Analysis of Self-Reported Health in Commune Health Centers: A Case Study in Thai Nguyen, Khanh Hoa and Vinh Long Provinces

TO BUILD AND SUSTAIN CAPACITY FOR PRODUCING AND USING SOCIAL RESEARCH FOR EVALUATION AND DECISION MAKING IN VIET NAM'S HEALTH SECTOR - PHASE 2

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Author:
Judith M. Tanur
Distinguished Teaching Professor Emerita, Stony Brook University

Grantee: Social Science Research Council
One Pierrepont Plaza, 15th Floor
Brooklyn, NY 11201 USA
Telephone: (00) 1 (212) 377-2700
Fax: (00) 1 (212) 377-2727
Web: www.ssrc.org

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Judith M. Tanur

I. BACKGROUND

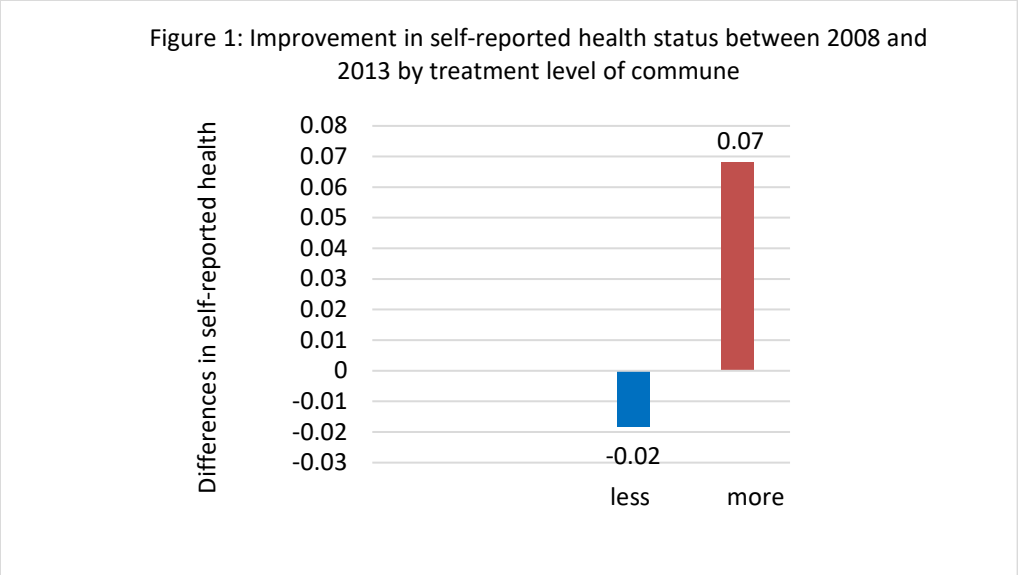
This report assesses the impact of investments in commune health centers (CHCs) funded by The Atlantic Philanthropies (AP), a limited life foundation, the Vietnamese government, and other international donors. Utilizing longitudinal study data from 2008 to 2016 in 12 communes in Thai Nguyen, Khanh Hoa, and Vinh Long provinces, the analysis examines the impact of investments on self-reported health status.

We asked respondents to rate their own health on a 5-point scale, with 1 being healthiest and 5 being the least healthy. The literature has shown (Idler & Benyamini, 1997; Maeland & Havik, 1988; McCallum, Shadbolt, & Wang, 1994; Miilunpalo, Vuori, Oja, Pasanen, & Urponen, 1997; Mossey & Shapiro, 1982) that such self-ratings correlate quite highly with objective measures of health status. The following analysis uses this 5-point scale as if it were ratio-level measurement and computes means and t-tests. Each of the bars shows changes from 2008 to 2013, with positive numbers indicating improvement and negative ones a worsening of average self-reported health.

