. The surveys were conducted around February. With the introduction of Askeskin in the second half of 2005, the Susenas data provides a baseline survey in 2005 and a post-intervention survey in 2006.

The survey collects information on the socioeconomic status of households, self-reported morbidity, healthcare utilization, and participation in public and private health insurance schemes and other social programs. The survey also includes a detailed expenditure module, for both food and nonfood items. For this analysis, we use all reported health expenditures (excluding health insurance premiums) as measure for OOP payments for healthcare. We restrict the analysis of utilization to outpatient care, as the reported frequency of inpatient care is too low for a robust empirical analysis, in particular for the poorest quartile of the sample. Descriptive statistics for the main variables are provided in Table 1. The final columns show the characteristics of the households in 2005 that were lost in constructing the balanced panel. Although the rate of attrition is sizable, there seem to be no systematic differences between the subsamples. The households that were dropped in 2006 have slightly higher income and education but are almost identical in healthcare utilization.

2.2 Methods

2.2.1 Targeting of Askeskin to the Poor and Those in Need of Financial Protection

To investigate the targeting of Askeskin, we look at how Askeskin coverage has been allocated to the poor and to those households that are expected to require a relatively high expected health spending budget share in order to meet their healthcare needs.

For obvious reasons, the variation in OOP health spending may not reflect any difference in exposure to adverse health shocks; rather, it is likely to reflect a combination of healthcare needs and affordability. Therefore, we will look at the potential exposure to idiosyncratic health spending events in terms of the expected OOP payments one would require in order to obtain some reference level of healthcare. Pradhan and Prescott (2002) propose a method to derive the distribution of expected required health spending from the observed distribution, given a demographic profile of households. This distribution lets spending vary by age and gender, standardized at some level of per capita general spending. That is, this approach assumes that required healthcare is determined by the demographic characteristics of households and is not related to the level of income. However, if health status varied by income, and if health status were ignored, the derived distribution of health spending needs would be misleading. We therefore include a variable indicating that a household member has experienced an illness period that disrupted work or school in the month prior to the survey.

Table 1. Descriptive Statistics Susenas Household Panel 2005–2006, Balanced Panel and Attrition

	Balanced Household Panel				Attrition	
	2005		2006		2005	
	Mean	Stand. dev.	Mean	Stand. dev.	Mean	Stand. dev.
Per capita expenditure (IDR)	259,168	230,920	285,947	241,692	294,079	226,354
Per capita health expenditure (IDR)	5,601	21,344	6,105	47,983	5,607	14,988
Age	28.28	19.43	28.92	19.78	27.11	18.51
Female	0.50	0.50	0.50	0.50	0.49	0.50
Household size	4.77	1.79	4.75	1.80	4.64	1.84
Female head of household	0.08	0.28	0.08	0.28	0.09	0.29
No education	0.45	0.50	0.45	0.50	0.41	0.49
Primary school education	0.26	0.44	0.26	0.44	0.25	0.43
Junior high school education	0.13	0.34	0.13	0.33	0.15	0.36
Senior high school education	0.13	0.33	0.13	0.34	0.16	0.37
Higher education	0.03	0.17	0.03	0.18	0.03	0.18
Illness in last month disrupting work/schooling	0.18	0.38	0.15	0.35	0.15	0.36
Number of outpatient visits in last month	0.19	0.76	0.15	0.75	0.19	0.91
Access to Askeskin			0.12	0.32		
Participates in Askes	0.07	0.25	0.06	0.23	0.08	0.27
Participates in Jamsostek	0.03	0.16	0.02	0.15	0.03	0.16
Number of individuals	34,825		34,525		7,693	
Number of households	8,582		8,582		1,993	

Using a tobit specification, we regress actual (pre-Askeskin) per capita household OOP spending in 2005 on household size and composition, per capita household expenditure, the disruptive illness indicator, and a set of urban/rural-province interaction terms. The interaction terms capture regional differences in price and supply of healthcare. The tobit coefficients are then used to predict OOP health spending per capita for households in 2005 and 2006, with household expenditure fixed at the 90th percentile and the location in Jakarta. That is,

$$OOP_h^R = E\left(OOP \mid D_h, H_h, PCE = q^{90}, L = \text{Jakarta}\right) \qquad (1)$$

which we interpret as the expected required OOP health spending for a household, given its demographic profile (*D*) and health status (*H*), but with the level of wealth (*PCE*) of the 90th per capita expenditure percentile and facing healthcare supply similar to that found in Jakarta (*L*). The choice of expenditure reference point is arbitrary. We choose the 90th percentile as we assume that this is the level of wealth at which (most) healthcare needs can be met. The predicted OOP spending can therefore not be interpreted independently, but is merely used as a relative measure. The 2006 predictions are adjusted for inflation using the observed changes in median per capita household spending from 2005 to 2006.

2.2.2 Impact of Askeskin on Healthcare Utilization and Spending

We investigate the impact of Askeskin on access to healthcare, in terms of healthcare utilization and OOP health spending shares. A key empirical problem that hampers the impact analysis of health insurance is the simultaneous nature of insurance uptake and demand for healthcare. Enrollment into Askeskin is not random, but determined by targeting and individual compliance to initial assignment. It is therefore not straightforward to discern causal effects from the correlation between health insurance coverage on healthcare utilization.

To identify the impact of Askeskin, we exploit the panel structure of the data and the fact that 2005 provides us as a baseline, by combining a difference-in-difference approach with propensity score matching. As the outcome variables, we use the number of outpatient visits and budget share of OOP health spending in the last month. We differentiate between overall utilization and that of the main public healthcare providers (public health centers and hospitals).

First, we take a nonparametric difference-in-difference approach

$$\beta_{DD} = E\left(y_{h,2006} - y_{h,2005} \mid A = 1\right) - E\left(y_{h,2006} - y_{h,2005} \mid A = 0\right) \qquad (2)$$

as well as a parametric analogue, by estimating a difference regression and control for a set of time variant covariates

$$\Delta y_{ht} = \beta_{DD'} \Delta A_{ht} + \gamma \Delta X_{ht} + \delta_{rt} + \Delta \varepsilon_{ht} \qquad (3)$$

The treatment variable $A_{ht} = 1$ if household *h* enjoys Askeskin insurance coverage in year *t*, and $A_{ht} = 0$ otherwise. Time invariant factors such as the main selection criteria, latent health status, healthcare preferences, and static socioeconomic characteristics are eliminated in this setup. Difference regression (3) also includes control variables (X_{ht}) for changes in household size and composition, education of the head of households, participation in other insurance schemes, and housing conditions (house ownership, floor area, and access to piped water). We control for aggregate unobserved shocks, which we allow to vary by province (δ_{rt}), while idiosyncratic shocks are assumed to be randomly distributed.

Finally, we combine the nonparametric difference-in-difference approach with propensity score matching

$$\beta_{PSM} = E\left(y_{h,2006} - y_{h,2005} \mid A_h = 1, S_h = 1\right) - E\left(W_h\left(y_{h,2006} - y_{h,2005} \mid A_h = 0, S_h = 1\right)\right) \quad (4)$$

where $W_h = W(P(X_h))$ is a weight based on the estimated propensity score $P(X_h)$ and the matching method, and S reflects the range of common support. The advantage of propensity score matching over difference-in-difference is that we can control for observed characteristics that determine Askeskin enrollment, without imposing a functional form on y. In addition, the matching procedure restricts the analysis to the range of common support. The propensity score is predicted based on probit estimates of the probability that a household enjoys Askeskin coverage in 2006 as a function of the 2005 values of the control variables used in equation (3) and per capita quartile dummy variables. We then use two different matching estimators, by (i) matching treated households to the five nearest neighbors, and (ii) matching based on an Epanechnikov kernel with a 0.06 bandwidth.

