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Social Protection and Access to Health Care among Children in the Philippines

Michael R.M. Abrigo and Vicente B. Paqueo

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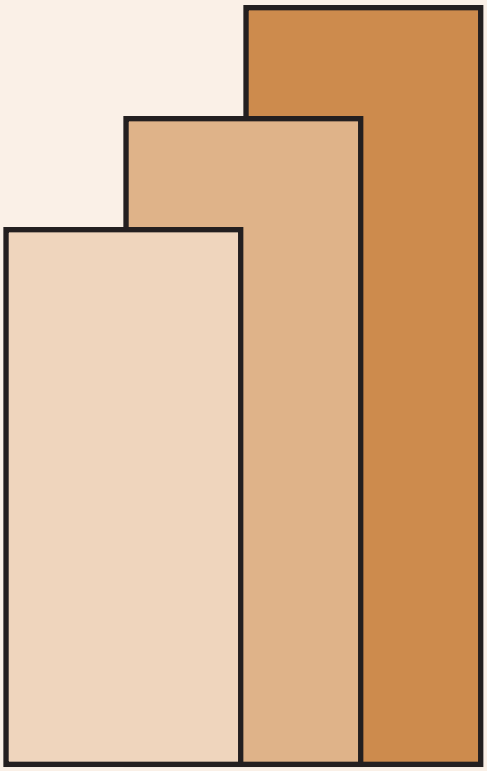

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For comments, suggestions or further inquiries please contact:
The **Research Information Department,** Philippine Institute for Development Studies
18th Floor, Three Cyberpod Centris – North Tower, EDSA corner Quezon Avenue, 1100 Quezon City, Philippines
Tel Nos: (63-2) 3721291 and 3721292; E-mail: publications@mail.pids.gov.ph
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ABSTRACT

The Philippines recently introduced two distinct but related large-scale social protection programs that, first, provides conditional cash transfers (CCT) to poor households, and, second, automatically enrolls them into the government's social health insurance program. This has resulted to dramatic increase in health insurance coverage, especially among the poor. In this paper, we empirically assess the joint impact of the two programs on the healthcare demand for children. Overall, we find encouraging impacts of social protection on the demand for healthcare services. While we find no direct impact on morbidity, our results suggest that the social health insurance and the CCT program jointly were able to induce greater hospital visits for both preventive and curative care, and lowers out-of-pocket expenditures. However, we also document possible leakages in the government's programs, as well as potential indication of healthcare service differentiation based on quality. Both these concerns may undermine the expected outcomes of the country's social protection programs.

Keywords: Social protection, Social health insurance, Conditional cash transfer, Philippines

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1. Introduction

Access to healthcare remains to be an important global concern. In a recent report, the World Health Organization (WHO) and the World Bank (WHO, 2015) estimated that about 400 million people worldwide have no access to essential healthcare services. They also reported that six (6) percent of the total population in low- and middle-income countries are pushed into or further into poverty because of catastrophic health spending. Policy responses to improve access to healthcare services vary across different governments around the world, but generally range from the more traditional supply-side interventions, such as direct provision of healthcare services, to more recent innovations to induce healthcare demand, including the expansion of social health insurance and the introduction of conditional cash transfer programs (Tangcharoensathien, et. al., 2015; Cotlear, et. al., 2015). Among the demand-side interventions, social health insurance appears to be the most common (cf. Cotlear, et. al., 2015), with many of the important reforms introduced in recent years (Lagomarsino, et. al., 2012; Wagstaff, 2010).

While it is widely accepted that health insurance coverage promotes better access to healthcare, and greater financial security against catastrophic spending, empirical assessment of the actual impact of social health insurance, especially in developing country contexts, remains limited. In the Philippines, for instance, social health insurance has been found to be positively associated with greater utilization of healthcare services (e.g. Kozhimannil, et. al., 2009; Gouda, et. al., 2016) and substantial reduction in out-of-pocket expense (Capuno, et. al., 2009), but utilization remains at sub-optimal levels (Quimbo, et. al., 2008). There are also documented second-round impacts on health outcomes (Kraft, et. al., 2009), and, even, child school attendance (Capuno, et. al., 2009), but the evidences are weak. These earlier results in the Philippines are in line with the general findings in other countries. For example, Acharya, et. al. (2012) systematically reviewed 64 papers on the effect of health insurance in low- and middle-income countries, and presented a summary of the results from 19 studies that correct for selection into insurance. Overall, they found little evidence on the impact of health insurance on health status, some evidence on utilization, weak evidence on out-of-pocket health expenditures, and unclear effects on the poorest.

This dearth in evidences may be attributed, in part, to the difficulty in establishing the causal impact of health insurance on different important outcomes. In typical settings, those with health insurance differ from those without insurance along a vector of characteristics that may or may not be observed by the researcher. Indeed, much of the empirical work in establishing the causal impact of insurance is on unraveling non-random selection into insurance coverage from the causal impact itself (cf.

[1] Fellow I, and Distinguished Visiting Researcher, respectively, at the Philippine Institute for Development Studies (PIDS). We are grateful for the thoughtful discussions with Roehlano Briones, Aniceto Orbeta, Jr., Marife Ballesteros, and participants at the 2017 PIDS Seminar Series. We acknowledge the excellent research assistance of Zhandra Tam. Usual disclaimers apply.

Wagstaff, 2010). It is very rarely that insurance coverage is allocated randomly. The few exceptions include the RAND Health Insurance Study (Newhouse, 1993) in the US, and the Quality Improvement Development Study (Shimkhada, et. al., 2008) in the Philippines. But studies that address confounding from unobserved heterogeneity, by design, have, to a large extent, implicitly disregard the contribution of unobserved idiosyncratic returns, which may play important roles in shaping the outcomes. For instance, difficulties complying with documentary requirements to file claims or lack of awareness of insurance benefits, both of which may not be readily observable to the researcher, may have profound impact on the utilization of social health insurance (Quimbo, et. al., 2008).

We depart from the literature in this regard. Rather than implicitly assuming away the contribution of unobserved confounding, we instead use it to our advantage. More specifically, we employ a large-scale, yet imperfect natural experiment to limit the direction of the potential bias from unobserved heterogeneity, which, at the same time, allows us to estimate the *joint* impact of two related but distinct social protection programs.

In this paper, we report on the impact of social health insurance coverage on children using a large-scale social protection intervention in the Philippines, i.e. the *Pantawid Pamilyang Pilipino Program* (4Ps), a conditional cash transfer (CCT) program that targets poor households, as instrument. As part of the intervention, 4Ps beneficiary-households are automatically enrolled in the country's social health insurance program. In return to being part of the CCT program, households need to comply with various conditions, including the school attendance of children, pre- and post-natal checkup of mothers, and preventive checkups of children aged 0 to 5 years old. Parent-beneficiaries are also required to attend regular workshops that cover topics on self-development, health, and civic empowerment, among others. The country's social health insurance, and CCT programs together have a combined budget of USD3.3 billion in 2016, or about one percent of the country's GDP for that year.