II. ANALYSIS BY TREATMENT LEVEL OF COMMUNES

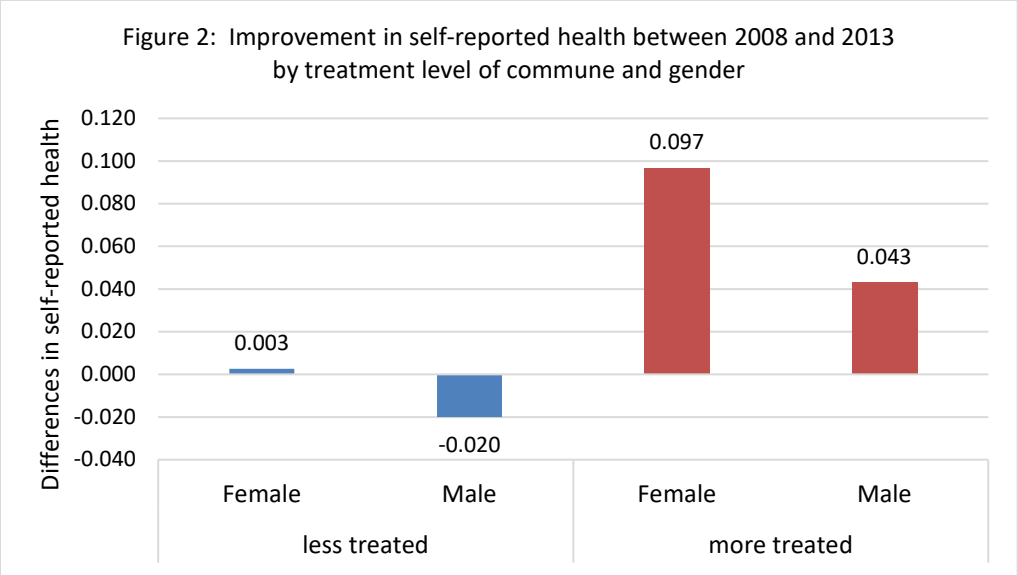
The 12 surveyed communes each received a new or renovated building, essential medical equipment, and different levels of service delivery intervention. For this analysis, communes were scored based on this and the number of service models piloted, and divided into two groups of six: (1) the less treated communes, which piloted one to two service models, and (2) the more treated group, which piloted three to five service models. The service models included (1) laboratory testing capacity and high tech equipment, such as ultrasound machines and diabetes testing equipment; (2) computerizing health information management system capacity; (3) family medicine doctor training; (4) social marketing and a franchise model for changing staff attitudes and increasing use of reproductive health/family planning services at CHCs; and (5) improving health for mothers and newborn through a "Household to Hospital Continuum of Care" model, which provided training and equipment to provide access to quality essential and emergency services at the CHC and public hospitals, behavioral change communication to increase awareness, and outreach to households promote safe motherhood practices and building newborn units at district and provincial hospitals. For a chart of the score and intervention by commune, see Luong, *Strengthening Commune Health Centers in Vietnam: Assessing the Impact of The Atlantic Philanthropies 2008-16*.

Overall, we see in Figure 1 that self-reported health increased statistically significantly in more treated communes ($p < .01$) and decreased slightly (but not statistically significantly) in less treated communes.

