

**"The Challenges of Universal Health Insurance in Developing Countries:
Experimental Evidence from Indonesia's National Health Insurance"**

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Online Appendix

Appendix Table 1: Distribution of Outpatient and Inpatient Care by Facility Type

| | Inpatient | | | Outpatient | | |
|--|---------------------|---|--|---------------------|---|--|
| | Share of all visits | Fraction of visits covered by public health insurance | Fraction of visits covered by private health insurance | Share of all visits | Fraction of visits covered by public health insurance | Fraction of visits covered by private health insurance |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Panel A: All households | | | | | | |
| Public hospital | 0.419 | 0.655 | 0.002 | 0.060 | 0.677 | 0.002 |
| Government-run subdistrict clinics (Puskesmas) | 0.125 | 0.460 | 0.001 | 0.300 | 0.495 | 0.001 |
| Government-run village clinics (UKBM) | - | - | - | 0.030 | 0.027 | 0.000 |
| Total public | 0.543 | 0.610 | 0.002 | 0.390 | 0.488 | 0.001 |
| Private hospital | 0.340 | 0.362 | 0.031 | 0.051 | 0.331 | 0.042 |
| Doctor | 0.069 | 0.146 | 0.006 | 0.422 | 0.114 | 0.002 |
| Clinic | 0.043 | 0.144 | 0.001 | 0.123 | 0.204 | 0.007 |
| Total private | 0.452 | 0.308 | 0.024 | 0.597 | 0.151 | 0.007 |
| Traditional | 0.005 | 0.000 | 0.000 | 0.014 | 0.000 | 0.000 |
| Panel B: Non-poor informal households | | | | | | |
| Public hospital | 0.427 | 0.604 | 0.001 | 0.053 | 0.615 | 0.001 |
| Government-run subdistrict clinics (Puskesmas) | 0.138 | 0.433 | 0.000 | 0.304 | 0.486 | 0.001 |
| Government-run village clinics (UKBM) | 0.000 | 0.000 | 0.000 | 0.034 | 0.031 | 0.000 |
| Total public | 0.565 | 0.562 | 0.001 | 0.391 | 0.464 | 0.001 |
| Private hospital | 0.314 | 0.312 | 0.019 | 0.039 | 0.284 | 0.020 |
| Doctor | 0.067 | 0.128 | 0.001 | 0.444 | 0.084 | 0.001 |
| Clinic | 0.047 | 0.118 | 0.000 | 0.111 | 0.161 | 0.001 |
| Total private | 0.429 | 0.262 | 0.014 | 0.594 | 0.112 | 0.003 |
| Traditional | 0.006 | 0.000 | 0.000 | 0.015 | 0.000 | 0.000 |

Note: This table shows the distribution of care across different facility types, separately for inpatient care (columns (1) to (3)) and outpatient care (columns (4) to (6)). Columns (1) and (4) report the share of all visits of a certain type that took place in the given facility type. The remaining columns report the share of visits taking place in the given facility type that was covered by public health insurance (columns (2) and (5)) or by private health insurance (columns (3) and (6)). Data is from SUSENAS 2015, which collects data on over 250,000 households across the country.