On the one hand, using enrollment in the CCT program as instrument for social health insurance coverage poses an estimation challenge since, at worst, we cannot fully isolate the impact of social health insurance coverage on health outcomes. But, on the other hand, it also provides us a rare opportunity to unravel how unobserved heterogeneity may be important in designing social protection programs. While selection into the CCT program may be external to households, program interventions may directly influence demand for healthcare services through an income effect from direct cash transfers, and information spillovers from the different program interventions. Combined with the price effect from health insurance coverage, the opportunity for gains from having both programs simultaneously may be large. We attempt to recover the distinct impact of social health insurance by way of calibration using results from earlier impact evaluation studies on the 4Ps. We show that the separate contributions of either programs are non-trivial.

Overall, we find encouraging impacts of social protection on the demand for healthcare. While we find no direct impact on morbidity, our results suggest that the social health insurance and the CCT program jointly were able to induce greater hospital visits for both preventive and curative care, and lowers out-of-pocket expenditures. However, we also document possible leakages in the government's programs, as well as potential indication of healthcare service differentiation based on quality. Both these concerns may undermine the expected outcomes of the country's social protection programs.

The Philippine case is interesting because of its relatively long history of social health insurance reforms compared to other developing countries. The Philippines's national health insurance program was created in 1969, re-organized 26 years after, and, in the past 10 years, made great strides in closing the gap in universal health coverage, at least in terms of health insurance enrolment, through the various

reforms it has introduced. Some of the more recent reforms include a shift from a fee-for-service to a case rate payment system, and the greater reliance on taxes, specifically on alcohol and tobacco products, to finance the health insurance coverage of the poor. These innovations are in many ways shared with other social health insurance systems around the world, but in some respects also unique.[2]

The rest of the paper is organized as follows. In the next section, we briefly discuss the social health insurance system in the Philippines to provide institutional context. In Section 3, we present the data used in the empirical analysis. We then discuss our estimation strategy in Section 4, where we also highlight potential issues that may influence our results. In Section 5, we present our findings. Finally, we present the paper's conclusions in Section 6.

2. Social health insurance in the Philippines

The Philippines' social health insurance system has existed for almost half a century. In 1969, health insurance funds were established under the country's autonomous pension systems for public- and private-sector workers. A separate medical care program was instituted for the rest of the population that were not covered by the national pension systems. These together form the country's Medical Care Plan (Medicare). With the reorganization of the country's social health insurance system in 1995, the separate health insurance funds of the two pension systems were combined to become part of the core of what is now the Philippine Health Insurance Corporation (PHIC). The PHIC is mandated to build on and expand the programs of the original Medicare to eventually have a universal health insurance program covering the whole population.

PHIC maintains generally three types of membership, although its naming convention has changed through the years. There are the self-contributing members from both the formal and informal sectors who pay premium contributions either through their employers or remitted directly by them to PHIC. There are lifetime members who have reached retirement age, had paid a minimum of 120 monthly premium contributions, and are no longer required to pay premium contributions to remain insured by the system. Finally, there are sponsored members whose premium contributions are paid by other parties, such as the national government or the local government units. Dependents of principal members share the benefits of the social health insurance system but need not to pay premium contributions.

The insurance coverage by PHIC pays for both inpatient and outpatient healthcare services, although outpatient coverage are provided only for sponsored members and their dependents.[3] Until 2011, PHIC operates on a first-peso fee-for-service system wherein purchased medical goods and services by patients are reimbursed up to a fixed ceiling. This system has since been abandoned with the adoption of the first-peso case rate payment system wherein PHIC pays a fixed rate covering both professional and other fees for every patient's medical or surgical case. Any fees in excess of the case rates provided by PHIC are borne by the patient or by the health facility depending on the individual's membership type. In either system, physicians need to be accredited by PHIC to be able to participate in the country's National Health Insurance Program (NHIP).

The Philippines' NHIP is a hybrid social health insurance system where insurance payments are paid for by contributions of paying members and through taxes paid by the general population that covers the premium contribution of sponsored members. In the earlier years of PHIC the tax-based premium contributions cover only a very small portion of its premium collections, but has increased dramatically in

[2] See for instance Lagomarsino, et. al. (2012) and Vidcu, et. al. (2016) for cross-country comparison of social health insurance systems, including that of the Philippines.

[3] See Pantig (2013) for an excellent discussion of PHIC coverage rates and benefit programs.

recent years (Pantig, 2013). In 1998, tax-based premium contributions comprise only two percent of all premium collections by PHIC. This has ballooned to about 30 percent by 2012, and to almost half by 2014. In 2016, the PHIC's reported premium contributions totaled USD2 billion, but 98 percent of this has been used for expenses on benefit claims.

Official estimates by PHIC point to about 90 percent of the population being covered by social health insurance in 2016, up from only 73 percent in 2007. However, independent estimates show wide variation in coverage rates across different regions in the country (e.g., Silfverberg, 2013). Overall, PHIC remains a small portion of healthcare funding in the country, covering only 16 percent of all personal health care expenditures in 2014 (Philippine Statistics Authority [PSA], 2016), although there is a general increasing trend since its creation.

With the reorganization of the Philippine's national health insurance program in 1995, a special membership category for indigents was created. Unlike other types of members who directly pay PHIC, the payment of premium contributions of indigent members are paid by the government. In the early years of the program, the contributions of indigent members are shared by PHIC, national government, and local government units. In 2008, primary members in the sponsored program for indigents totaled 3.3 million, or about a fifth of all primary members of PHIC. Various programs initiated thereafter resulted to significant increase in the PHIC sponsored program membership.

Starting in 2010, PHIC adopted the means test protocol of the National Household Targeting System for Poverty Reduction (NHTS-PR) by the Department of Social Welfare and Development (DSWD) to identify poor families eligible for the former's sponsored program. Households enrolled in the country's CCT program are automatically enrolled under PHIC. In 2011, PHIC introduced the "no-balance billing" (NBB) policy for sponsored members and their dependents who are admitted in government hospitals. The NBB policy requires cooperating health facilities to cover the costs of health services provided to sponsored program beneficiaries beyond what is paid for under the PHIC case rates.

Beginning in 2012, PHIC has been receiving a greater portion of excise taxes on alcohol and tobacco products[4] collected by the national government to support the NHIP. By 2013, PHIC has enrolled close to 10 million indigent primary members in its sponsored program, or about a third of all its primary members. With the latest amendments in the Philippines' National Health Insurance Act taking effect in 2014, the national government started fully subsidizing the premium contributions of poor households.