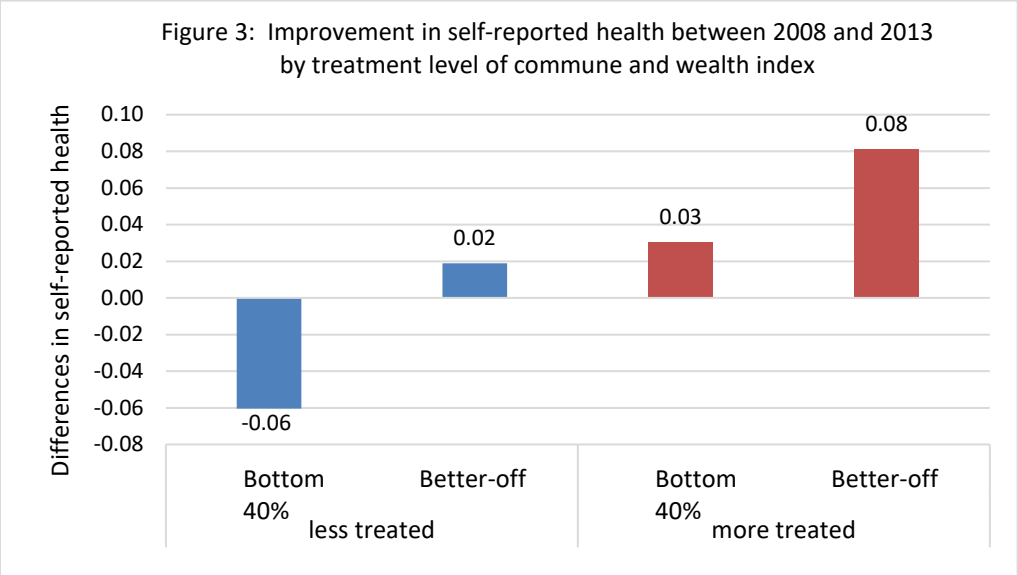


Further analysis by vulnerable groups of special interest to The Atlantic Philanthropies contrasts the change in level of self-reported health in vulnerable groups with the changes in less vulnerable ones, considering gender, poverty, ethnicity, and age together with the treatment level of the commune.

From Figure 2, we see that in less treated communes neither sex showed much change in self-reported health between 2008 and 2013, while in more treated communes the self-reported health of both sexes increased, with the increase reaching statistical significance for females ($p < .01$).

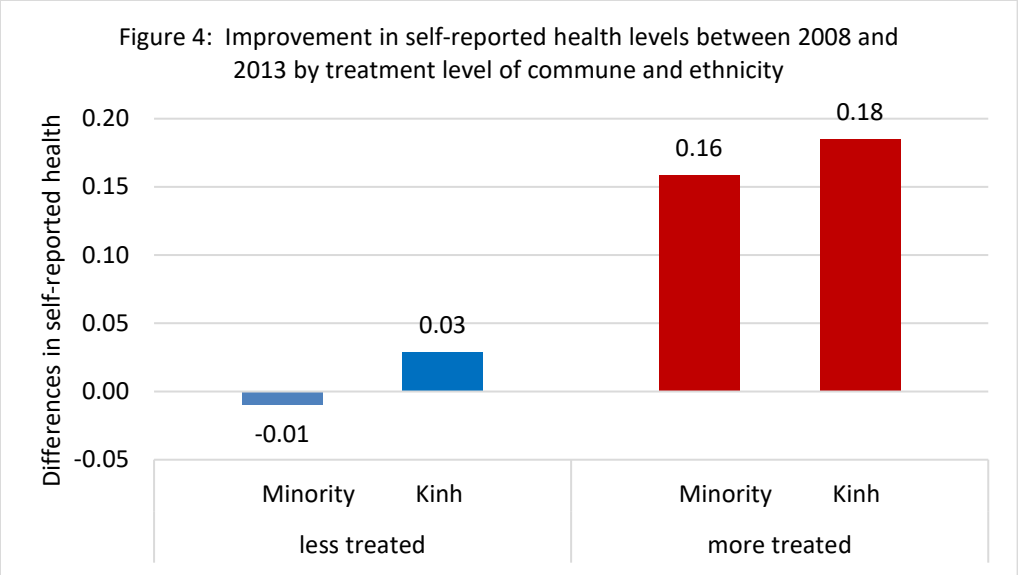


In Figure 3 we consider economic conditions, using a wealth index that assigns the label "bottom 40%" to the lowest 40 percent of the wealth distribution.[1] We see that in the less treated communes, the self-reported health status of the better-off shows a slight increase and that of the bottom 40% a slight decrease, but neither change reaches statistical significance. On the other hand, in the more treated communes, the self-reported health status of both groups increases, statistically significantly for the better-off only ($p < .01$).