Appendix Table 2: Randomization Balance

| | Has NIK | Self-reported health | Outpatient | Inpatient | Any chronic | Family member 60+ | HH finished highschool | HH employed | HH size |
|---|-------------------|----------------------|-------------------|-------------------|--------------------|-------------------|------------------------|-------------------|--------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Full subsidy | -0.001 (0.017) | 0.028 (0.024) | 0.009 (0.022) | 0.010 (0.012) | 0.021 (0.022) | -0.022 (0.020) | -0.008 (0.023) | -0.001 (0.013) | 0.156** (0.067) |
| Half subsidy | 0.021 (0.014) | 0.015 (0.020) | -0.022 (0.019) | 0.008 (0.010) | 0.016 (0.019) | 0.000 (0.017) | 0.031 (0.019) | -0.014 (0.012) | 0.002 (0.055) |
| Assisted registration | 0.001 (0.011) | -0.011 (0.015) | 0.007 (0.014) | 0.011 (0.008) | 0.002 (0.014) | -0.010 (0.012) | -0.004 (0.014) | 0.000 (0.009) | 0.002 (0.042) |
| Information on cost of treatment for heart attack | -0.001 (0.026) | -0.030 (0.037) | -0.002 (0.034) | 0.005 (0.020) | 0.021 (0.033) | 0.031 (0.032) | -0.035 (0.035) | 0.040* (0.021) | 0.006 (0.111) |
| Information on possible mandate penalties | -0.003 (0.011) | -0.015 (0.016) | -0.021 (0.015) | -0.002 (0.008) | -0.009 (0.015) | -0.003 (0.013) | 0.040*** (0.015) | -0.012 (0.009) | 0.014 (0.042) |
| Information on two weeks waiting period | 0.004 (0.011) | 0.039** (0.016) | -0.004 (0.015) | -0.008 (0.008) | -0.026* (0.015) | -0.005 (0.013) | -0.014 (0.015) | 0.009 (0.009) | 0.085** (0.042) |
| Observations | 5996 | 5964 | 5964 | 5964 | 5964 | 5996 | 5964 | 5996 | 5964 |

Note: This table shows covariate balance across subsidies, registration and information treatment assignment. We regress each of the outcomes on indicator variables for assignment to all treatment arms, an indicator variable for the randomization procedure used and an indicator variable for the study location (equation (1)). All regressions are estimated by OLS and weighted to reflect the intended cross-randomization. Robust standard errors are reported in parentheses. The outcome in column (1) is an indicator variable for whether at least one member of the household reported their NIK (individuals' unique national identification number). In column (2), the outcome is the average self-reported health of all household members, where the self-reported health score is a Likert score ranging from 1-4, with 4 as the highest option (better self-reported health). The outcomes in columns (3) and (4) are indicators for whether the household received outpatient treatment in the last four weeks or inpatient treatment in the last twelve months. In column (5) the outcome is an indicator for whether anyone in the household suffered from any chronic condition. The outcome in column (6) is an indicator variable for whether the household had at least one member over 60. The outcome in column (7) is an indicator variable for whether the household head had finished high school, and in column (8) for whether the household head was employed. Finally, the outcome in column (9) is the household size. All outcomes were measured in the baseline survey. The smaller sample size for some outcomes is explained by households participating in the listing survey and agreeing to the treatments, but refusing to complete the baseline survey. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 3: Effect of Additional Treatments on Year 1 Enrollment, by City

| | Enrolled within 1 year | Decomposition | |
|---|---------------------------|--|---|
| | | Enrolled within 8 weeks of offer date | Enrolled after 8 weeks, but within 1 year of offer date |
| | (1) | (2) | (3) |
| Panel A: Medan | | | |
| Two week deadline | 0.048 (0.045) | 0.047 (0.044) | 0.001 (0.020) |
| Choice between one or two week deadline | 0.031 (0.048) | 0.001 (0.043) | 0.030 (0.028) |
| No subsidy mean | 0.075 | 0.017 | 0.058 |
| Panel B: Bandung | | | |
| Bonus subsidy | 0.037*** (0.013) | 0.040*** (0.010) | -0.003 (0.009) |
| No subsidy mean | 0.088 | 0.033 | 0.055 |