All three approaches rest on the identifying assumption that unobserved shocks do not drive healthcare utilization nor do they affect targeting of Askeskin. There are, however, two potential confounding time variant unobservables that we need to consider. The first is an unobserved health shock. This would affect the demand for health services and the likelihood of receiving Askeskin coverage, as a rapid assessment by Bachtiar, Wibisana, and Pujiyanto (2006) suggests that Askeskin was sometimes allocated based on acute need. Ignoring changes in health status could therefore lead us to overestimate the impact of Askeskin. To control for health shocks, we include the disruptive illness variable in the difference regressions. In the propensity score function, this is the only variable for which we include both the 2005 and 2006 variables in order to capture the health shock. We acknowledge that such a subjective health measure is prone to reporting bias and unobserved heterogeneity in perceptions of health status. Nevertheless, including the self-reported illness variable should give us some indication of the extent of the bias due to unobserved health shocks. Moreover, in such a short time span, latent perceptions of health status are unlikely to change due to unobserved factors other than a health shock; therefore, household fixed effects should capture any effects from reporting bias.

Alternative targeted poverty programs are another form of shock that could lead to confounding effects of the different schemes, for example, if these schemes share local targeting mechanisms. In case of Askeskin, a potential confounding factor is the launch of a nationwide unconditional cash transfer program (BLT) in the second half of 2005, targeted specifically to the poor. If Askeskin is targeted to BLT recipients, then the impact estimates could be picking up the income effect from the BLT scheme. The Susenas survey collects information on BLT receipts by households, reporting 26.3% coverage among households. The correlation coefficient of Askeskin and BLT coverage (at household level and applying household sampling weights) is 0.344. Among households with at least one member participating in Askeskin, 67.9% received BLT as well, while 30.3% of BLT households benefited from Askeskin health insurance coverage. Hence, there is some nontrivial overlap between both programs. We investigate potential confounding BLT effects by looking at the sensitivity to including a BLT treatment dummy variable in the regressions.

Finally, there may be intrahousehold spillover effects, as providing one household member with Askeskin coverage will relax the budget constraint for the entire household; for example, when Askeskin coverage is assigned to the household member most prone to catastrophic health events or with a history of health problems. Therefore, we estimate the impact with the household as the unit of analysis by taking the average utilization by the household members as the outcome variable and a binary treatment variable indicating the presence of a household member with Askeskin coverage.

III. HEALTH INSURANCE AND HEALTHCARE UTILIZATION IN INDONESIA

3.1 Social Insurance in Indonesia

At the time Askeskin was to be introduced, around 10% of the Indonesian population was covered by social health insurance (ILO, 2008), through mandatory health insurance for civil servants (Askes), the police and military (Asabri) and the formal private sector (Jamsostek). For all the three schemes, the premiums for beneficiaries are related to earnings, but not to the benefits. The Askes and Asabri schemes are similar in design and benefit package, where the beneficiary contributions are matched by the government. Premiums for Jamsostek are paid by the employers, and enrollment is mandatory for firms in the formal private sector with at least ten workers or a payroll of at least Rp1 million per month. However, firms may opt out of Jamsostek in favor of private health insurance if this yields higher insurance benefits. Private health insurance and other schemes covered around 3% of the population and community-based insurance less than 1% (Rokx et al., 2009).

Formal insurance coverage remained limited as the informal sector, making up more than 60% of the labor force, was excluded from social health insurance. Instead, the poor could obtain user fee waivers for public healthcare through the Social Safety Net (JPS) health cards. Reimbursement for public healthcare providers was not tied to services delivered to health card holders, but based on the estimated number of eligible households in the catchment area. In 2005, the health card program discontinued, as the Askeskin insurance scheme was introduced.

3.2 Askeskin

The Askeskin health insurance program was introduced with the objective to expand social security to the informal sector, aiming at a target population of 60 million people. The insurance includes basic outpatient care, third class hospital care in grade A–D hospitals, an obstetric service package, mobile health services and special services for remote areas and islands, immunization programs, and medicines. Hospitals could submit claims for services delivered to Askeskin beneficiaries based on fee for service, while primary health centers were compensated on capitation basis. Although it was initially the intention to cover private health services as well, only a third of the private healthcare providers accept Askeskin insurance. Resources and risk were pooled at the *kabupaten* level, with monthly premiums of Rp5,000 per month fully subsidized by the government. The total annual budget for 2005 was set at Rp3.9 trillion (approximately US$400 million) initially financed through the energy subsidy reductions (Aran, 2007; ILO, 2008).

Targeting of Askeskin beneficiaries was based on a combination of geographic (*kabupaten*) targeting and selection of eligible individuals within the *kabupaten*. The *kabupaten* budgets quota for Askeskin participants were determined based on *kabupaten* poverty indicators provided by BPS. The *kabupaten* then identified eligible individuals, using census-based welfare and poverty indicators from BPS or the Family Planning Board (BKKBN). However, due to delays in rolling out Askeskin coverage in its first year, the JPS health cards and village poverty letters (SKTM) could also be used to claim Askeskin benefits (Arifianto et al., 2005; Ministry of Health, 2005).

Qualitative studies on the implementation of Askeskin highlighted a number of additional shortcomings in the first year. Arifianto et al. (2005) report that some individuals declined Askeskin insurance. Although the allocation of Askeskin was based on individual coverage, the targeting process identified eligible households where each individual household member is entitled to receive Askeskin coverage. In practice, however, accepting Askeskin involved indirect costs as recipients had to pay for their photographs that would appear on their Askeskin insurance cards. Some household therefore opted for partial coverage, with only some household members registering for Askeskin. They also find anecdotal evidence suggesting that Askeskin financed care is sometimes perceived as being of inferior quality to that received by self-paying patients, and that not all services in the Askeskin benefit package are actually delivered. Bachtiar, Wibisana, and Pujiyanto (2006) claim that explanation of procedures to beneficiaries, administrative procedures, and responsibilities for healthcare providers was lacking. They also found that indirect costs are not covered and that travel distance still remains a barrier, despite the programs support for mobile health services. This is a problem that was also observed hindering impact of the JPS health card (Pradhan, Saadah, and Sparrow, 2007; Sparrow, 2008).

3.3 Healthcare Utilization and OOP Health Payments in Indonesia: Is There a Scope for Public Intervention?

Utilization of outpatient healthcare in 2005 and 2006 is presented in Table 2. The table shows the number of outpatient visits in the last month at public and private healthcare providers, by per capita expenditure quartile and urban/rural location.

Table 2. Utilization of Outpatient Healthcare (Number of Visits in Last Month) at Public and Private Healthcare Providers, Susenas Household Panel 2005–2006

	All Providers		Public		Private	
Outpatient Care	2005	2006	2005	2006	2005	2006
Quartile 1 (poorest)	0.1655	0.1217	0.0787	0.0654	0.0746	0.0423
Quartile 2	0.1808	0.1587	0.0764	0.0758	0.0959	0.0657
Quartile 3	0.1980	0.1605	0.0820	0.0577	0.1043	0.0897
Quartile 4 (richest)	0.2089	0.1596	0.0671	0.0528	0.1302	0.0992
Urban	0.1861	0.1422	0.0717	0.0565	0.1022	0.0753
Rural	0.1861	0.1544	0.0803	0.0696	0.0957	0.0693
Total	0.1861	0.1486	0.0765	0.0634	0.0986	0.0721

Source: Authors' analysis based on Susenas 2005–2006 household panel.