3. Data

We employ the 2013 National Demographic and Health Survey (NDHS) to investigate the potential impacts of insurance coverage on morbidity, household health facility utilization and out-of-pocket expenditures, physician behavior, and consumer satisfaction. The 2013 NDHS is the tenth in a series of demographic and health surveys conducted every five years since 1968 by the PSA (previously the National Statistics Office). The NDHS is a nationally representative survey of reproductive-aged women with the primary objective of providing information on women's fertility, family planning practices, and health. In 2013, the NDHS includes modules on insurance coverage and on health facility utilization by every member in surveyed households, which we exploit in our analysis.

[4] Between 1995 and 2013, twenty-five percent of the incremental tax revenue collected from tobacco products was earmarked for the Philippine's NHIP. Beginning in 2014, the share was raised to 80 percent, and for the incremental tax collections on both alcohol and tobacco products.

We focus on the impact of insurance coverage on children living with their mother at the time of the survey. All children living with surveyed mothers are included, regardless of the child's age. Our sample contains information on 25,534 individuals in total, but our regression models are based on a more limited sub-sample of individuals depending on the availability of information on control variables or on restrictions imposed by the behavioral outcomes we measure.

Table 1 presents descriptive statistics for various child and household characteristics that we use in our analysis. Separate estimates are provided by insurance type for the full sample of children, and for children in the first and second poorest household quintiles in the sample. Overall, the demographic characteristics of children and parents appear similar across insurance coverage status. But insured children have lower propensity to pay out-of-pocket for hospitalization. The share of out-of-pocket expense for hospitalization is also substantially lower among insured children.

<Table 1>

As mentioned in the previous section, CCT program beneficiaries are automatically enrolled in the sponsored program of PHIC. This does not mean that all children living in CCT-beneficiary households are insured however. For instance, children who are 21 years old and over may not be claimed as dependents of PHIC primary members. Also, it is possible that not all members of multi-family, multi-generation households are included as beneficiaries of the CCT program. In any case, having a CCT beneficiary in the household raises the propensity of a child in the same household being covered by health insurance. In our sample, 79 percent of children living in CCT households have health insurance coverage, compared to only 53 percent of children in non-CCT households.

4. Estimation

Health insurance coverage status in our data are not randomly assigned. To the extent that selection into health insurance coverage are influenced only by observable characteristics, e.g., educational attainment, sex or age, then adjusting for these characteristics, say through an ordinary least squares (OLS) model, will provide an unbiased estimate of the impact of insurance coverage on our outcomes of interest.

Reality, however, is much more complex. For example, we can think of enrolment in health insurance packages as being related to individual preferences for risk-taking, which, in turn, also influences health-seeking behaviors (e.g. Arrow, 1963). Failing to account for individual appetite for risks – or any other unobserved factors that are related to both health-seeking behavior and insurance coverage, for that matter – will generally lead to biased impact estimates. We can also imagine cases where the demands for health inputs, including insurance coverage, and health may be simultaneously determined (e.g., Grossman, 1972; Zweifel and Manning, 2000)., which would, again, introduce bias in the impact estimates of insurance coverage on health-seeking behavior.

To correct for the bias introduced by the endogeneity of health insurance coverage, we employ a large-scale natural experiment to estimate the impact of health insurance on various behavioral outcomes. Our identification strategy is based on an instrumental variable (IV) model, where we compare the change in behavioral outcomes to the change in insurance coverage status induced by an exogenous instrument. The IV-estimator, τ_{IV}, is given by

$$\tau_{IV} = \frac{E[Y|X = x, Z = 1] - E[Y|X = x, Z = 0]}{E[D|X = x, Z = 1] - E[D|X = x, Z = 0]},$$

where Y is the outcome of interest, D is insurance coverage status, Z is our binary instrument, X is a vector of controls, and $E[f(.)|g(.)]$ is the conditional expectation operator with arguments $f(.)$ and $g(.)$. We estimate τ_{IV} using two-stage least squares (2SLS) with household membership in the national Conditional Cash Transfer (CCT) program as instrument.

Our identification strategy relies on two key assumptions.[5] First, the instrument must be relevant such that it influences insurance coverage status. This may be directly tested by showing that

$$E[D|X = x, Z = 1] - E[D|X = x, Z = 0] \neq 0.$$

In the case where the instrument does not affect coverage status, i.e. when the above difference equals zero, nothing is gained from instrumenting: the IV-estimator is inconsistent and biased the same as the OLS-estimator. When the explanatory power of the instrument is "weak", then conventional asymptotics fail thereby affecting hypothesis testing (e.g., Bound, et. al., 1995; Staiger and Stock, 1997). We are not concerned of such pathologies in our case. Among poor households in our sample, children living in CCT households are 47.2 percentage points (S.E. = 0.007) more likely to be covered by health insurance, either as primary members or as dependents.

Second, our identification strategy assumes that conditional on the vector of controls X the instrument Z and the outcome of interest Y are uncorrelated. This exogeneity assumption ensures that the IV-estimator captures only the impact of insurance coverage, and nothing else. In the case that this assumption is violated, for instance, when the instrument also directly influences the outcome of interest while also affecting insurance coverage status, the IV-estimator is biased towards the direction of the impact of Z on Y. That is, the IV-estimator captures the joint impact of social health insurance coverage and CCT membership.

It is important to emphasize that unlike the first assumption, the exogeneity of the instrument cannot be tested. But we can rule out some sources of bias based on the design of the CCT program. More specifically, we believe that the contribution of the CCT program on the impact estimates, if any, is a direct result of the CCT program interventions, rather than selection into the CCT program.

Membership into the CCT program are determined by a proxy means test that predicts household per capita income based on observable characteristics, including parents' education and household asset holdings, gathered through the NHTS-PR. To the extent that our additional controls are able to substitute for the contribution of proxy means test explanatory variables, then assignment into the CCT program in our sample households is exogenous. The additional control variables will be able to net out the potential bias from selection into the CCT program that may also affect our selected outcomes of interest.

While we may be able to control for observable characteristics that determine selection into the CCT program, a household may potentially game the system by misreporting or, alternatively, targeting household characteristics that will give them a higher propensity of being enrolled into the CCT program. But this may be of limited concern in our study. First, households do not have access to the weights used in NHTS-PR to predict household per capita income. This makes it generally difficult for households to target being a beneficiary of the CCT program. Second, a household at the time of the survey could only potentially gain as much as about USD300 per year when the household has three eligible children. This translates to roughly only USD0.15 per person per day for a five-member household, thus the potential

[5] These assumptions are based on the structural econometrics literature. See the seminal work by Angrist, et. al. (1996) for a discussion on the assumptions when framed in Rubin's potential outcomes framework.

gain for a non-poor to game the system may be limited. Finally, the CCT program has a built-in mechanism wherein households are vetted by their community before they are admitted into the program.