Note: This table shows the effect of the deadline and the bonus subsidy treatment on enrollment in year 1, by city. The sample size is 1446 households in Medan and 4550 households in Bandung. We regress each of the enrollment measures on indicator variables for assignment to all treatment arms and an indicator variable for the randomization procedure used (equation (1)). The omitted category is one week deadline for the deadline treatment and no subsidy for the bonus subsidy treatment. All regressions are estimated by OLS and weighted to reflect the intended cross-randomization. Robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 4: Insurance Coverage, by Temporary Subsidies and Assisted Registration

| | Enrolled within 1 year of offer date and | | | | | | | |
|------------------------------------|--|---------------------------------------|------------------------------|------------------------|------------------------------|------------------------|------------------------------|------------------------|
| | Dropouts | | | | Stayers | | | |
| | Had coverage for at least one month (1) | Did not have coverage in month 15 (2) | Had coverage in month 15 (3) | P-Value (2) vs (3) (4) | Had coverage in month 15 (5) | P-Value (1) vs (5) (6) | Had coverage in month 20 (7) | P-Value (1) vs (7) (8) |
| Full subsidy | 0.277 | 0.184 | 0.093 | 0.000 | 0.099 | 0.000 | 0.106 | 0.000 |
| Half subsidy | 0.171 | 0.107 | 0.064 | 0.005 | 0.074 | 0.000 | 0.074 | 0.000 |
| No subsidy | 0.063 | 0.024 | 0.038 | 0.007 | 0.053 | 0.020 | 0.067 | 0.444 |
| Assisted registration | 0.140 | 0.082 | 0.058 | 0.004 | 0.069 | 0.000 | 0.075 | 0.000 |
| Status quo registration | 0.117 | 0.059 | 0.058 | 0.862 | 0.069 | 0.000 | 0.083 | 0.000 |
| | P-value of test of hypothesis | | | | | | | |
| Full subsidy = no subsidy | 0.000 | 0.000 | 0.000 | | 0.000 | | 0.001 | |
| Half subsidy = no subsidy | 0.000 | 0.000 | 0.003 | | 0.032 | | 0.307 | |
| Assisted registration = status quo | 0.028 | 0.006 | 0.964 | | 0.934 | | 0.300 | |

Note: This table shows mean coverage by temporary subsidy and assisted registration. A household is considered as having insurance coverage if the premium was paid for all its members. The sample size is 5996 households. The p-values at the bottom of the table are from regressions of each outcome on indicator variables for assignment to all treatment arms, an indicator variable for the randomization procedure used and an indicator variable for study location (equation (1)). Standard errors are robust. The p-values reported are from a test of the difference between the no subsidy and full subsidy treatments ($\beta_2 = 0$), between the no subsidy and half subsidy treatments ($\beta_1 = 0$) and between the status quo and assisted registration treatments ($\beta_3 = 0$). The p-values in columns (4), (6) and (8) are from regressions in which we stack the outcomes being compared and regress them on an indicator variable for the outcome the observation refers to. The sample is restricted to households assigned to the subsidy treatment specified. In these regressions standard errors are clustered at the household level. All regressions are estimated by OLS and weighted to reflect the intended cross-randomization. Appendix Table 5 provides the regression estimates behind the numbers reported in this table.

Appendix Table 5: Insurance Coverage, by Temporary Subsidies and Assisted Registration

| | Enrolled within 1 year of offer date | | | | |
|-----------------------|--------------------------------------|-----------------------------------|--------------------------|--------------------------|--------------------------|
| | Had coverage for at least 1 month | Dropouts | | Had coverage in month 15 | Had coverage in month 20 |
| | | Did not have coverage in month 15 | Had coverage in month 15 | | |
| | (1) | (2) | (3) | (4) | (5) |
| Full subsidy | 0.200*** (0.019) | 0.142*** (0.017) | 0.058*** (0.012) | 0.048*** (0.013) | 0.045*** (0.013) |
| Half subsidy | 0.100*** (0.014) | 0.073*** (0.011) | 0.027*** (0.009) | 0.022** (0.010) | 0.010 (0.010) |
| Assisted registration | 0.022** (0.010) | 0.022*** (0.008) | -0.000 (0.007) | 0.001 (0.007) | -0.008 (0.008) |
| Observations | 5996 | 5996 | 5996 | 5996 | 5996 |
| No subsidy mean | 0.063 | 0.024 | 0.038 | 0.053 | 0.067 |

