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Field based evidence of enhanced healthcare utilization among persons insured by micro health insurance units in Philippines

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Abstract

Underutilization of healthcare is common among rural and low-income population segments in countries with lower income or inequitable income distribution.

Micro health insurance units (MIUs) are created by informal sector groups because people cannot access health insurance or are dissatisfied with the programmes they can access.

The policy choice to support MIUs relies on evidence that affiliation with these schemes increases healthcare utilization.

This article examines new evidence of the association between affiliation with MIUs and healthcare utilization. We analyzed field data collected in 6 MIUs in the Philippines in 2002 (through a household survey encompassing 890 insured- and 1063 uninsured households). The two cohorts did not differ in demographic parameters, and differed only marginally in income and education levels, both higher amongst the insured.

Insured persons reported higher hospitalization rates, higher rates of professionally-attended deliveries, lower rates of delivery at home, a higher frequency of primary-care physician encounters, a higher rate of diagnosed chronic diseases, and better drug compliance among chronically ill.

Increased utilization by the insured is not due to adverse selection, judging by two facts: morbidity of the two cohorts, as assessed by a proxy indicator (the reported number of episodes of illness) did not differ; and rates of deliveries were even slightly higher among the uninsured.

We conclude that MIUs in the Philippines can alleviate underutilization of heath care.

1. Introduction

One of the major objectives of the health system should be to provide adequate access to healthcare of all population segments. In countries with lower income or highly inequitable income distribution, this

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does not always happen; reports claim that low-income and rural populations exhibit very low healthcare utilization levels, e.g. [1] in India, [2] in the Philippines, and [3] in South Africa. In some countries, micro health insurance units (MIUs)[1] are created either because people cannot get health insurance through top-down programmes, or because they are dissatisfied with the programme(s) they can access. This situation has been reported from several countries [4–7], notably the Philippines [8]. At the same time, the effectiveness of MIUs is still debated [9,10], and [11]. The policy question that arises in this context is whether MIUs should be supported by public authorities, at least as an interim arrangement that offers a way to increase utilization of affiliated persons, through a mechanism that, at the same time, enlarges the flow of funds transiting a pooling arrangement. Such policy choice should, where possible, be based on evidence. This article examines the evidence in one country, the Philippines, by comparing utilization levels of MIU-members compared to uninsured persons living in the same regions.

1.1. Background on the situation in the Philippines

Between 30 and 40 million people out of the Philippines' 86.2 million population (July 2004 est.) [12] do not have health insurance. In 2000, per capita health expenditure was PPP$ 167, or 1.5% and 1.8% of GDP, respectively for public and private health expenditure [13]. Until 1991, the Department of Health operated a national health care system, but in 1991, responsibility for health care delivery was decentralized to the different levels of Local Government Units (LGUs) ([8], p. 331), which caused fragmentation of the system. In 1995, the government promulgated a framework law to achieve universal health insurance coverage, in a gradual process to be concluded by the year 2010 ([14], p. 208). In the meantime, multiple insurers sell health insurance in the Philippines: Private health insurers operate in the formal sector (mainly through large private employers or with wealthy self-employed); PhilHealth, the government health insurer, has a high market share in large urban centers and

in the formal economy: in 2002, about half the Filipino population was covered [2,15,16], (and there is also a secondary market for complementary and supplementary health insurance that attracts mainly those benefiting from the PhilHealth package); some LGUs operate a substitutive local scheme; finally, some co-operatives and other groups have set up voluntary, community-based contributory health organizations, or MIUs, mainly in the informal economy or in rural areas ([8], p. 339).[2]

1.2. What are micro health insurance units?

Micro health insurance units (MIUs) are grassroots organizations whose purpose is to provide financial protection in case of illness. Four main types of MIUs can be identified: (i) schemes akin to cooperatives or mutual funds, which are often launched by members who are associated in other ways, e.g. through a trade organization, a micro finance institution, village committee, etc.; (ii) schemes started by a provider, where most or all services are provided by that same provider; (iii) schemes established by an external agent, e.g. a health NGO, a church, a development project etc.; (iv) schemes that are linked to a public authority or a commercial insurer, where a "super policy-holder" recruits the members of the group and facilitates the relationship between individuals and the insurer, e.g. by submitting pre-screened claims, collecting and distributing the benefits among the members, etc.

In this study, one MIU (Guimaras Health Insurance Program–GHIP) was set up by the public authority that also paid the contributions for older and poorer members; three MIUs were created by cooperatives for their members (*Davao City* MMG-CHP; *Quezon City*–Novaliches NOVADECI-NHCP; and the VALDECO-DPK). One MIU was started by an NGO (La *Union* OHPS, started by ORT international); and one was created by a group of health workers around a regional hospital (*Bayawan*, *Negros Oriental*: Peso for Health Program (PHP).