A more serious concern is the potential impact of the CCT program itself on the health-seeking behavior of households. This may be in the form of an income effect from the windfall cash transfers of the CCT program, which allows households to consume more healthcare apart from that provided by the social health insurance. In addition, the CCT program interventions may alter the information set available to beneficiaries. An integral component of the CCT program is the regular attendance of parent-beneficiaries to family development sessions, where various development topics, including health and nutrition, are discussed. Also, pregnant mothers and children below 5 years old are required to have regular health checkup, which may expose them to better health practices. If the CCT program is able to positively influence the health-seeking behavior of households, then our impact estimates will be biased upward since this includes the impacts of both insurance coverage and of the CCT program.

There are indications, however, that the direct impact of the CCT program on healthcare demand may be trivial. A recent evaluation of the CCT program (DSWD, 2014) shows that the program has not increased utilization of PHIC benefits, which the evaluators attributed to the CCT beneficiaries' lack of knowledge about social health insurance benefits. This is supported by Bredenkamp, et. al. (2017), presenting evidence that the DSWD, in general, and the CCT program, in particular, only play secondary roles in providing information about PHIC insurance coverage benefits. Among sampled CCT households in 2015, less than a tenth responded that they have learned about PHIC benefits from DSWD and the CCT program. The most important sources of information on health insurance benefits among CCT program beneficiaries are social networks (73%), and the PHIC itself (27%). Furthermore, while the CCT program is able to increase households' access to essential health services – as part of the program's conditionality – its impact on health outcomes are mixed or statistically insignificant (DSWD, 2014).

5. Results and Discussion

5.1. Morbidity

We start by presenting the impact of health insurance coverage on morbidity in Table 2. Morbidity is measured as an indicator variable that takes on a value of one when the child ever got sick in the past month prior to the survey, and zero if otherwise. We incrementally add control variables to determine the severity of omitted variable bias, if any. In the base model, we control for household wealth quintile. The second model in addition controls for the child's characteristics and region of residence. In the last model, we add controls for parents' characteristics. We provide separate estimates for the full sample of children, and for children living in households in the poorest two quintiles. OLS estimates are provided to show the relative bias against the IV/2SLS models. For the rest of our discussion, we focus on the results of the IV/2SLS models.

<Table 2>

As we have mentioned in the previous section, we include in the analysis all children living with their mothers at the time of the survey regardless whether the child is actually an adult. This allows us to use an additional instrument based on age. Child-dependents of PHIC primary members are limited to their children below 21 years old. In addition to an indicator variable measuring whether the household is enrolled in the CCT program (=1) or not (=0), we include as instrument an interaction variable indicating whether the child may be claimed as a child-dependent in a CCT household.

We limit our analysis to estimates where the Hansen's J-statistic are low, i.e. close to zero, which indicates that our overidentifying restrictions are valid. The Cragg-Donald F- and the Kleibergen-Paap χ^2-statistics provide test measures of the degree of association between our instruments and the endogenous variable. These test statistics are both above the conventional critical values in all specified models, indicating that weak- or under-identification is not an issue in any of our models.

Overall, we find no evidence to support that health insurance coverage impacts morbidity. But this is not unexpected, and should not be taken as evidence against the effectiveness of health insurance coverage. In its classical formulation, insurance is designed to allow consumption smoothing by pooling the risks over a population, and defraying the costs when the risks are realized. Thus, health insurance directly impacts access to healthcare services, and not health *per se*. This does not preclude, however, any second-round effects of insurance coverage on health outcomes, for instance, due to the reallocation of resources within the household (e.g., Quimbo, et. al., 2011), to delays in access to healthcare services (e.g., Kraft, et. al., 2009) or to the impact of recent innovations in the health insurance market, such as wellness incentives (e.g., Short, 2003).

5.2. Healthcare utilization

We then turn our attention to the impact of health insurance coverage on two health facility utilization indicators, which we report in Tables 3 and 4. More specifically, we look at the impact of health insurance coverage on the propensity of a child (1) to visit a health facility for consultation and/or treatment, and (2) to be confined in a hospital or clinic in the past month prior to the survey.

<Table 3>

We find that insurance coverage induces more healthcare facility visits among children in our sample (Table 3). Insured children are more likely to visit a healthcare facility by 8.7 to 12.8 percentage points, on average, compared to non-insured children (Panel A). Relative to the unconditional propensity to visit a health facility of around 15 percent only (Table 1), these estimates are quite substantial.

But these estimates may be confounded by the impact of the CCT conditionality on regular preventive check-ups for children below 5 years old. We assess the sensitivity of our estimates by providing separate estimates for healthcare facility visits by morbidity status of children, which we use as proxy for a need of curative healthcare. Our results show that sick children who are insured by PHIC are 18 to 30 percentage points more likely to visit a health facility (Table 3, Panel B). Non-sick children, on the other hand, are more likely to visit a healthcare facility by 5.9 to 8.3 percentage points when they are insured (Panel C). We take these as indications of positive impact of insurance coverage on both curative and preventive healthcare.

The limited impact on the demand for preventive healthcare is not surprising. Compared to inpatient care, PHIC's benefit packages for primary care checkups targeted towards sponsored members were neither as extensive, as generous, nor as well-established in 2013 when our data was collected. Also, beyond the targeted primary care benefits, PHIC has limited coverage for outpatient care (Bredenkamp and Buisman, 2015).

An important concern with health insurance provision is whether it induces over provision of healthcare services (Pauly, 1974). In a first-peso system, for instance, individuals may elect medical procedures that they do not need but are covered by the health insurance. Health service providers, on their part, may prescribe more medical procedures than necessary to gain more from a fee-for-service health insurance system. However, greater healthcare utilization even among non-sick children does not

necessarily signify over-provision. Instead, this may be an indication of previously unmet healthcare demand that households are now able to fulfill with social health insurance.

Results in Table 4 show that insured children are statistically no more likely to be advised by their physician for confinement (Panel A) or to be actually confined in a hospital or clinic (Panel B) compared to non-insured children. We take this as an indication that over-provision of healthcare services from physician-induced demand and from adverse selection of patients may be of limited concern to social health insurance in the Philippines.

<Table 4>

It must be emphasized though that our study focuses on the impact induced by the government's CCT program, which automatically enrolls beneficiaries to the sponsored program by PHIC. As mentioned in the previous section, PHIC's "no balance billing" policy applies to insured individuals in the sponsored program. Thus, the costs of over-provided health services are borne by health facilities, which may explain the results. What we see may very well be cost-containment measures of healthcare providers who will otherwise assume the healthcare costs in excess of what is covered by PHIC. The case may be different for other types of PHIC membership.