The general pattern is that utilization of outpatient care increases with the level of welfare. About a third of the visits occur at public health centers. The pro-rich pattern is driven by differences in private care, which is traditionally highly skewed towards the nonpoor. Utilization of public care is more evenly distributed across the expenditure quartiles, decreasing slightly for higher levels of expenditures. Overall, we see a decline in outpatient care utilization, dropping from 0.19 visits per month in 2005 to 0.15 in 2006. This decline can be explained by the fuel subsidy decreases in March and October 2005 and is observed for all population groups.

Table 3 shows monthly per capita health spending as share of total per capita spending (panel A). Since consumption baskets of the poor typically have higher food shares, the relative burden of OOP payments on household budgets may be better reflected by the share of nonfood spending (e.g., Wagstaff and Van Doorslaer, 2003). This is reported in the last two

columns. The table shows expected patterns also observed in previous studies on Indonesia (Van Doorslaer et al., 2007). Indonesian households allocate on average about 2% of their monthly expenditures to healthcare, with OOP higher payments for the rich and in urban areas. In 2006 the share of OOP payments in total spending was 2.4% for the richest quartile and 1.4% for the poorest quartile, reflecting differences in affordability of care and the propensity to spend between poor and rich.

Table 3. Distribution of Actual and Predicted Out-Of-Pocket Health Expenditure Budget Shares (%)

	Share of Total Spending		Share of Nonfood Spending	
	2005	2006	2005	2006
A. Actual				
Quartile 1 (poorest)	1.74	1.42	5.17	4.43
Quartile 2	1.76	1.81	4.87	4.83
Quartile 3	2.17	1.93	5.18	4.51
Quartile 4 (richest)	2.67	2.36	5.04	4.26
Urban	2.13	1.99	4.62	4.19
Rural	2.03	1.78	5.41	4.78
Total	2.07	1.88	5.07	4.51
B. Predicted				
Quartile 1 (poorest)	11.07	10.97	37.51	38.72
Quartile 2	6.34	6.27	19.13	19.03
Quartile 3	4.23	4.11	11.45	10.72
Quartile 4 (richest)	2.14	2.10	4.82	4.60
Urban	4.51	4.36	11.66	11.24
Rural	7.27	7.15	24.07	24.27
Total	6.07	5.86	18.68	18.26

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: predicted out-of-pocket health expenditures are based on tobit estimates reported in Table A1 of the appendices. The tobit linear predictions are truncated at a lower bound of zero, with per capita expenditure fixed at the 90th percentile and location in Jakarta.

The predicted OOP payments in 2005 and 2006 to meet healthcare needs are given in panel B of Table 3. Unlike the distribution of actual OOP expenditures, the expected OOP requirements show a strong pro-poor distribution. In 2006, OOP spending for a household from the poorest quartile to obtain a required level of healthcare would constitute about 11.0% of the total household budget and 38.7% of the nonfood budget on average. For the richest quartile, this is 2.1% and 4.6% respectively. Expected required OOP spending relative to the total budget is about 50% higher for households in rural villages as compared to urban areas. Since the spending regression controls for urban-rural price differences, this difference is likely to be due to differences in household composition, with rural households having a demographic profile that induces relatively more healthcare needs.

While recognizing the shortcomings of the different measures that we apply here, the overall evidence is compelling. The pattern in OOP payments that we observe can be explained on the one hand by subsidized public healthcare resulting in relatively low OOP payments and catastrophic health spending events compared to other Asian countries, while on the other hand the poor are exposed to a higher burden of required healthcare spending relative to their budgets, leading to relative underutilization of healthcare, a lower propensity to spend, and a higher probability to forgo needed healthcare.

IV. RESULTS

4.1 Targeting

Table 4 presents targeting performance of Askeskin, which shows a pro-poor pattern (following the 2005 quartile definition). Among the poorest quartile, 21.6% of people enjoy Askeskin coverage, which accounts for 51.8% of all Askeskin participants. About 80% of the people covered by Askeskin are with the poorest 50% of the population. Nevertheless, this also implies some nontrivial leakage to the nonpoor. Askeskin coverage is higher in rural areas (14.6%) than in urban areas (8.6%), which translates to a 65.3% rural share in overall Askeskin coverage.

Table 4. Targeting of Askeskin Coverage in 2006 (%)

	Coverage	Share
Quartile 1 (poorest)	21.55	51.79
Quartile 2	12.69	27.46
Quartile 3	7.86	16.11
Quartile 4 (richest)	2.46	4.63
Urban	8.64	34.71
Rural	14.55	65.29
Male	11.79	50.21
Female	11.74	49.79
Total	11.76	100.00

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: Quartiles are based on 2005 per capita expenditure.

Askeskin is reasonably successful in targeting individuals that would need relatively high OOP health spending as share of the overall household budget to obtain the expected required healthcare. Table 5 shows the coverage of Askeskin for different levels of actual OOP budget shares and the required equivalent for expected healthcare needs. Askeskin is relatively evenly distributed with regard to the actual OOP budget shares, with the highest coverage for the fourth OOP quartile (i.e., households with the highest OOP health budget share). Differences are more pronounced for health spending as share of nonfood budget. Among the 25% of the population faced with the lowest OOP/nonfood budget share, 9.7% has Askeskin coverage, while this increases to 14.4% for the 25% of the population faced with the highest shares. The gradient becomes even steeper when we compare Askeskin coverage to the distribution of OOP budget shares required to obtain expected healthcare needs. Coverage increases from 5.0% for the least needy to 19.6% for the most needy.

Table 5. Targeting of Askeskin with respect to Distribution of Actual and Predicted Out-Of-Pocket Health Expenditures (%)

	OOP [a]		Predicted OOP [b]	
	Share of Total Spending	Share of Nonfood Spending	Share of Total Spending	Share of Nonfood Spending
Quartile 1 (low OOP share)	11.90	9.71	5.02	4.24
Quartile 2	10.38	10.71	8.05	8.12
Quartile 3	11.34	12.39	12.43	11.89
Quartile 4 (high OOP share)	13.53	14.36	19.60	20.79

Source: Authors' analysis based on Susenas 2005–2006 household panel.
[a]Quartiles reflect the distribution of actual out-of-pocket health expenditure budget shares in 2005.
[b]Quartiles reflect the distribution of predicted out-of-pocket health expenditure budget shares for 2006, based on estimates reported in Table A1 of the appendices, with per capita expenditure fixed at the 90th percentile and location in Jakarta.

4.2 Impact of Askeskin

The estimated treatment effects are presented in Table 6, with the results of the difference regressions in panel A and the propensity score matching results in panel B. The table reports the results for overall utilization, utilization of public and private care separately, and by main public healthcare providers (public health centers and hospitals). The tables also show the differential impacts by per capita expenditure quartile and urban/rural. The quartiles are based on household expenditure in 2005, to ensure that the observed impact heterogeneity is not confounded by the impact of Askeskin on household spending.[1]

The impact variable is having Askeskin coverage in 2006. Due to initial problems with disbursing Askeskin insurance cards in the first year of the program, targeted households could also claim insurance benefits using a poverty letter issued by their village officials or outdated 2005 health cards. Although the potential healthcare benefits provided under these schemes in 2005 differ from Askeskin, we do need to control for initial coverage. Failing to do so would result in underestimation of the true impact of Askeskin. Note that health card coverage in 2005 did not imply automatic Askeskin coverage in 2006, as there is considerable variation in participation in both schemes. About half of the households in our balanced panel with a health card in 2005 were also participating in Askeskin in 2006 and this group constitutes 38% of all Askeskin households.