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[1] Also known as community health financing schemes, mutual health organizations, community-based health organizations, etc.

[2] Community based health schemes may carry out several functions. We were interested in those that have a healthcare financing role. Other roles can include health care services providers; and administrative intermediaries with strong information, education, and communication activities.

2. Methods

2.1. MIUs included in this study

A household survey was carried out in 2002[3] in six MIUs in the Philippine.[4] We included sites from Northern Philippines, Metro Manila, Central Visayas and Mindanao. Our MIUs represent different occupational groups and organizational set-ups. Achieving this heterogeneity required accepting a purposive selection of MIUs. The six MIUs were selected out of a list of 19 schemes that were identified in a previous study (dating to 1999) as schemes that include a component of health financing ([8], p. 339).[5] Selection of MIUs for the current study was also influenced by the agreement of the schemes to cooperate with the research team. We interviewed household heads (by following a structured questionnaire), and noted information on utilization of health services as recalled by the respondents and other household insureds.

2.2. Sampling

A cross-sectional research design was used, where a two-stage cluster sampling method was employed in the selection of insureds and uninsureds. In each geographical area, the populations of insureds and uninsureds were separated. Within each category, the populations were further stratified according to distance from the residence (barangay, or Filipino for villages) to the point of service (the MIU), because healthcare utilization patterns depend also on this distance. Barangays located close-by (e.g. same location as the MIU) were classified as "inner barangays", and those further away from the MIU were classified as "outer barangays". In the list of insureds, two barangays (from the inner and outer groups) were selected with probabilities proportional to size, where size is the number of households. In Novaliches, Guimaras and Davao, where distances were small, four barangays were selected in a similar manner.

The second sampling stage consisted of selecting a random sample of approximately 160 households per area (40 insured households and 40 uninsured households, within inner and outer barangay for each selected MIU).

Data for all households was pooled together for the purpose of analysis. This approach gives equal weights to the different sites. The χ^2-test was used to compare the proportions of qualitative variables and to assess the statistical significance of the differences between insureds and uninsureds at the $\alpha = 0.05$ level.

The purpose has been to compare utilization levels of two groups: (i) a group of individuals who access benefits offered by an MIU; and (ii) a group of persons of the same community who are uninsured. We discovered that the distinction between insured and uninsured individuals is not easy to establish. For one, although the subscription unit is usually a household rather than an individual, there is no one-to-one match between the insurance of the household head and that of all other individuals belonging to the household. Some adult individuals may have a different or an additional health insurance contract, in which case the other insurance paid the cost of care reported by household heads.[6] Other individuals may have no insurance coverage at all. Secondly, MIU membership records are rarely matched with contribution payment records, and even less so with utilization records. Hence, it is probable that some individuals (mainly children) who are not formally insured nevertheless receive services from the MIU ("free riders") by virtue of the coverage of the household head. These caveats notwithstanding,

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[4] The six are: (1) *Guimaras Island*: the Guimaras Health Insurance Program (GHIP); (2) *Davao City*: the Medical Missions Group Cooperators Health Program (MMG-CHP); (3) *Quezon City*: the Novaliches Development Cooperative, Inc. Health Care Program (NOVADECI-NHCP); (4) *San Fernando, La Union*: ORT Health Plus Scheme (OHPS); (5) *Bayawan, Negros Oriental*: Peso for Health Program (PHP); (6) *Valenzuela City*: the Valenzuela Development Cooperative Damayang Pangkalusugan (VALDECO-DPK).

[5] That earlier survey identified 66 community-based health care organizations (CBHCOs); 38 of the 66 community-based health care schemes were selected, using a five-point purposive sampling criteria that mostly ensured differentiation and sampling balance. Data sets from 35 of the 38 CBHCOs were accepted, and analyzed. Of these 35, 19 were in rural areas, 4 in urban areas, and 12 in mixed settings [8]. As mentioned, 19 of the 35 schemes had a health-financing component.

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[6] However, the rate of enrolment in health insurance schemes other than MIUs was 28.9% among MIU-affiliated individuals and 29.5% among MIU-unaffiliated individuals. This insignificant difference cannot explain the difference in health services utilization between the two groups. Consequently, we can ignore this parameter.

the decision-rule we followed in this study has been to count as "insureds" all the households that were identified as members of MIUs (by lists provided by the MIUs or by spot-mapping carried out by our research teams), and to consider the rest of the households in the barangays as "uninsured" (non-MIUs households).