5.3. Health expenditures

PHIC's covered population has been increasing through the years, but the financial protection it provides against healthcare costs had remained small resulting in high out-of-pocket payments (Kwon and Dodd, 2011). The reforms initiated since 2010 aimed to address this shortcoming by increasing the number of poor families enrolled in PHIC, including more comprehensive benefits packages to members, and reducing co-payments by patients.

Table 5 shows the impact of health insurance coverage on hospital expenditures of children confined in the last year prior to the survey. In all of the specifications, we control for the place, reason, and duration of hospital confinement. Despite PHIC's "no balance billing" policy, we find that poor patients still pay out-of-pocket for hospitalization.

<Table 5>

In Panel A, we show that insured and non-insured children are statistically as likely to pay for medicines and health services that are not available in the hospital where they are confined. This constitutes about 97 percent of all hospitalized children in our sample (Table 1). In Panel B, we find that insured children are less likely to pay out-of-pocket by 9.2 to 38.6 percentage points compared to non-insured children, depending on specification (Panel B). With a base rate of 98.2 percent of non-insured children paying out-of-pocket for hospitalization (Table 1), this still leaves about 60 to 90 percent of poor households in our sample exposed to paying for hospitalization partly or wholly on their own after controlling for various confounders in our models.

Health insurance coverage, by design, could reduce the out-of-pocket spending by individuals. However, as pointed out above, health insurance coverage may also induce greater demand for healthcare, which, ultimately, increases out-of-pocket spending. Whether the overall impact is positive or negative is an empirical question.

Among households that are not fully insured, out-of-pocket payments by those insured under PHIC are between 46.6 and 64.5 percent less[6] than by those who are not insured (Panel C). Combined with estimates from Panel B, this indicates an average insurance support value in our sample of around 50 to 80 percent of total hospitalization costs. Our estimates are comparable to the figures reported in earlier studies on the proportion of healthcare costs covered by social health insurance in the Philippines based on other data sources (Pantig, 2013; Caballes, et. al., 2012; Tobe, et. al., 2013).

We now turn to the impact of health insurance coverage on total healthcare demand. In Panel D, we show that the healthcare services availed by insured and non-insured children as measured by total hospitalization costs, i.e., combined payment by the health insurance and from out-of-pocket, appear to not differ statistically. Although the point estimates show that insured children spend between 20 and 50 percent more than non-insured children, we have no enough evidence to claim that the differences are statistically different from zero.

This differs from the earlier results by Gertler and Solon (2002) who found evidence of price differentiation in health services among Philippines hospitals based on the health insurance coverage of patients. In their study, Gertler and Solon (2002) found that healthcare providers charge insured patients more for the same type of healthcare service provided. We must emphasize though that unlike in their study we are not able to control for specific healthcare inputs provided during hospital confinement.

Based on our estimates of the impact of health insurance coverage on out-of-pocket payments and on total hospitalization expenditure, we may estimate the own-price elasticity of demand for healthcare in the Philippines as a ratio of the two estimates. The price elasticity of demand for healthcare captures how sensitive the demand for healthcare is to changes in prices paid by households. A price elasticity of demand of –1.0, for instance, indicates that a one-percentage drop in healthcare prices is related to a matching one-percentage increase in healthcare demand. In our sample, own-price elasticity of demand for healthcare ranges between –0.39 and –0.87 depending on the specification, which are on the upper end of the –0.2 to –2.1 range cited by Gertler and van der Gaag (1990).

5.4. Patient satisfaction

While we have no enough evidence showing that the impact of social health insurance coverage on the total hospitalization bill between insured and non-insured children are statistically different, we find that those who are insured have lower propensity to indicate that they were satisfied with the service that they have had received during confinement. Table 6 shows that, on average, insured children are 8.2 to 22.9 percentage points less likely to indicate that they were satisfied with the service that they have had received, although it is only marginally statistically significant for the full model (Columns 6 and 12).

<Table 6>

We conjecture some possible explanations, which are not necessarily mutually exclusive. First, health facilities cannot legally price discriminate based on insurance coverage on certain segments of the market because of PHIC's "no balance billing" policy. But they may still discriminate based on the quality of service that they provide. If such is the case, then our results may be treated as an indication of such product differentiation. Second, it is also possible that our estimates actually reflect the impact of the CCT program on empowering the poor. And, related to this, third, health insurance coverage may have raised

[6] Calculated as $\exp(\widehat{\tau_{IV}}) - 1$

the expectations of households about the acceptable quality of healthcare that they should receive. Unfortunately, we cannot disentangle these related explanations in our current analysis.

Figure 1 shows the differences in the propensities of each factor to be cited as reason why the patients are dissatisfied. We limit our sample to children from poor households, while controlling for the place, reason, and duration of hospital confinement, and child, parent and household characteristics (Model 3). Overall, the largest percentage point differences in reasons cited are on how patients are treated by healthcare professionals during their confinement. Insured children are more likely to cite uncaring or rude staff (11.5 percentage-point difference) or unfair treatment (10.7 percentage-point difference) as reasons compared to non-insured children. The availability of other health inputs, or the lack thereof, are only secondary but remains as important source of differences in patient satisfaction: insufficient medicines (10.6 percentage-point difference), insufficient equipment (8.6 percentage-point difference), and insufficient staff (7.9 percentage point-difference).

<Figure 1>

5.5. CCT-effect

The estimates that have so far been presented rest on the assumptions that were emphasized in the previous section, but are worth revisiting. We have shown that children living in CCT-beneficiary households are more likely to be covered by social health insurance. But we cannot directly test whether the CCT program has any direct effect on the various outcomes that we presented. The estimates we have presented reflects the impact of health insurance coverage to the extent that the control variables that we have included in the models are able to net out the effect of potentially unobserved confounders that are both related to selection into the CCT program and insurance coverage. In addition to selection into the CCT program, however, if the CCT program also influences the health-seeking behavior of its beneficiaries directly, then our estimates in effect reflect the joint impact of these two programs.

To the extent that the control variables we included are able to capture the bias from unobserved confounding, OLS provides unbiased estimates of the impact of social health insurance coverage, and are thus preferred to the IV/2SLS estimates. Assuming that the contributions of social health insurance coverage and of the CCT program are additively separable, subtracting the OLS estimate from the IV/2SLS estimate isolates the impact of the CCT program. With unobserved confounding, however, the direction of the OLS bias is generally unknown. In this case, while the IV/2SLS estimates are still biased, it might be more informative than OLS if we can calibrate the bias of the IV/2SLS estimates.