The difference-in-difference and the matching estimates show similar results, although the latter give slightly larger effects. The difference results suggest that Askeskin increased outpatient care utilization by 0.048 visits per person per month (vppm), while kernel matching yields an impact of 0.059 vppm. The patterns are very similar across methods, with the bulk of the impact occurring at rural public health centers and urban public hospitals. The effect for rural areas can simply be explained by the fact that public health centers are the dominant public healthcare providers available. In urban areas the availability of providers is more varied and Askeskin services seem to have been mainly used for relatively expensive healthcare services at public hospitals. The increase in OOP payments in urban areas suggests that the Askeskin insured had to bear part of the costs of these extra public services. Wagstaf and Lindelow (2008) find a similar effect in China and argue that this is due to an increase in more high-tech and expensive care, which is typically bulky and indivisible.

Between population groups, the treatment effects vary greatly, as the distribution of impact is skewed towards the poor. Askeskin coverage increases utilization of public care for the poorest quartile by 0.043 and 0.050 visits, depending on the choice of method, while for the richest, there seems to be no impact. We also find no evidence of substitution from private to public care.

The results of the sensitivity analysis are summarized in Table 7, showing single difference estimates, various difference-in-difference specifications, and alternative propensity score matching estimators. Columns (4) and (6) report the estimates for the specification used in Table 6. The single difference estimates are twice as large as double difference estimates, suggesting that initial selection was partly based on acute need. Once we control for self-reported illness, the treatment effects for outpatient care reduce further.

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[1]The probit estimates of the propensity score function and the balancing test are not presented here, but are reported in Table A3 and Table A4 of the appendices. While the unmatched treated and nontreated samples differ strongly, the matched samples are balanced in all the variables included in the propensity score function.

Table 6. Impact of Askeskin on Healthcare Utilization and OOP Health Payments, by Population Group

	Outpatient Healthcare Utilization					OOP Health Payments Share
	All	**Public**	**Private**	**Public Health Center**	**Public Hospital**	
A. Difference-in-Difference						
Quartile 1 (poorest)	0.0534*	0.0426**	-0.0009	0.0335**	0.0090	0.0027
Quartile 2	0.0295	0.0544***	0.0007	0.0479***	0.0065	0.0024
Quartile 3	0.0344	0.0260	0.0251	0.0035	0.0225	-0.0008
Quartile 4 (richest)	-0.0065	0.0647	-0.0625	0.0429	0.0218	0.0029
Rural	0.0482**	0.0599***	-0.0043	0.0498***	0.0102	0.0008
Urban	0.0538	0.0254	0.0199	0.0025	0.0230**	0.0086***
Total	0.0484***	0.0478***	0.0028	0.0328***	0.0150**	0.0030*
B. Propensity score matching						
Quartile 1 (poorest)	0.0751*	0.0503**	0.0096	0.0450***	0.0053	0.0020
Quartile 2	0.0228	0.0454**	0.0027	0.0399*	0.0055	0.0039
Quartile 3	0.0435	0.0263	0.0255	-0.0067	0.0330***	-0.0006
Quartile 4 (richest)	-0.0230	0.0465	-0.0745	0.0409	0.0056	-0.0004
Rural	0.0524**	0.0627***	-0.0057	0.0526***	0.0101	-0.0001
Urban	0.1040**	0.0552**	0.0271	0.0137	0.0416***	0.0091**
Total	0.0672***	0.0594***	0.0054	0.0412***	0.0183***	0.0026

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: Outcome variables are the average number of outpatient visits per household member in last month, and OOP health payment share of household spending in last month. Other covariates in difference equation have been omitted for convenience. Propensity score matching is based on the Epanechnikov kernel with a 0.06 bandwidth. Quartiles are based on 2005 per capita expenditure. The number of observations is 17,164 households; with a balanced panel of 8,582 households for 2 years.
*10% Significance.
**5% Significance.
***1% Significance.

Table 7. Sensitivity Analysis of Askeskin Impact, Household Fixed Effects

	Single Difference	Difference-in-Difference				Propensity Score Matching	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Outpatient care	0.0802***	0.0422**	0.0298*	0.0484***	0.0371*	0.0672***	0.0530***
	[0.0138]	[0.0182]	[0.0171]	[0.0185]	[0.0196]	[0.0236]	[0.0260]
Public	0.0714***	0.0352***	0.0302***	0.0478***	0.0435***	0.0594***	0.0573***
	[0.0081]	[0.0108]	[0.0105]	[0.0114]	[0.0121]	[0.0136]	[0.0148]
Private	-0.0030	0.0105	0.0039	0.0028	0.0011	0.0054	-0.0027
	[0.0082]	[0.0112]	[0.0106]	[0.0115]	[0.0121]	[0.0130]	[0.0141]
Public health center	0.0704***	0.0293***	0.0248***	0.0328***	0.0296***	0.0412***	0.0415***
	[0.0066]	[0.0089]	[0.0086]	[0.0092]	[0.0098]	[0.0120]	[0.0128]
Public hospital	0.0011	0.0059	0.0055	0.0150**	0.0139*	0.0183***	0.0157***
	[0.0047]	[0.0061]	[0.0061]	[0.0066]	[0.0071]	[0.0063]	[0.0073]
OOP	0.0019	0.0013	0.0011	0.0030*	0.0034*	0.0026	0.0017
	[0.0012]	[0.0015]	[0.0015]	[0.0017]	[0.0018]	[0.0019]	[0.0020]
Specification							
Ill last month	*No*	*No*	*Yes*	*Yes*	*Yes*	*No*	*No*
Other controls [a]	*No*	*No*	*No*	*Yes*	*Yes*	*No*	*No*
BLT	*No*	*No*	*No*	*No*	*Yes*	*No*	*No*
Matching [b]	*No*	*No*	*No*	*No*	*No*	*Epanechnikov kernel*	*5 nearest neighbors*

Source: Authors' analysis based on Susenas 2005–2006 household panel.
[a]Full set of control variables include formal social health insurance coverage (Askes, Jamsostek), 2005 health card, household characteristics (size, composition, gender and education of household head, housing characteristics, and water access), and province dummy variables. Detailed specifications for columns (1) to (5) are reported in Table A5 to Table A10 of the appendices.
[b]Estimates of the propensity score function are reported in Table A2 of the appendices.
*10% Significance.
**5% Significance.
***1% Significance.

Nevertheless, the difference-in-difference estimates remain sizeable and precise, while the results for the full specification and the propensity score estimates are fairly robust. The estimated treatment effects also do not seem to be confounded by income effects from BLT.[2]

V. CONCLUSION

This paper explores the impact of the Indonesian Askeskin program, introduced in 2005 to provide public health insurance for the poor. We first observed that there is indeed scope for public intervention regarding health insurance, as the Indonesian poor tend to underutilize healthcare services and have a lower propensity to spend relative to their needs.

Askeskin has been successful in targeting the poor, despite some nontrivial leakage to the nonpoor. In addition, Askeskin seems to have been allocated proportionally more to individuals that live in households that are expected to require a relatively high OOP healthcare budget share in order to meet healthcare needs.

There appears to be a strong impact of Askeskin on the poor, as coverage increases utilization of public outpatient care. However, OOP health payments have increased slightly in urban areas, which is most likely due to an increase of relatively more expensive hospital care for which the costs have not been fully covered by the Askeskin insurance. The results are robust to choice of method.

However, as lessons learned for achieving the objective of universal coverage, these results need to be treated cautiously as there are some qualifications of this study that need to be taken into consideration. First, this analysis presents short-term impact only. In 2006 the targeting of Askeskin was still expanding. Initial implementation experienced various problems as well as confusion on the rights and obligation of patients and providers. Second, the sustainability of this program is still in question. For universal coverage, it is critical to set the right balance between insurance premiums and government subsidy. Third, this study does not look into the supply and quality of public healthcare. The issues of inferior quality and discrimination of services for Askeskin recipients were often raised as reasons for declining Askeskin. Finally, scaling up social health insurance needs to take into account possible behavioural responses by providers and adequate provider payment systems so as to avoid a backlash in the provision of public healthcare.