3. Results

The findings provided below are drawn from a comparison between insureds and uninsureds within the entire survey sample.[7]

3.1. Data yield

A total of 1953 households, 890 insured households and 1063 uninsured households were included in the study. These households included 4639 and 5550 individuals, respectively. The findings provided below are drawn from a comparison between insureds and uninsureds within the entire survey sample.

3.2. Demographics, socio-economic status and education

We looked at socio-economic parameters of insureds and uninsureds, because these parameters can influence healthcare utilization. The results are summarized below:

The gender ratio for both cohorts was 0.99 males for 1 female. The median age, 22 years, is the same for insureds and uninsureds. The majority of the population is within the age-range of economic activity, although the insureds' group includes slightly fewer young individuals aged below 15 years (32.7% among insureds compared to 35.4% among the uninsureds) and slightly more individuals that are over 60 years old (7% of the insureds, and 5.6% of the uninsureds). The marital status was also quite similar (57.6% of insured respondents were married, compared to 60.1% among the uninsured). Household size was also comparable: The average numbers of children and other dependents per household was 5.1 persons per household for both cohorts. The large similarity between the two cohorts

indicated that differences in utilization could not be attributed to demographic parameters.

The differences in socio-economic parameters are slightly more pronounced. 34% of the sampled population (663 households, out of 1943) reported earning below PhP 5000 per month (=US$ 100). "Income" means income from all sources per household, including salary income and income from a microenterprise, where relevant. With an average household size of 5.1 persons, this is an income of less than PhP 1000 (=US$ 20) per person per month. This income group is smaller among insureds (29.2%) than among uninsureds (38.3%). At the upper end of the income distribution, more insureds (11.7%) than uninsureds (3.3%) earn a monthly income of PhP 35,000 or more (=US$ 700+), or US$ 136.72 per person per month. The highest income bracket is more than seven times richer than the poorest bracket. This would suggest that MIUs attract people with a wide income-range. However, the higher prevalence of lower income among the uninsured suggests that low income may be a limiting factor in the affiliation to insurance.

As the income levels reported above were derived from the structured questionnaires and not from independent sources, we validated the findings with 'ownership of assets' as proxy indicator.[8] The data confirms that more insured than uninsured own their house and lot; that on average, the insured own larger houses (31.4% own houses with 3+ bedrooms, compared to 24.6% among the uninsured); own a bit more appliances/durable goods (e.g., 62.1% of the insureds own a refrigerator, but only 49.2% of the uninsured).[9] In addition, we also looked at three other facilities: access to toilets, garbage disposal and water. On these three facilities there was no difference between insureds and uninsureds. In summary, the socio-economic differences between the two cohorts are small.

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[7] Sample size is based on valid responses only. Therefore, sample size varies in different tables.

[8] Asset measurement is a recognized alternative to measure socio-economic status ([25] p. 11), ([26] p. 5), ([27] p. 13), ([28,29] p. 8).

[9] Incidentally, although there was no direct question on access to electricity, the information on ownership of appliances leaves no doubt that most households are connected to the electric grid It is noteworthy that some 85% of the population have TV and some 75% of the population have radios; this suggests that radio and TV are probably the best means to disseminate information to the entire population.

Table 1
Proxy indicators for overall healthcare utilization

Proxy indicator	Insureds	Uninsureds
Total sample (Households)	4639	5550
Frequency of episodes of illness in last 3 months	760 (16.4%)	882 (15.9%)
Total sample (Households)	4546	5543
Deliveries in the last 5 years (% of sample)	422 (9.3)%	618 (11.1)%

Finally, education is often viewed as a predictor of health [17,18] and income [17,19] and therefore, we collected information on educational levels of insured compared to the uninsured. Fewer insureds reported no education at all (4.2% compared to 6.4% among uninsured), and more insured individuals have completed college or post grad educational levels (25.3% compared to 18.9% among the uninsured). From the replies we gather that insured individuals are slightly better educated than the uninsured.

3.3. Risk profiles and healthcare needs

3.3.1. Smoking, alcohol consumption, obesity

It is common practice for health insurers to collect information to estimate the risk they underwrite. In this study we asked respondents [10] about their smoking, alcohol consumption and obesity status. The replies are as follows: while fewer insureds than uninsureds smoke, more insureds than uninsureds consume alcohol and are obese. These findings do not offer a consistent indicator of health outcomes, because whereas smoking is increasingly becoming recognized as risky behavior even among the poor, eating and drinking is considered in certain low-income societies as a sign of wealth and better life rather than a health risk [20].