We attempt to calibrate our estimates based on an earlier study assessing the impact of the Philippines' CCT program on health facility utilization among children. More specifically, we utilize results from the first-wave of impact evaluation of the CCT program (World Bank, 2013), which is based on a randomized control trial of CCT beneficiaries in 2008 and 2009. Intervention in priority areas was rolled out in phases, allowing the evaluators to use the areas receiving CCT in later phases as control areas. We focus on their impact estimate on health facility utilization. In the evaluation, the CCT program was estimated to increase health facility visits among children aged 0 to 5 years old who are sick with fever and cough by 13.2 percentage points (S.E. = 0.035). The subsequent second-wave impact evaluation based on a regression discontinuity design provides a slightly lower estimate at 8.8 percentage points (S.E. = 0.102), and the estimate is not statistically significant (DSWD, 2014).

We compare this with IV/2SLS estimates using our sample of children aged 0 to 5 years old who reported having cough or fever (Table 7). Assuming that that the contribution of social health insurance coverage and the CCT program are additively separable, our estimates point to social health insurance

increasing health facility utilization in this specific sample of children by as much as 20.2 percentage points (S.E. = 0.079), or about two-thirds of the IV/2SLS estimate. This points to a still size-able impact of social health insurance coverage even after netting out the contribution of the impact of the CCT program.

<Table 7>

We also provide separate IV/2SLS estimates for children aged 6 to 10 years old. As we have discussed in the earlier section, children aged 5 years old and below in CCT households are required to have regular health facility visits as one of the conditions to remain in the program. Comparing the estimates for those aged 0 to 5 with those aged 6 to 10 may therefore provide a ballpark estimate of the impact of the CCT program on health facility utilization. Interestingly, the estimate based on our most elaborate models (Columns 3 and 6) point to a CCT-effect of 12.4 percentage points, or about the same size as that reported in the first-wave evaluation, although the difference is not statistically significant.

6. Conclusion

It is a widely held belief that health insurance coverage promotes better access to healthcare, and greater financial security against catastrophic spending – i.e., the twin goals of health insurance. However, empirical evaluation of the actual impacts of insurance coverage, especially in developing countries, are limited, mainly since the availability of natural or field experiments that allow controlling for selection are equally scant. Recent innovations in social health insurance programs in many parts of the developing world have resulted in dramatic improvements in coverage, making thorough empirical assessments of the impacts needed to guide policy more crucial than ever.

In this paper, we use a nationally representative survey in the Philippines to study the impact of social health insurance coverage on the demand for healthcare among children. We exploit a large-scale, yet imperfect, natural experiment, i.e., the Philippines' conditional cash transfer (CCT) program, which automatically enrolls beneficiaries into the government's social health insurance program. This provides us both a challenge and an opportunity. On the one hand, while selection into the CCT program may be external to households, the large-scale experiment may directly impact the health-seeking behavior of individuals, thereby confounding our impact estimates. On the other hand, this allows us to directly evaluate the combined contribution of two different social protection programs. More specifically, we have estimated the joint effect of insurance coverage and of a CCT program on morbidity, household health facility utilization and out-of-pocket expenditures, physician behavior, and consumer satisfaction.

We find strong positive impacts of social protection coverage on both demands for curative and preventive healthcare, which we proxied by health facility visits of sick and non-sick children. The effect on preventive care, however, is less pronounced. This is not surprising given that insurance benefits for outpatient care, specifically primary healthcare, in the Philippines were not as well-developed as inpatient care benefits during our study period. We provide evidence that over-provision of healthcare induced by health insurance coverage may be of limited concern, at least in our sample. We also find significant reduction in out-of-pocket spending. While we find no evidence of healthcare service differentiation based on price, we document a large negative effect of social protection on patient satisfaction. A non-trivial portion of the estimated impacts may be attributed to the CCT program.

Based on these evidences, we highlight two important observations. First, insurance coverage alone may not be enough to promote better access to healthcare. This is in-line with the findings by Accad (2015) who showed that the joint impact of the CCT program and insurance coverage on the utilization of outpatient care is greater than the separate impacts of the CCT program and of insurance coverage. The confluence of the income effect – in this case, from direct cash transfer of the CCT program –, the price

effect – in this case, from the social insurance coverage –, and the information spillover – in this case, from various CCT program interventions – may be necessary components in designing effective social health insurance programs. Second, healthcare differentiation, either using price or quality, based on health insurance coverage may undermine the intended impacts of the program. Following Gertler and Solon (2002), product differentiation may allow healthcare providers to extract for themselves much of the economic surplus from health insurance, which are otherwise originally intended for patients.

We recognize that our analysis is limited in a number of ways. First, we only looked into the impact of insurance coverage among children in poor households. But their health insurance benefits are starkly different from the rest of the population. Whether our results extend to outside our sample is, at least for now, only speculative. Second, the health outcomes that we have included in our analysis are limited. Furthermore, in many instances, we have proposed possible explanations to our results based on theory, but these explanations were not empirically substantiated. Finally, we analyzed the impact of social health insurance coverage on the demand for healthcare without taking into account supply-side considerations. While insurance coverage may induce greater demand for healthcare, access may be hampered when the supply of healthcare services is limited or, even, non-existent. To a large extent, these limitations is a function of the data available to us to assess the impact of insurance coverage. In any case, these limitations highlight important research questions, which we leave for future investigation.

Overall, the evidences we presented here suggest that the social protection programs in the Philippines have contributed to better access to healthcare services, and to greater financial security against catastrophic healthcare spending. Although we highlight that improvements in health *per se* are not directly affected by these social protection programs, it is not unconceivable that increased access to healthcare will ultimately lead to improved health outcomes in the longer term through different secondary channels.

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Table 1. Descriptive Statistics

	All Households				Poor Households			
	Insured		Not Insured		Insured		Not Insured	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Child characteristics								
Age	9.48	6.03	9.94	7.59	9.08	5.61	9.27	7.40
Female	0.48	0.50	0.46	0.50	0.48	0.50	0.46	0.50
Education, highest grade completed								
Primary	0.38	0.49	0.31	0.46	0.43	0.49	0.34	0.47
Secondary	0.18	0.38	0.19	0.39	0.15	0.36	0.15	0.36
Higher	0.06	0.24	0.07	0.25	0.02	0.13	0.03	0.16
Sick in past 30 days	0.26	0.44	0.27	0.44	0.28	0.45	0.28	0.45
Visited health facility in past 30 days	0.14	0.34	0.15	0.36	0.16	0.36	0.15	0.35
Confined in hospital in past 30 days	0.06	0.23	0.05	0.22	0.05	0.22	0.05	0.22
Paid out-of-pocket for services outside of hospital	0.97	0.17	0.97	0.17	0.97	0.17	0.97	0.18
Paid out-of-pocket for hospitalization	0.77	0.42	0.98	0.13	0.83	0.38	0.98	0.13
Out-of-pocket expense (share of total bill)	0.45	0.39	0.97	0.15	0.37	0.40	0.97	0.15
Household characteristics								
CCT Household	0.47	0.50	0.18	0.38	0.76	0.43	0.26	0.44
Wealth index (studentized)	0.18	1.06	0.30	0.94	-1.05	0.56	-1.01	0.59
Father's age	40.34	8.50	39.34	10.13	40.29	8.54	38.52	10.08
Father's education, highest grade completed								
Primary	0.27	0.45	0.31	0.46	0.44	0.50	0.43	0.49
Secondary	0.43	0.49	0.48	0.50	0.44	0.50	0.42	0.49
Higher	0.28	0.45	0.16	0.37	0.08	0.28	0.07	0.26
Mother's age	37.03	7.09	35.72	8.70	36.72	7.10	35.03	8.67
Mother's education, highest grade completed								
Primary	0.34	0.47	0.37	0.48	0.55	0.50	0.51	0.50
Secondary	0.36	0.48	0.42	0.49	0.33	0.47	0.34	0.48
Tertiary or higher	0.27	0.44	0.17	0.37	0.07	0.26	0.07	0.26
Parents are living together	0.93	0.26	0.94	0.24	0.96	0.19	0.95	0.21