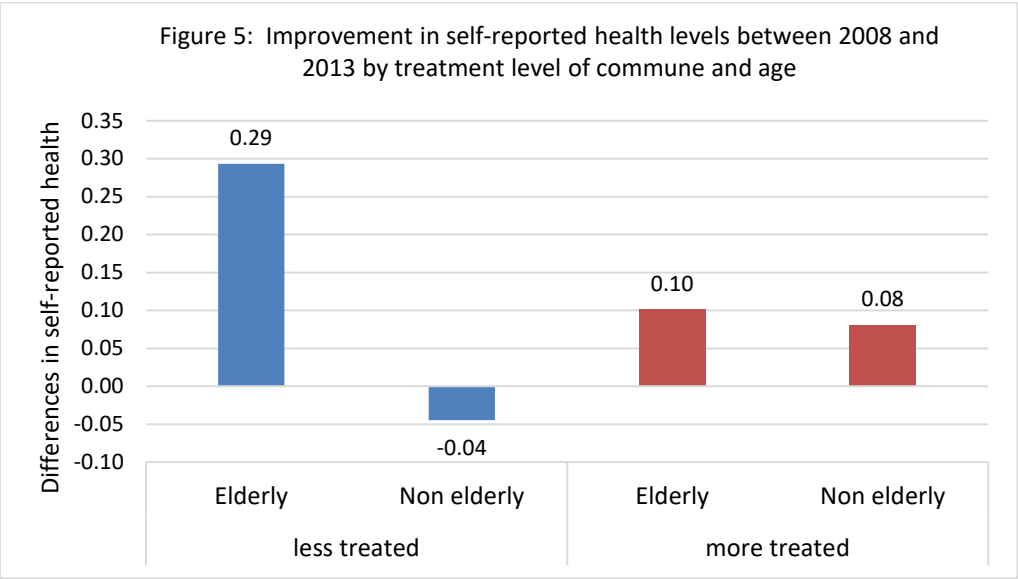


Analysis by ethnic group is somewhat fraught, as the minority population is large enough for analysis only in four communes, three of which are less treated and one more treated. The results for that analysis appear in Figure 4. In the less treated communes, the self-reported health status of both ethnic minority people and Kinh remains about constant over time, while for the more treated commune both groups show statistically significant ($p < .05$) increases in self-reported health, ethnic minorities slightly less than Kinh.

[1] For this analysis of self-reported health by socio-economic status, the principle component method (factor analysis) was used to construct the socio-economic status index (SES), based on household survey questions on housing conditions (villa, permanent, semi-permanent, or make-shift housing), water sources, toilet types, and 16 household assets (TV, video/DVD player, radio, computer, telephone, refrigerator, air conditioner, washing machine, hot water heater, water pump, rice milling machine, motorbike, bicycle, car/truck, and boat). Based on the index values, households are divided into the bottom 40% and the better-off for this analysis of the changes in self-reported health.



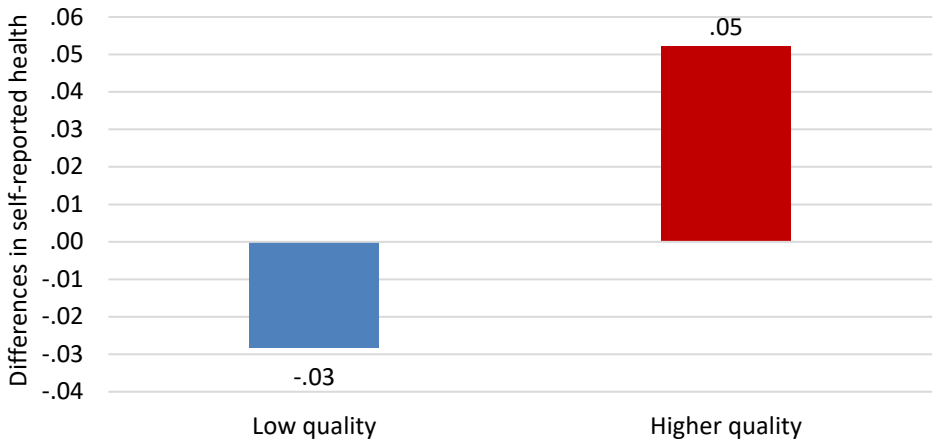
Finally, the analysis by age shown in Figure 5 presents a more puzzling picture. The elderly (here defined as those 60 years old or older) show a statistically significant ($p < .001$) improvement in self-reported health in the less treated communes, while the non-elderly remain essentially unchanged over time. In the more treated communes, however, both groups show similar and statistically significant improvement over time ($p < .05$ for the elderly; $p < .01$ for the non-elderly).



III. ANALYSIS BY JUDGED QUALITY LEVEL OF COMMUNE HEALTH CENTER

When we consider the quality rating of commune health centers as the independent variable, we get results that are similar but somewhat less clear. Figure 6 shows that for communes with lower quality health centers, self-reported health declined over time, but not statistically significantly; for communes with higher quality health centers, self-reported health showed a statistically significant improvement over time ($p < .05$).