3.3.2. Proxies for overall healthcare needs

In the absence of an independently validated source of information on overall morbidity within the target population, we recorded replies to a proxy indicator: the number of illness episodes in the household during the last 3 months preceding the survey. The reported frequency of such episodes was remarkably similar for

insureds and uninsureds (Table 1). A second proxy indicator for the need for maternity services was the number of pregnancies in the 5 years preceding the survey. The data shows that the frequency of deliveries among the insureds was slightly lower than that reported by uninsureds.

3.4. Healthcare utilization

Access to healthcare is assessed here by six types of care: primary care encounters, hospitalizations, professional attendance during deliveries, delivery at home, diagnosis of chronic diseases, and drug-compliance among the chronically ill (Table 2).

The data reveals that, surprisingly, the majority of people who reported illness did not seek physician care. As can be seen in Table 2, only 46.1% of all insureds who were ill saw a physician (although they may have seen a nurse or another health worker). The number of uninsureds in the same situation was even lower, at 38.8%. The difference between the two groups is significant both statistically and materially, considering that the proxy indicator for morbidity was virtually the same for both groups (16.4% and 15.9% respectively, see Table 1).

The number of hospitalizations of insureds was higher than for uninsureds (6.3% compared to 4.2%), with very similar distribution between communicable and non-communicable diseases.

A similar pattern is observable regarding the rate of deliveries attended by a physician: 54.5% for insureds compared to 44.0% among uninsureds. The number of deliveries at home (least professional attendance) is commensurately higher among uninsureds, with 40.4% compared to 31.8% among insureds. It should be noted that the rates of professional attendance at delivery for both groups is still quite low.

More chronic illnesses were diagnosed in the insured cohort than in the uninsured group, 5.7% versus 4.6% (Table 2). The difference was more pronounced

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[10] These questions were answered by only one respondent from each household, the household head or his/her spouse. Therefore, the replies provide only a partial picture of life style choices within the households.

Table 2
Access to healthcare

Visits to doctors in past 3 months	Insureds	Uninsureds	Significance
Sample (total)	4639	5550	
Care seeking individuals (% of total sample)	7.6%	6.2%	$P = 0.0051$
Care-seekers in the last 3 months as % of all ill (see Table 1 for total number)	46.1%	38.8%	$P < 0.0026$
Hospitalizations in past 2 years			
Sample	4639	5550	
Hospitalized	6.3%	4.23%	$P < 0.0001$
Communicable diseases	3.0%	1.8%	$P < 0.0001$
Non-communicable diseases	3.0%	2.2%	$P = 0.0123$
Injury/accident	0.3%	0.23%	
Deliveries in past 5 years			
Sample (total sample)	4639	5550	
Deliveries attended by doctors among those who had episodes of pregnancy (see Table 1 for total number)	54.5%	44.0%	$P < 0.0001$
Rate of deliveries at home among those who had episodes of pregnancy	31.76%	40.37%	$P < 0.001$
Chronic illnesses			
Sample	4639	5550	
Diagnosed as chronically ill - total	5.65%	4.63%	$P = 0.0051$
Diagnosed with diabetes and hypertension	3.0%	2.22%	$P = 0.0210$
Drug compliance in chronically ill			
Sample	262	242	
Chronically ill not taking drugs	20.22%	32.64%	$P = 0.0015$

when the comparison was limited to diabetes and hypertension (3.0% versus 2.2%). The difference between insureds and uninsureds in drug compliance (20.2% of the insured versus 32.6% of the uninsured do not comply with the drug regime) was perhaps more important.

4. Discussion

This study set out to collect information on levels of healthcare utilization as reported by persons insured by MIUs compared to a control group of uninsured persons.

For this comparison to be valid, we needed to ascertain that the two cohorts do not differ markedly from each other in demographic, socio-economic and education parameters, which are known to have an impact on healthcare utilization. We have found small differences: Slightly fewer insureds are married; they are slightly older; and there is a slightly higher prevalence of widowed/divorced/separated households amongst the insureds. However, the demographic disparities are minimal, and probably irrelevant in explaining differ-

ences in healthcare utilization. We also found that the insured cohort is slightly better educated, and slightly better-off than the uninsureds' cohort. Recalling the assertion of Dong et al. [21] that a higher socio-economic status positively influences willingness to pay, it is possible that these differences, small as they are, affect the decision to join a contribution-based health insurance scheme.

When comparing utilization levels, we must also ascertain that the two cohorts have a similar need for healthcare benefits. In this study, the morbidity was assessed by a proxy indicator: Frequency of episodes of illness in last 3 months (Table 1). The findings are remarkably similar for both cohorts. Therefore, one can probably dismiss 'differences in medical needs' as a confounding parameter in the comparison between the cohorts.