Table 2. Health insurance coverage and morbidity

	All Households						Poor Households					
	OLS			IV/2SLS			OLS			IV/2SLS		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Est.	0.020	0.013	0.009	-0.036	-0.026	-0.025	0.004	0.005	0.001	-0.025	-0.017	-0.020
S.E.	0.007	0.007	0.007	0.018	0.020	0.020	0.010	0.010	0.010	0.019	0.020	0.021
p-value	0.005	0.050	0.209	0.052	0.189	0.228	0.701	0.599	0.906	0.192	0.415	0.339
Obs.	25,534	25,514	23,781	25,534	25,514	23,781	13,355	13,343	12,675	13,355	13,343	12,675
RMSE	0.442	0.409	0.410	0.443	0.410	0.410	0.448	0.412	0.411	0.448	0.412	0.411
Kleibergen-Paap Wald χ-sq.				1,098	902	835				961	752	661
Cragg-Donald F				865	628	579				803	568	501
Hansen's J-statistic				122.138	0.403	0.604				91.616	0.012	0.344
Household wealth quintile	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cubic function of child's age		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes
Child is female		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes
Child's education		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes
Region		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes
Parents' age			Yes			Yes			Yes			Yes
Parents' occupation			Yes			Yes			Yes			Yes
Parents are living together			Yes			Yes			Yes			Yes

Table 3. Health insurance coverage and health facility visit

	All Households						Poor Households					
	OLS			IV/2SLS			OLS			IV/2SLS		
	Model 1 (1)	Model 2 (2)	Model 3 (3)	Model 1 (4)	Model 2 (5)	Model 3 (6)	Model 1 (7)	Model 2 (8)	Model 3 (9)	Model 1 (10)	Model 2 (11)	Model 3 (12)
A. All children												
Est.	0.020	0.033	0.030	0.087	0.130	0.128	0.013	0.027	0.021	0.078	0.112	0.107
S.E.	0.005	0.005	0.006	0.015	0.017	0.017	0.008	0.008	0.008	0.015	0.016	0.017
p-value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.100	0.000	0.008	< 0.001	< 0.001	< 0.001
Obs.	25,534	25,514	23,781	25,534	25,514	23,781	13,355	13,343	12,675	13,355	13,343	12,675
RMSE	0.356	0.333	0.333	0.357	0.335	0.336				0.362	0.339	0.339
Kleibergen-Paap Wald χ-sq.				1,098	902	835				961	752	661
Cragg-Donald F				865	628	579				803	568	501
Hansen's J-statistic				80.099	0.429	0.010				60.328	0.001	0.002
B. Sick children												
Est.	0.029	0.065	0.060	0.230	0.297	0.295	0.019	0.055	0.042	0.180	0.244	0.249
S.E.	0.015	0.015	0.016	0.045	0.048	0.050	0.021	0.021	0.022	0.045	0.049	0.053
p-value	0.061	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.350	0.008	0.056	< 0.001	< 0.001	< 0.001
Obs.	6,842	6,839	6,434	6,842	6,839	6,434	3,709	3,709	3,551	3,709	3,709	3,551
RMSE	0.498	0.482	0.480	0.507	0.493	0.490				0.504	0.491	0.488
Kleibergen-Paap Wald χ-sq.				472	394	352				421	330	270
Cragg-Donald F				318	263	233				287	231	194
Hansen's J-statistic				2.232	0.009	0.308				0.920	0.141	0.611

Table 3. Health insurance coverage and health facility visit *(continued)*

	All Households						Poor Households					
	OLS			IV/2SLS			OLS			IV/2SLS		
	Model 1 (1)	Model 2 (2)	Model 3 (3)	Model 1 (4)	Model 2 (5)	Model 3 (6)	Model 1 (7)	Model 2 (8)	Model 3 (9)	Model 1 (10)	Model 2 (11)	Model 3 (12)
C. Not sick children												
Est.	0.005	0.013	0.013	0.062	0.083	0.082	0.008	0.014	0.013	0.059	0.074	0.071
S.E.	0.003	0.003	0.003	0.009	0.010	0.010	0.005	0.005	0.005	0.009	0.010	0.010
p-value	0.138	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.079	0.004	0.008	< 0.001	< 0.001	< 0.001
Obs.	18,692	18,675	17,347	18,692	18,675	17,347	9,646	9,634	9,124	9,646	9,634	9,124
RMSE	0.179	0.173	0.173	0.181	0.176	0.175				0.190	0.184	0.183
Kleibergen-Paap Wald χ-sq.				935	750	705				817	624	566
Cragg-Donald F				751	529	494				704.712	485.471	437.291
Hansen's J-statistic				2.329	1.765	0.8				5.208	0.571	0.063

Table 4. Health insurance coverage and hospital confinement

	All Households						Poor Households					
	OLS			IV/2SLS			OLS			IV/2SLS		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A. Advised for hospital confinement by physician during visit												
Est.	-0.004	-0.004	-0.010	-0.006	0.003	-0.015	-0.005	-0.003	-0.006	-0.020	-0.019	-0.033
S.E.	0.009	0.009	0.010	0.028	0.030	0.032	0.012	0.012	0.013	0.029	0.031	0.033
p-value	0.678	0.629	0.297	0.839	0.928	0.628	0.664	0.815	0.618	0.491	0.547	0.323
Obs.	3,794	3,791	3,563	3,794	3,791	3,563	2,049	2,049	1,961	2,049	2,049	1,961
RMSE	0.236	0.234	0.232	0.236	0.234	0.232	0.226	0.224	0.222	0.227	0.224	0.222
Kleibergen-Paap Wald χ-sq.				262	229	205				206	184	160
Cragg-Donald F				155	132	116				125	111	94
Hansen's J-statistic				1.995	0.995	0.984				1.174	0.304	0.026
B. Confined in hospital in past 30 days												
Est.	0.000	0.006	0.005	0.004	0.024	0.024	0.006	0.012	0.011	0.013	0.028	0.024
S.E.	0.008	0.008	0.008	0.020	0.024	0.026	0.010	0.010	0.011	0.023	0.026	0.029
p-value	0.979	0.446	0.524	0.853	0.319	0.356	0.544	0.258	0.311	0.557	0.279	0.403
Obs.	3,761	3,758	3,531	3,761	3,758	3,531	2,020	2,020	1,933	2,020	2,020	1,933
RMSE	0.207	0.205	0.202	0.207	0.205	0.203	0.192	0.191	0.187	0.192	0.191	0.187
Kleibergen-Paap Wald χ-sq.				284	232	208				217	182	157
Cragg-Donald F				182	141	123				141	117	96
Hansen's J-statistic				0.958	0.303	0.365				0.189	0.116	0.001