Note: This table shows insurance coverage by temporary subsidies and assisted registration. A household is considered as having insurance coverage if the premium was paid for all its members. We regress each outcome on indicator variables for assignment to all treatment arms, an indicator variable for the randomization procedure used and an indicator variable for study location (equation (1)). All regressions are estimated by OLS and weighted to reflect the intended cross-randomization. Robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 6: Relationship between Self-Reported Health and Year 1 Health-Seeking Behavior

| | Had a claim | | Total # of claims | | Claims | |
|----------------------|---------------------|---------------------|-------------------|--------------------|--------------------|---------------------|
| | Of any type | Chronic | Of any type | Chronic | Value of claims | Days to first claim |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Self-reported health | -0.091** (0.040) | -0.090** (0.037) | -1.042 (0.696) | -0.093* (0.054) | -0.885* (0.503) | 22.728* (12.561) |
| R2 | 0.035 | 0.027 | 0.028 | 0.026 | 0.035 | 0.044 |

Note: This table shows the coefficients from a regression of claims in months 1 to 12 since enrollment on self-reported health. Self-reported health is the average self-reported health of all household members, where the self-reported health score is a Likert score ranging from 1-4, with 4 as the highest option (better self-reported health). The sample is restricted to households who enrolled within a year from offer and had coverage for at least one month over the same time period. The sample size is 749 households. The value of claims in column (5), in thousand Rp, is winsorized at the 99% level and only refers to hospital claims. Each regression additionally controls for indicator variables for assignment to all treatment arms, an indicator variable for the randomization procedure used and an indicator variable for the study location. All regressions are estimated by OLS and weighted to reflect the intended cross-randomization. Robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 7: Self-Reported Health and Claims in 12 Months since Enrollment, by Temporary Subsidies and Assisted Registration

| | Self-reported health | | Had a claim | | Total # of claims | | Claims | |
|-----------------------|----------------------|---------------------|--------------------|---------------------|---------------------|--------------------|-----------------------|--|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | |
| Full subsidy | 0.139** (0.057) | -0.119** (0.058) | -0.089* (0.051) | -2.117** (0.940) | -0.146** (0.069) | -0.707* (0.423) | 47.199*** (17.187) | |
| Half subsidy | 0.146** (0.060) | -0.084 (0.059) | -0.024 (0.051) | -0.986 (1.082) | -0.030 (0.071) | 0.237 (0.484) | 29.000 (17.964) | |
| Assisted registration | 0.076* (0.044) | -0.033 (0.044) | 0.009 (0.033) | -0.998 (0.636) | -0.010 (0.044) | -0.173 (0.309) | 14.412 (13.019) | |
| No subsidy mean | 3.099 | 0.622 | 0.272 | 6.167 | 0.339 | 1.637 | 176.272 | |

Note: This table shows self-reported health and claims submitted in months 1 to 12 since enrollment by temporary subsidies and assisted registration. The sample is restricted to households who enrolled within a year from offer and had coverage for at least one month over the same time period. The sample size is 749 households. In column (1), the outcome is the average self-reported health of all household members, where the self-reported health score is a Likert score ranging from 1-4, with 4 as the highest option (better self-reported health). The value of claims in column (6), in thousand Rp, is winsorized at the 99% level and only refers to hospital claims. We regress each outcome on indicator variables for assignment to all treatment arms, an indicator variable for the randomization procedure used and an indicator variable for the study location (equation (1)). All regressions are estimated by OLS and weighted to reflect the intended cross-randomization. Robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 8: Year 1 Claims by Retention in Year 2, by Assisted Registration Treatment