The evidence obtained in this survey clearly confirmed that persons insured by MIUs reported higher health care utilization than uninsured persons. This included a higher rate of access to physician-encounters among insureds, which however was still quite low in terms of the reported number of illnesses. In-

sureds reported higher hospitalization rates as well. We established from the replies to the questionnaire that about 95% of all cases of hospitalization were physician-referrals rather than direct admissions (94.0% for insureds, 95.6% for uninsureds). This high referral-rate to hospital suggests that general practitioners act as "gate-openers" rather than as gatekeepers. Hence, fewer primary care encounters among the uninsured cohort could explain, at least partly, why they also registered fewer hospitalizations. This insight suggests that a policy-choice to exclude primary care from the benefit package (which often happens, on the assumption that clients can pay for primary care out-of-pocket) may lead to underutilization of inpatient care due to underestimation by uninsured clients of their needs.[11] There is also a self-explanatory link between higher hospitalization rates among the insureds and the composition of the benefit package of the MIUs surveyed, all of which include hospitalizations.

We also looked at a proxy indicator for maternity needs, which was the total number of deliveries in the 5 years preceding the survey (Table 1). The rate of deliveries among the insured cohort was slightly lower than the rate recorded among the uninsured (9.3% compared to 11.1%). But the rate of deliveries attended by a doctor among those who had episodes of pregnancy was significantly higher among the insured cohort than among the uninsureds. At the same time, the rate of delivery at home was much higher among the uninsured.

The incidence of diagnosed hypertension and diabetes is 36% higher among the insured population than among the uninsured. One could argue that this difference could originate from the slightly higher age (7.0% insured over 60 years, compared to 5.6% among the uninsured) and prevalence of obesity among the insured population. Yet, these two chronic conditions are asymptomatic for a long time. Hence, a plausible explanation for the higher rate of diagnosis is the higher rate of primary-care physician encounters among the insured, which could provide the opportunity for screening.

Despite the small sample of chronically ill, one can observe a significantly higher rate of drug com-

pliance among the insured. We are unable to establish the reason for this difference, other than to mention that most MIUs do not provide unlimited drugs. Hence, the difference may be due to better awareness (and the existence of "awareness groups" organized in some MIUs).

In summary, we observe an association between higher utilization and being insured by MIUs. Does this amount to the existence of a cause-effect relationship between higher utilization and being insured by the MIUs? For the cause-effect relation to be established unequivocally, one would need to carry out a longitudinal study, which would look at utilization levels before and after joining the insurance. However, this retrospective data is usually unavailable. This minor reserve notwithstanding, the association between higher utilization and being insured by MIUs is a significant finding, in particular against the backdrop of the reported underutilization of persons covered by the PhilHealth MSM program, which operated in comparable regions and constraints [22].[12]

One final point merits a short discussion: Affiliation to MIUs is voluntary. It is often assumed that voluntary affiliation to health insurance is attractive mainly to bad risks. Hence, individual/voluntary health insurance is assumed to be exposed to adverse selection [23,24]. We have no evidence to assume that this assertion applies to MIUs; quite the contrary, there is some indication for the opposite. For one, the proxy indicator for morbidity among the insured and uninsured cohorts is virtually the same (Table 1), and does not support an assumption of adverse selection. Secondly, if adverse selection were manifest, one could expect the insured cohort to report a higher number of deliveries during the 5 years preceding the survey compared to the uninsured. In reality, the opposite was registered. One explanation for this situation is the fact that MIUs operate substitutive rather than complementary and supplementary schemes, in a setting where group size is usually quite small (from 900 in Davao to 7000 in La Union), and where decisions to join are taken by households rather than single individuals, and in social settings where the group can influence members' conduct and therefore reduce deviant behavior. Thus, the MIUs are ap-

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[11] It is recalled that the PhilHealth package does not include primary care, a fact that may explain why hospital care is reported to be underutilized among the PhilHealth insureds, notably the participants in the Indigent program [23].

[12] According to Almario and Weber [23], MSM to date covers only a small portion of the estimated poor population in the country (less than 10%).

parently not susceptible to the same market failures of voluntary health insurers in OECD countries.

This article examines evidence on the impact of being insured by MIUs in the Philippines on increasing healthcare utilization, in an environment where underutilization is otherwise prevalent. We have presented data upholding an association between insurance by MIUs and better healthcare utilization. Considering that the overall objective of the authorities in the Philippines, as in other countries, is to enhance access to healthcare and remedy underutilization, one can claim that grassroots initiatives such as the MIUs make a real contribution towards this goal.

Acknowledgements

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