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[2]Note that we drop the BLT variable from the final specification as it includes some missing observations, reducing the sample size from 8,582 to 8,448 households in the balanced panel.

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APPENDICES

Table A1. Health Expenditure Regression, 2005, Tobit Estimates

	Coefficient	Standard Error
Per capita expenditure	0.0118***	[0.0022]
Household size	2,305.6282***	[611.9923]
Household size squared	-166.8175***	[58.3574]
Illness in last month	9,273.7272***	[947.8131]
Household composition (ref: share of males aged 18–60)		
Share of females aged <6	-4,377.1664	[4,441.6067]
Share of males aged <6	-20,062.8959***	[4,116.5269]
Share of females aged 6–17	-26,741.9618***	[3,135.0346]
Share of males aged 6–17	-3,859.8069	[3,039.8095]
Share of females aged 18–60	-5,473.1586**	[2,581.8703]
Share of females aged >60	-821.2848	[2,587.3383]
Share of males aged >60	7,481.7587***	[2,693.2960]
Household composition × per capita expenditure interaction effects		
i: Share of females aged <6	0.0256*	[0.0135]
i: Share of males aged <6	0.0963***	[0.0125]
i: Share of females aged 6–17	0.0932***	[0.0085]
i: Share of males aged 6–17	0.0000	[0.0085]
i: Share of females aged 18–60	0.0170***	[0.0041]
i: Share of females aged >60	0.0207***	[0.0052]
i: Share of males aged >60	-0.0003	[0.0051]
Rural area	-2,800.8151	[6,889.1939]
Constant	-8,280.1539	[6,351.5917]
Pseudo R-squared	0.0061	
Observations	8,582	
Health expenditure >0	8,001	
Health expenditure =0	581	

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: including rural × province interaction terms.
*10% Significance.
**5% Significance.
***1% Significance.

Table A2. Propensity Score Function, Probability of Askeskin Coverage (Probit)

	Coefficient	Standard Error
Illness in last month (2005)	0.0237	[0.0689]
Illness in last month (2006)	0.4700***	[0.0715]
Health card	1.0457***	[0.0467]
Askes	-0.5433***	[0.1218]
Jamsostek	-0.0668	[0.1104]
Household size	0.0070	[0.0141]
Household composition (ref: share of males aged 18-60)		
Share of females aged <6	-0.3127	[0.2161]
Share of males aged <6	0.3954**	[0.2000]
Share of females aged 6–17	0.0444	[0.1646]
Share of males aged 6–17	0.2965*	[0.1575]
Share of females aged 18–60	0.0055	[0.1633]
Share of males aged >60	0.2160	[0.1551]
Share of females aged >60	0.2191	[0.1625]
Female head of household	0.0033	[0.0732]
Education head of household (ref: no education)		
Primary school	-0.1118**	[0.0452]
Junior high school	-0.0696	[0.0629]
Senior high school	-0.1203*	[0.0685]
Higher education	-0.7448***	[0.2111]
Per capita consumption quartile (ref: quartile 1)		
Quartile 2	-0.2341***	[0.0471]
Quartile 3	-0.3685***	[0.0538]
Quartile 4	-0.6715***	[0.0740]
Owns house	0.0817	[0.0591]
Floor area (m^2)	-0.0015***	[0.0004]
Piped water access	0.1217**	[0.0547]
Own water access	-0.1649***	[0.0390]
Constant	-0.8656***	[0.1566]
Pseudo R-squared	0.1954	
Observations	8,582	

Source: Authors' analysis based on *Susenas* 2005–2006 household panel.
Note: All control variables refer to 2005, except for self-reported illnesses in 2006. Province dummy variables are also included.
*10% Significance.
**5% Significance.
***1% Significance.

Table A3. Balancing Properties of the Matched Samples

	Unmatched		Matched			
	T	C	T	C	Diff.	t-stat
Illness in last month (2005)	0.2343	0.1806	0.2343	0.2338	0.0005	0.04
Illness in last month (2006)	0.2169	0.1454	0.2169	0.2083	0.0086	0.79
Health card	0.3809	0.0709	0.3809	0.3750	0.0059	0.32
Askes	0.0115	0.1007	0.0115	0.0154	-0.0039	-0.89
Jamsostek	0.0180	0.0612	0.0180	0.0193	-0.0013	-0.25
Household size	4.1210	4.0457	4.1210	4.0963	0.0247	0.35
Household composition						
Share of females age <6	0.0418	0.0492	0.0418	0.0421	-0.0003	-0.09
Share of males age <6	0.0593	0.0513	0.0593	0.0587	0.0006	0.15
Share of females age 6–17	0.1032	0.1050	0.1032	0.1011	0.0022	0.39
Share of males age 6–17	0.1218	0.1067	0.1218	0.1199	0.0019	0.32
Share of females age 18–60	0.2774	0.3053	0.2774	0.2764	0.0010	0.15
Share of males age >60	0.0586	0.0409	0.0586	0.0597	-0.0011	-0.20
Share of females age >60	0.0891	0.0535	0.0891	0.0919	-0.0028	-0.34
Female head of household	0.1433	0.1155	0.1433	0.1469	-0.0036	-0.27
Education of head of household						
Primary school	0.3348	0.3246	0.3348	0.3308	0.0040	0.22
Junior high school	0.1145	0.1340	0.1145	0.1177	-0.0032	-0.26
Senior high school	0.0929	0.1905	0.0929	0.0897	0.0032	0.30
Higher education	0.0029	0.0605	0.0029	0.0063	-0.0035	-1.34
Per capita consumption quartile						
Quartile 2	0.2786	0.2430	0.2786	0.2781	0.0005	0.03
Quartile 3	0.1865	0.2616	0.1865	0.1887	-0.0023	-0.15
Quartile 4	0.0655	0.2673	0.0655	0.0720	-0.0065	-0.68
Owns house	0.8927	0.8421	0.8927	0.8934	-0.0007	-0.06
Floor area (m^2)	59.34	70.64	59.34	61.39	-2.05	-1.24
Piped water access	0.1433	0.2106	0.1433	0.1389	0.0044	0.33
Own water access	0.4032	0.5578	0.4032	0.4010	0.0021	0.11

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: All province dummy variables are also balanced after matching. The matched samples are based on the Epanechnikov kernel with a 0.06 bandwidth.

Table A4. Propensity-Score-Based Impact Estimates of Askeskin on Health Care Utilization and OOP Health Payments, by Population Group

	Outpatient Healthcare Utilization					OOP Health Payments Share
	All	**Public**	**Private**	**Public Health Center**	**Public Hospital**	
A. Epanechnikov kernel						
Quartile 1 (poorest)	0.0751*	0.0503**	0.0096	0.0450***	0.0053	0.0020
Quartile 2	0.0228	0.0454**	0.0027	0.0399*	0.0055	0.0039
Quartile 3	0.0435	0.0263	0.0255	-0.0067	0.0330***	-0.0006
Quartile 4 (richest)	-0.0230	0.0465	-0.0745	0.0409	0.0056	-0.0004
Rural	0.0524**	0.0627***	-0.0057	0.0526***	0.0101	-0.0001
Urban	0.1040**	0.0552**	0.0271	0.0137	0.0416***	0.0091**
Total	0.0672***	0.0594***	0.0054	0.0412***	0.0183***	0.0026
B. 5 nearest neighbors						
Quartile 1 (poorest)	0.0679*	0.0481**	0.0054	0.0456**	0.0024	0.0009
Quartile 2	0.0368	0.0412*	0.0185	0.0408*	0.0004	0.0057*
Quartile 3	0.0361	0.0503	-0.0026	-0.0150	0.0652***	-0.0007
Quartile 4 (richest)	-0.0628	0.0663	-0.0924	0.0649	0.0014	-0.0030
Rural	0.0330	0.0593***	-0.0195	0.0487***	0.0105	-0.0011
Urban	0.0907	0.0469*	0.0358	0.0153	0.0316**	0.0072*
Total	0.0530**	0.0573***	-0.0027	0.0415***	0.0157**	0.0017

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: Outcome variables are the average number of outpatient visits per household member in last month and OOP expenditure share of household spending in last month. Other covariates in difference equation have been omitted for convenience. Quartiles are based on 2005 per capita expenditure. The number of observations is 17,164 households; with a balanced panel of 8,582 households for 2 years.
*10% Significance.
**5% Significance.
***1% Significance.