| | Self-reported health (1) | Had a claim | | Total # of claims | | Claims | |
|--|-----------------------------|--------------------|------------------|--------------------|------------------|------------------------|----------------------------|
| | | Of any type (2) | Chronic (3) | Of any type (4) | Chronic (5) | Value of claims (6) | Days to first claim (7) |
| Panel A: Assisted registration | | | | | | | |
| Dropouts | 3.234 [0.504] | 0.405 [0.492] | 0.148 [0.356] | 2.640 [5.101] | 0.169 [0.427] | 1.420 [3.848] | 241.709 [145.883] |
| Stayers | 3.192 [0.551] | 0.697 [0.461] | 0.338 [0.474] | 6.555 [9.367] | 0.388 [0.590] | 1.289 [3.426] | 176.489 [141.807] |
| P-value of test of hypothesis | | | | | | | |
| Dropouts = stayers | 0.501 | 0.000 | 0.000 | 0.000 | 0.000 | 0.770 | 0.000 |
| Panel B: Status quo registration | | | | | | | |
| Dropouts | 3.173 [0.467] | 0.485 [0.501] | 0.183 [0.388] | 3.067 [5.454] | 0.221 [0.498] | 0.933 [2.637] | 227.281 [144.662] |
| Stayers | 3.125 [0.542] | 0.627 [0.485] | 0.245 [0.432] | 7.329 [12.987] | 0.313 [0.657] | 2.118 [4.719] | 173.825 [152.528] |
| P-value of test of hypothesis | | | | | | | |
| Dropouts = stayers | 0.424 | 0.020 | 0.199 | 0.000 | 0.176 | 0.005 | 0.003 |
| Panel C: Stayers in assisted and status quo registration | | | | | | | |
| P-value of test of hypothesis | | | | | | | |
| Assisted registration = status quo registration | 0.293 | 0.234 | 0.082 | 0.507 | 0.271 | 0.063 | 0.881 |

Note: This table shows mean self-reported health and claims in the first year since enrollment, separately by registration treatment and by whether households kept or dropped coverage at month 15 since offer. Means are weighted to reflect the intended cross-randomization. Standard deviations are in brackets. The sample is restricted to households who enrolled within a year since offer and paid for at least one month over the same time period. The sample size is 749 households. In column (1), the outcome is the average self-reported health of all household members, where the self-reported health score is a Likert score ranging from 1-4, with 4 as the highest option (better self-reported health). The value of claims in column (6), in thousand Rp, is winsorized at the 99% level and only refers to hospital claims. The p-values in panels A and B are from a specification where the outcome is regressed on an indicator variable for whether the household has coverage in month 15 and the sample is restricted to households assigned to the subsidy treatment specified. The p-values in panel C are from a specification where the outcome is regressed on an indicator variable for assisted registration treatment assignment and the sample is restricted to households with coverage in month 15. All regressions are estimated by OLS and weighted to reflect the intended cross-randomization. Standard errors are robust. The coverage rates of these two groups are shown in Appendix Table 4.

Appendix A – Description of Additional Subsidy Sub-Treatments

We undertook two additional subsidy sub-treatments, one in each city.

In Medan, we experimented with a "deadline" treatment. The subsidy offer was explicitly time-limited: it was only available for up to two weeks after the offer was made. In Medan, we therefore randomized the length of the time that the household could enroll taking advantage of the subsidy. In particular, households with a positive subsidy offer were randomized to receive a one-week deadline, a two-week deadline, or the ability to choose either a one- or two-week deadline to enroll using the subsidy. Almost all households that were given the choice chose the two-week deadline option.

In Bandung, we additionally offered a fourth subsidy sub-treatment, which we refer to as a "bonus subsidy." In this sub-treatment, households that enrolled but did not submit an inpatient claim within a 12-month period would be reimbursed 50 percent of the premiums that they had paid. The idea of this treatment was to test if people are particularly concerned about "unused" premiums. To be able to follow-up with these households, we collected their phone numbers and other contact information. After one year, we used the administrative data to determine which households qualified for the bonus and we reimbursed them with a payment to their bank accounts.

Appendix Table 3 shows that the effects of these sub-treatments on enrollment are about the same in magnitude (about 4 percentage points increase in the share enrolled within 1 year); however, they are only statistically significant for the bonus subsidy treatment in Bandung, presumably due to the substantially smaller sample size for the deadline treatments in Medan (1,446 households compared to 4,550 households).