Table 5. Health insurance coverage and hospital expenditures

	All Households						Poor Households					
	OLS			IV/2SLS			OLS			IV/2SLS		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A. Bought ought-of-pocket medicine/service apart from hospital												
Est.	-0.001	-0.004	-0.001	0.029	0.050	0.077	-0.009	-0.010	-0.009	0.024	0.054	0.082
S.E.	0.015	0.015	0.016	0.044	0.046	0.037	0.023	0.019	0.021	0.062	0.067	0.059
p-value	0.960	0.793	0.947	0.508	0.278	0.037	0.702	0.613	0.646	0.701	0.427	0.161
Obs.	760	760	710	760	760	710	372	372	352	372	372	352
RMSE	0.164	0.159	0.153	0.165	0.161	0.156	0.167	0.158	0.148	0.168	0.160	0.151
Kleibergen-Paap Wald χ-sq.				71	51	58				47	28	25
Cragg-Donald F				48	31	31				30	15	12
Hansen's J-statistic				4.660	0.010	1.388				2.597	0.406	0.027
B. Paid out-of-pocket for confinement												
Est.	-0.240	-0.217	-0.204	-0.386	-0.317	-0.217	-0.328	-0.290	-0.270	-0.284	-0.094	-0.092
S.E.	0.022	0.023	0.024	0.107	0.136	0.117	0.034	0.037	0.040	0.115	0.162	0.150
p-value	< 0.001	< 0.001	< 0.001	< 0.001	0.020	0.064	< 0.001	< 0.001	< 0.001	0.013	0.561	0.540
Obs.	989	989	925	989	989	925	432	432	411	432	432	411
RMSE	0.345	0.332	0.320	0.350	0.334	0.320	0.389	0.361	0.338	0.390	0.369	0.344
Kleibergen-Paap Wald χ-sq.				68	47	57				48	28	29
Cragg-Donald F				42	26	30				29	14	13
Hansen's J-statistic				1.266	1.311	0.235				0.375	0.474	1.519

Table 5. Health insurance coverage and hospital expenditures *(continued)*

	All Households						Poor Households					
	OLS			IV/2SLS			OLS			IV/2SLS		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
C. Total paid out-of-pocket for confinement, log												
Est.	-0.436	-0.388	-0.479	-0.751	-0.747	-0.628	-0.413	-0.322	-0.347	-1.036	-0.994	-1.007
S.E.	0.100	0.104	0.108	0.311	0.370	0.329	0.139	0.143	0.148	0.355	0.446	0.412
p-value	< 0.001	< 0.001	< 0.001	0.016	0.044	0.057	0.003	0.025	0.019	0.004	0.026	0.014
Obs.	818	818	767	818	818	767	320	320	306	320	320	306
RMSE	1.245	1.208	1.178	1.252	1.217	1.179	1.184	1.104	0.976	1.219	1.137	1.007
Kleibergen-Paap Wald χ-sq.				61	49	61				46	33	37
Cragg-Donald F				39	29	36				27	18	18
Hansen's J-statistic				0.231	0.753	0.678				0.242	1.055	0.959
D. Total paid for confinement, log												
Est.	0.402	0.461	0.406	0.189	0.351	0.341	0.450	0.529	0.463	0.335	0.399	0.269
S.E.	0.082	0.086	0.091	0.254	0.320	0.289	0.110	0.113	0.115	0.279	0.385	0.383
p-value	< 0.001	< 0.001	< 0.001	0.457	0.272	0.238	< 0.001	< 0.001	< 0.001	0.229	0.301	0.483
Obs.	977	977	913	977	977	913	424	424	403	424	424	403
RMSE	0.921	0.899	0.876	0.925	0.900	0.876	0.868	0.828	0.770	0.869	0.830	0.773
Kleibergen-Paap Wald χ-sq.				66	46	55				46	26	27
Cragg-Donald F				41	25	29				27	13	12
Hansen's J-statistic				0.367	3.230	2.802				0.263	1.850	1.379

Table 6. Health insurance coverage and patient satisfaction

	All Households						Poor Households					
	OLS			IV/2SLS			OLS			IV/2SLS		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Est.	0.006	0.010	0.008	-0.123	-0.135	-0.189	0.007	0.009	-0.029	-0.082	-0.135	-0.229
S.E.	0.024	0.024	0.025	0.080	0.095	0.095	0.033	0.031	0.029	0.081	0.092	0.114
p-value	0.811	0.695	0.750	0.126	0.158	0.045	0.843	0.777	0.305	0.311	0.141	0.045
Obs.	1,083	1,083	1,015	1,083	1,083	1,015	491	491	467	491	491	467
Log-likelihood	-224.215	-203.836	-164.468	-242.011	-224.650	-199.352	-60.497	-41.540	-8.152	-65.223	-52.537	-27.761
RMSE	0.298	0.292	0.285	0.303	0.298	0.294	0.274	0.263	0.246	0.276	0.269	0.257
Kleibergen-Paap Wald χ-sq.				78	53	63				56	32	34
Cragg-Donald F				49	31	35				34	18	17
Hansen's J-statistic				0.055	0.020	0.129				0.581	0.020	0.002

Table 7. Insurance coverage and health facility visit among children reported with cough or fever

	Age 0-5			Age 6-10		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
	(1)	(2)	(3)	(4)	(5)	(6)
Est.	0.279	0.306	0.334	0.290	0.241	0.210
S.E.	0.061	0.063	0.071	0.084	0.079	0.079
p-value	< 0.001	< 0.001	< 0.001	0.001	0.002	0.008
Obs.	2,020	2,020	1,950	735	735	704
Log-likelihood	-1508	-1453	-1389	-520	-496	-457
RMSE	0.510	0.497	0.493	0.491	0.475	0.463
Kleibergen-Paap Wald χ-sq.	254	223	178	119	128	117
Cragg-Donald F	330	296	228	185	211	205

Figure 1. Reasons for dissatisfaction