Table A5. Impact of Askeskin Coverage on Average Outpatient Healthcare Utilization per Household Member

	Difference 2006	Difference-in-Difference 2005–2006			
	(1)	(2)	(3)	(4)	(5)
Askeskin	0.0802***	0.0422**	0.0298*	0.0484***	0.0371*
	[0.0138]	[0.0182]	[0.0171]	[0.0185]	[0.0196]
Health card				0.0664***	0.0721***
				[0.0210]	[0.0213]
Askes				0.0437	0.0381
				[0.0312]	[0.0316]
Jamsostek				-0.0011	-0.0025
				[0.0294]	[0.0298]
BLT recipient household					0.0383**
					[0.0157]
Illness in last month			0.6972***	0.6943***	0.6918***
			[0.0203]	[0.0204]	[0.0205]
Household size				-0.0019	-0.0019
				[0.0065]	[0.0066]
Household composition (ref: share of males aged 18–60)					
Share of females aged <6				0.0221	0.0241
				[0.0969]	[0.0981]
Share of males aged <6				-0.1167	-0.1226
				[0.0912]	[0.0922]
Share of females aged 6–17				-0.0700	-0.0752
				[0.0778]	[0.0786]
Share of males aged 6–17				0.0307	0.0263
				[0.0725]	[0.0736]
Share of females aged 18–60				0.0043	-0.0029
				[0.0677]	[0.0686]
Share of males aged >60				-0.0081	-0.0259
				[0.0736]	[0.0745]
Share of females aged >60				0.0853	0.0799
				[0.0815]	[0.0822]
Female head of household				0.0191	0.0091
				[0.0537]	[0.0544]
Education of head of household (ref: Higher education)					
No education				-0.0116	-0.0240
				[0.0589]	[0.0600]
Primary school				-0.0150	-0.0273
				[0.0575]	[0.0586]
Junior high school				-0.0581	-0.0704
				[0.0566]	[0.0578]
Senior high school				-0.0181	-0.0329
				[0.0520]	[0.0531]
Owns house				-0.0475**	-0.0466**
				[0.0230]	[0.0233]
Floor area (m^2)				-0.0000	-0.0000
				[0.0001]	[0.0001]
Piped water access				0.0178	0.0205
				[0.0217]	[0.0219]
Own water access				-0.0124	-0.0124
				[0.0116]	[0.0117]
Constant				0.0043	-0.0062
				[0.0305]	[0.0313]
R-squared (within)	0.0008	0.0006	0.12	0.13	0.13
Observations	8,582	8,582	8,582	8,582	8,448

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: Standard errors in brackets. Outcome variable is the number of outpatient visits in last month. All specifications include province dummies. Balanced household panel.
*10% Significance.
**5% Significance.
***1% Significance.

Table A6. Impact of Askeskin Insurance Coverage on Average Utilization of Public Outpatient Healthcare per Household Member

	Difference 2006	Difference-in-Difference 2005–2006			
	(1)	(2)	(3)	(4)	(5)
Askeskin	0.0714***	0.0352***	0.0302***	0.0478***	0.0435***
	[0.0081]	[0.0108]	[0.0105]	[0.0114]	[0.0121]
Health card				0.0586***	0.0599***
				[0.0129]	[0.0131]
Askes				0.0044	0.0018
				[0.0192]	[0.0195]
Jamsostek				-0.0098	-0.0109
				[0.0181]	[0.0184]
BLT recipient household					0.0145
					[0.0097]
Illness in last month			0.2799***	0.2772***	0.2770***
			[0.0125]	[0.0126]	[0.0127]
Household size				-0.0024	-0.0024
				[0.0040]	[0.0041]
Household composition (ref: share of males aged 18–60)					
Share of females aged <6				0.0015	-0.0012
				[0.0596]	[0.0606]
Share of males aged <6				-0.0636	-0.0660
				[0.0561]	[0.0570]
Share of females aged 6–17				-0.0867*	-0.0885*
				[0.0479]	[0.0486]
Share of males aged 6–17				-0.0328	-0.0330
				[0.0446]	[0.0455]
Share of females aged 18–60				-0.0878**	-0.0861**
				[0.0416]	[0.0424]
Share of males aged >60				0.0744*	0.0707
				[0.0453]	[0.0461]
Share of females aged >60				-0.1097**	-0.1106**
				[0.0501]	[0.0508]
Female head of household				0.0244	0.0238
				[0.0330]	[0.0336]
Education of head of household (ref: Higher education)					
No education				-0.0110	-0.0174
				[0.0362]	[0.0371]
Primary school				-0.0065	-0.0142
				[0.0353]	[0.0362]
Junior high school				-0.0205	-0.0277
				[0.0348]	[0.0357]
Senior high school				0.0135	0.0059
				[0.0320]	[0.0328]
Owns house				0.0042	0.0044
				[0.0142]	[0.0144]
Floor area (m^2)				-0.0000	-0.0000
				[0.0001]	[0.0001]
Piped water access				0.0016	0.0026
				[0.0133]	[0.0135]
Own water access				-0.0079	-0.0072
				[0.0071]	[0.0073]
Constant				0.0091	0.0066
				[0.0187]	[0.0193]
R-squared (within)	0.01	0.001	0.06	0.07	0.07
Observations	8,582	8,582	8,582	8,582	8,448

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: Standard errors in brackets. Outcome variable is the number of outpatient visits at a public provider in last month. All specifications include province dummies. Balanced household panel.
*10% Significance.
**5% Significance.
***1% Significance.

Table A7. Impact of Askeskin Insurance Coverage on Average Utilization of Private Outpatient Healthcare per Household Member

	Difference 2006	Difference-in-Difference 2005–2006			
	(1)	(2)	(3)	(4)	(5)
Askeskin	-0.0030	0.0105	0.0039	0.0028	0.0011
	[0.0082]	[0.0112]	[0.0106]	[0.0115]	[0.0121]
Health card				-0.0058	-0.0038
				[0.0131]	[0.0131]
Askes				0.0207	0.0179
				[0.0194]	[0.0195]
Jamsostek				0.0103	0.0104
				[0.0183]	[0.0184]
BLT recipient household					0.0095
					[0.0097]
Illness in last month			0.3710***	0.3715***	0.3685***
			[0.0126]	[0.0127]	[0.0127]
Household size				0.0007	0.0006
				[0.0041]	[0.0041]
Household composition (ref: share of males aged 18–60)					
Share of females aged <6				0.0357	0.0384
				[0.0604]	[0.0605]
Share of males aged <6				-0.0551	-0.0582
				[0.0568]	[0.0568]
Share of females aged 6–17				0.0043	0.0012
				[0.0485]	[0.0484]
Share of males aged 6–17				0.0289	0.0241
				[0.0452]	[0.0454]
Share of females aged 18–60				0.0981**	0.0895**
				[0.0422]	[0.0423]
Share of males aged >60				-0.0506	-0.0644
				[0.0458]	[0.0459]
Share of females aged >60				0.1314***	0.1296**
				[0.0507]	[0.0507]
Female head of household				-0.0083	-0.0146
				[0.0334]	[0.0335]
Education of head of household (ref: Higher education)					
No education				-0.0079	-0.0126
				[0.0367]	[0.0370]
Primary school				-0.0193	-0.0223
				[0.0358]	[0.0361]
Junior high school				-0.0309	-0.0342
				[0.0353]	[0.0356]
Senior high school				-0.0249	-0.0308
				[0.0324]	[0.0328]
Owns house				-0.0272*	-0.0260*
				[0.0144]	[0.0144]
Floor area (m^2)				0.0000	0.0000
				[0.0001]	[0.0001]
Piped water access				0.0128	0.0150
				[0.0135]	[0.0135]
Own water access				-0.0080	-0.0097
				[0.0072]	[0.0072]
Constant				-0.0063	-0.0116
				[0.0190]	[0.0193]
R-squared (within)	0.0003	0.0001	0.09	0.10	0.10
Observations	8,582	8,582	8,582	8,582	8,448

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: Standard errors in brackets. Outcome variable is the number of outpatient visits at a private provider in last month. All specifications include province dummies. Balanced household panel.
*10% Significance.
**5% Significance.
***1% Significance.

Table A8. Impact of Askeskin Insurance Coverage on Average Utilization of Outpatient Healthcare at a Public Health Center per Household Member

	Difference 2006	Difference-in-Difference 2005–2006			
	(1)	(2)	(3)	(4)	(5)
Askeskin	0.0704***	0.0293***	0.0248***	0.0328***	0.0296***
	[0.0066]	[0.0089]	[0.0086]	[0.0092]	[0.0098]
Health card				0.0297***	0.0303***
				[0.0105]	[0.0107]
Askes				0.0161	0.0142
				[0.0156]	[0.0159]
Jamsostek				-0.0066	-0.0064
				[0.0147]	[0.0150]
BLT recipient household					0.0108
					[0.0079]
Illness in last month			0.2526***	0.2516***	0.2513***
			[0.0101]	[0.0102]	[0.0103]
Household size				0.0023	0.0022
				[0.0033]	[0.0033]
Household composition (ref: share of males aged 18–60)					
Share of females aged <6				0.0275	0.0256
				[0.0485]	[0.0493]
Share of males aged <6				-0.0243	-0.0262
				[0.0456]	[0.0463]
Share of females aged 6–17				-0.0453	-0.0457
				[0.0389]	[0.0395]
Share of males aged 6–17				-0.0187	-0.0179
				[0.0362]	[0.0370]
Share of females aged 18–60				-0.0709**	-0.0695**
				[0.0338]	[0.0345]
Share of males aged >60				0.0678*	0.0668*
				[0.0368]	[0.0374]
Share of females aged >60				-0.0965**	-0.0970**
				[0.0407]	[0.0413]
Female head of household				0.0119	0.0114
				[0.0268]	[0.0273]
Education of head of household (ref: Higher education)					
No education				-0.0149	-0.0209
				[0.0294]	[0.0301]
Primary school				-0.0114	-0.0185
				[0.0287]	[0.0294]
Junior high school				-0.0099	-0.0165
				[0.0283]	[0.0290]
Senior high school				0.0113	0.0064
				[0.0260]	[0.0267]
Owns house				0.0199*	0.0196*
				[0.0115]	[0.0117]
Floor area (m^2)				-0.0001	-0.0001
				[0.0000]	[0.0001]
Piped water access				0.0036	0.0039
				[0.0108]	[0.0110]
Own water access				-0.0062	-0.0057
				[0.0058]	[0.0059]
Constant				-0.0174	-0.0203
				[0.0152]	[0.0157]
R-squared (within)	0.01	0.001	0.07	0.08	0.08
Observations	8,582	8,582	8,582	8,582	8,448

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: Standard errors in brackets. Outcome variable is the number of outpatient visits at a public health center in last month. All specifications include province dummies. Balanced household panel.
*10% Significance.
**5% Significance.
***1% Significance.

Table A9. Impact of Askeskin Insurance Coverage on Average Utilization of Outpatient Care at a Public Hospital per Household Member

	Difference 2006	Difference-in-Difference 2005–2006			
	(1)	(2)	(3)	(4)	(5)
Askeskin	0.0011	0.0059	0.0055	0.0150**	0.0139*
	[0.0047]	[0.0061]	[0.0061]	[0.0066]	[0.0071]
Health card				0.0290***	0.0297***
				[0.0076]	[0.0077]
Askes				-0.0116	-0.0124
				[0.0112]	[0.0114]
Jamsostek				-0.0032	-0.0046
				[0.0106]	[0.0108]
BLT recipient household					0.0036
					[0.0057]
Illness in last month			0.0273***	0.0256***	0.0257***
			[0.0073]	[0.0073]	[0.0074]
Household size				-0.0047**	-0.0046*
				[0.0023]	[0.0024]
Household composition (ref: share of males aged 18–60)					
Share of females aged <6				-0.0260	-0.0268
				[0.0348]	[0.0355]
Share of males aged <6				-0.0393	-0.0398
				[0.0328]	[0.0333]
Share of females aged 6–17				-0.0414	-0.0428
				[0.0280]	[0.0284]
Share of males aged 6–17				-0.0141	-0.0151
				[0.0261]	[0.0266]
Share of females aged 18–60				-0.0169	-0.0167
				[0.0243]	[0.0248]
Share of males aged >60				0.0066	0.0039
				[0.0264]	[0.0269]
Share of females aged >60				-0.0132	-0.0135
				[0.0293]	[0.0297]
Female head of household				0.0125	0.0124
				[0.0193]	[0.0197]
Education of head of household (ref: Higher education)					
No education				0.0039	0.0035
				[0.0212]	[0.0217]
Primary school				0.0049	0.0043
				[0.0206]	[0.0212]
Junior high school				-0.0106	-0.0113
				[0.0203]	[0.0209]
Senior high school				0.0021	-0.0006
				[0.0187]	[0.0192]
Owns house				-0.0157*	-0.0152*
				[0.0083]	[0.0084]
Floor area (m^2)				0.0000	0.0000
				[0.0000]	[0.0000]
Piped water access				-0.0020	-0.0013
				[0.0078]	[0.0079]
Own water access				-0.0017	-0.0015
				[0.0042]	[0.0042]
Constant				0.0265**	0.0269**
				[0.0109]	[0.0113]
R-squared (within)	0.00001	0.0001	0.002	0.01	0.01
Observations	8,582	8,582	8,582	8,582	8,448

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: Standard errors in brackets. Outcome variable is the number of outpatient visits at a public hospital in last month. All specifications include province dummies. Balanced household panel.
*10% Significance.
**5% Significance.
***1% Significance.

Table A10. Impact of Askeskin Insurance Coverage on Households' Out-Of-Pocket Health Spending Shares

	Difference 2006	Difference-in-Difference 2005–2006			
	(1)	(2)	(3)	(4)	(5)
Askeskin	0.0019	0.0013	0.0011	0.0030*	0.0034*
	[0.0012]	[0.0015]	[0.0015]	[0.0017]	[0.0018]
Health card				0.0048**	0.0046**
				[0.0019]	[0.0019]
Askes				0.0029	0.0030
				[0.0028]	[0.0028]
Jamsostek				-0.0015	-0.0017
				[0.0026]	[0.0027]
BLT recipient household					-0.0013
					[0.0014]
Illness in last month			0.0159***	0.0153***	0.0153***
			[0.0018]	[0.0018]	[0.0018]
Household size				0.0015**	0.0015**
				[0.0006]	[0.0006]
Household composition (ref: share of males aged 18–60)					
Share of females aged <6				0.0317***	0.0320***
				[0.0087]	[0.0088]
Share of males aged <6				0.0384***	0.0392***
				[0.0082]	[0.0083]
Share of females aged 6–17				0.0098	0.0100
				[0.0070]	[0.0071]
Share of males aged 6–17				0.0085	0.0093
				[0.0065]	[0.0066]
Share of females aged 18–60				0.0039	0.0044
				[0.0061]	[0.0062]
Share of males aged >60				0.0148**	0.0149**
				[0.0066]	[0.0067]
Share of females aged >60				0.0114	0.0118
				[0.0073]	[0.0074]
Female head of household				0.0113**	0.0110**
				[0.0048]	[0.0049]
Education of head of household (ref: Higher education)					
No education				-0.0047	-0.0048
				[0.0053]	[0.0054]
Primary school				-0.0074	-0.0074
				[0.0051]	[0.0053]
Junior high school				-0.0060	-0.0061
				[0.0051]	[0.0052]
Senior high school				-0.0037	-0.0041
				[0.0047]	[0.0048]
Owns house				-0.0021	-0.0022
				[0.0021]	[0.0021]
Floor area (m^2)				0.0000	0.0000
				[0.0000]	[0.0000]
Piped water access				0.0033*	0.0032
				[0.0019]	[0.0020]
Own water access				-0.0000	-0.0000
				[0.0010]	[0.0011]
Constant				0.0020	0.0023
				[0.0027]	[0.0028]
R-squared (within)	0.0003	0.0001	0.01	0.02	0.02
Observations	8,581	8,581	8,581	8,581	8,447

Source: Authors' analysis based on Susenas 2005–2006 household panel.
Note: Standard errors in brackets. Outcome variable is the share of out-of-pocket health spending in monthly household expenditure. All specifications include province dummies. Balanced household panel.
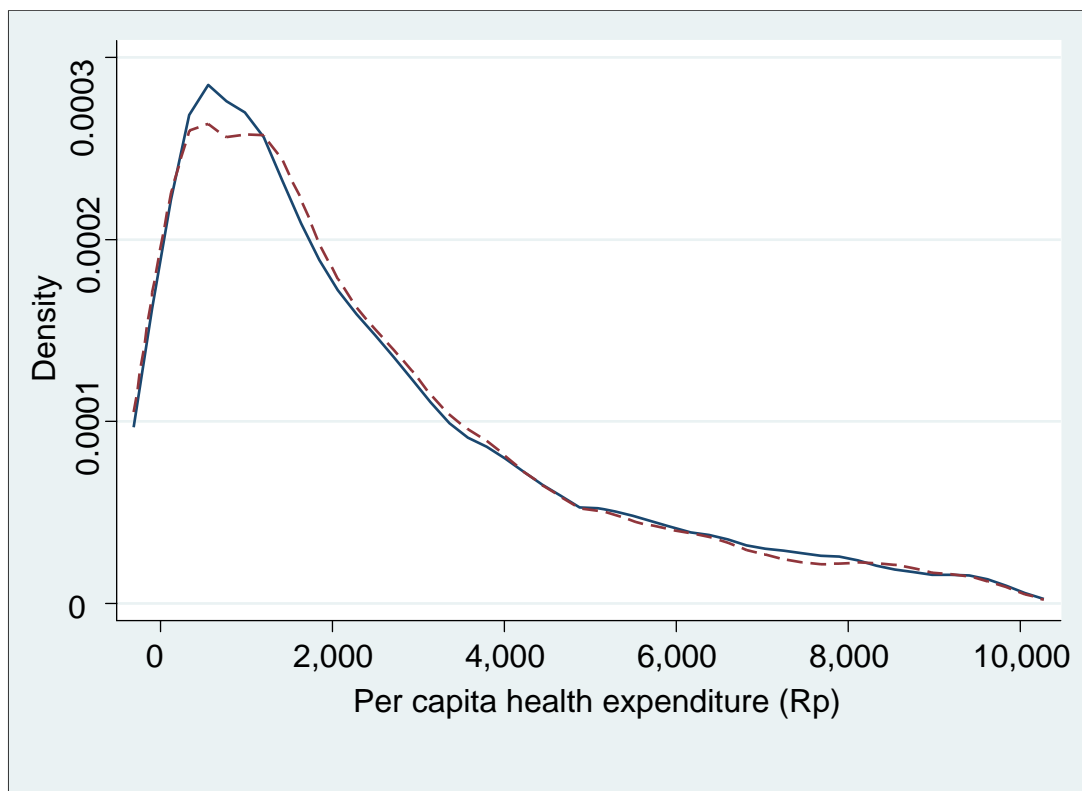*10% Significance.
**5% Significance.
***1% Significance.

Figure A1. Distributions of per capita health expenditures in 2005 and 2006.

Source: Authors' analysis based on Susenas 2005–2006 household panel.
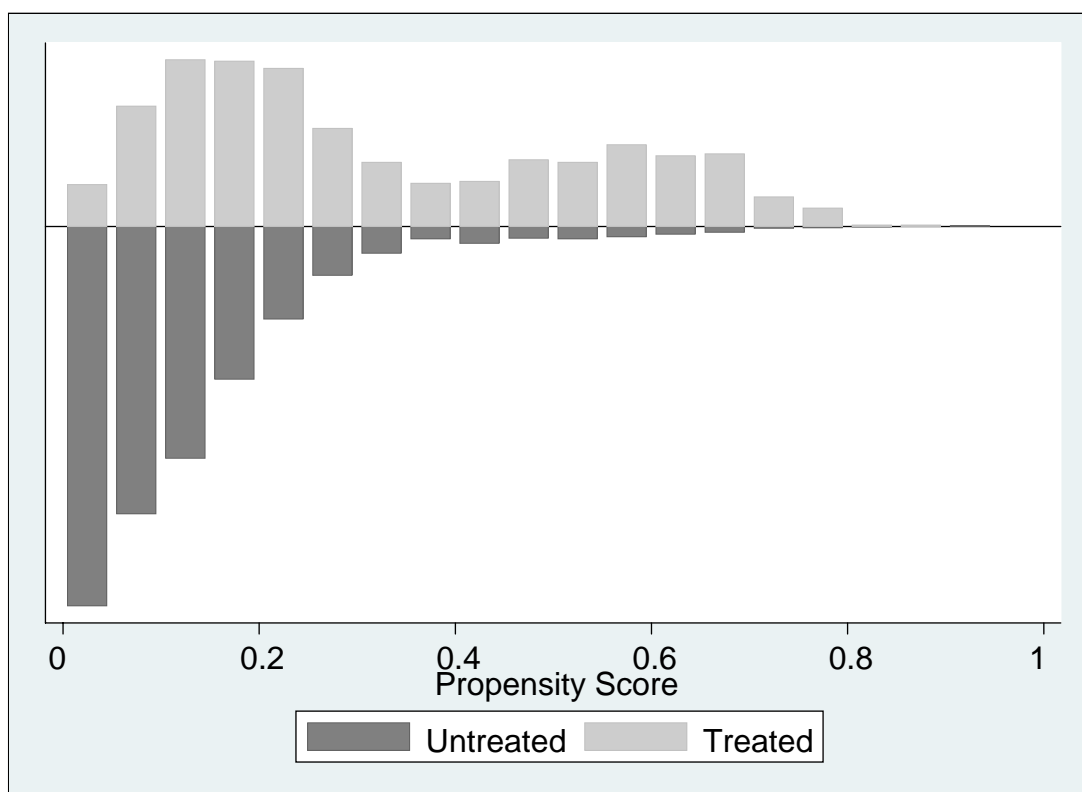

Figure A2. Distributions of the propensity scores for treatment and control households.

Source: Authors' analysis based on Susenas 2005–2006 household panel.