Figure 6: Improvement in self-reported health levels between 2008 and 2013 by quality level of commune health center



As Figure 7 shows, in communes with lower quality health centers, self-reported health improved over time for females but not statistically significantly, and declined for males. In communes with higher quality health centers, self-reported health improved over time for both sexes, with the improvement reaching statistical significance for females ($p < .05$) but not for males.

Figure 7: Improvement in self-reported health levels between 2008 and 2013 by quality level of commune health center and gender

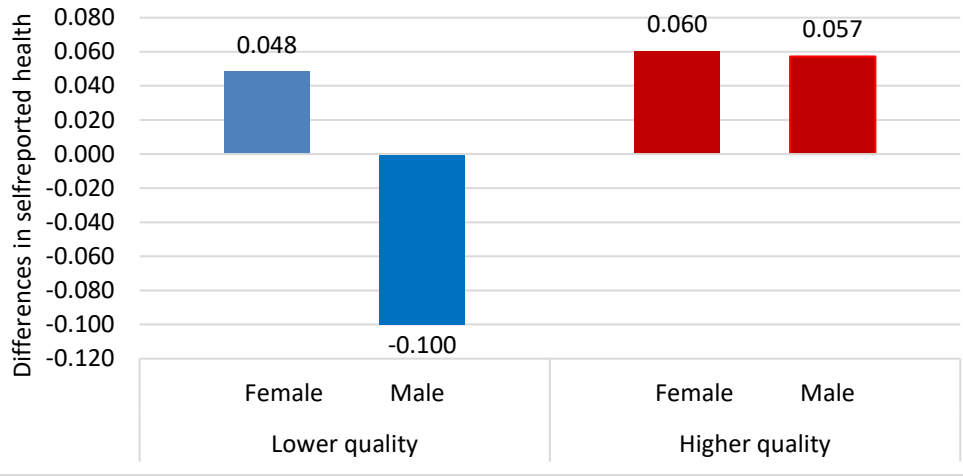


Figure 8 shows the findings by the wealth index. In communes with lower quality health centers, the self-reported health of those in the bottom 40% declined over time ($p < .05$), while that of the better-off remained practically unchanged. In communes with higher quality health centers, the self-reported health of the better-off increased statistically significantly ($p < .01$), while that of the bottom 40% was essentially unchanged.

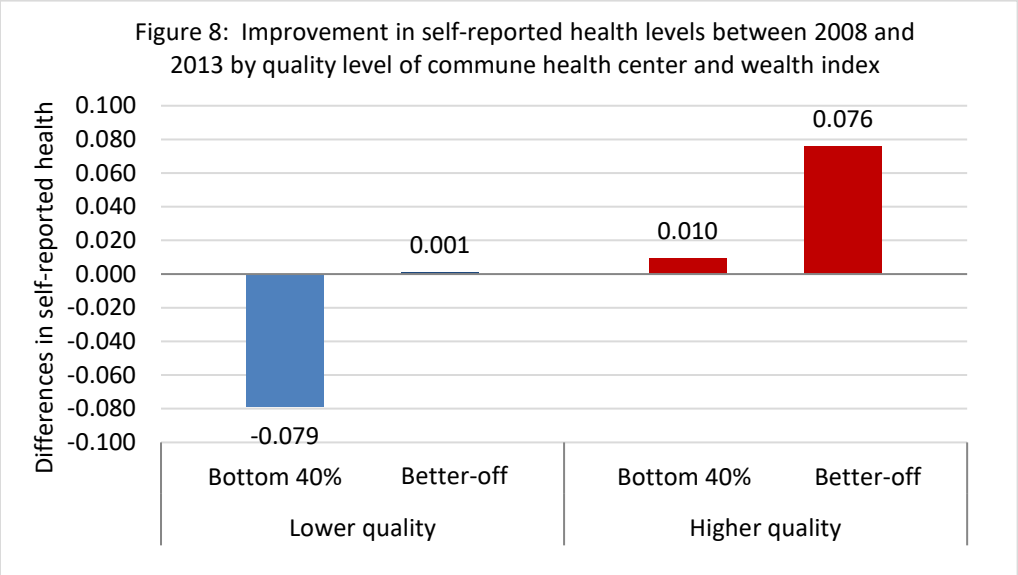
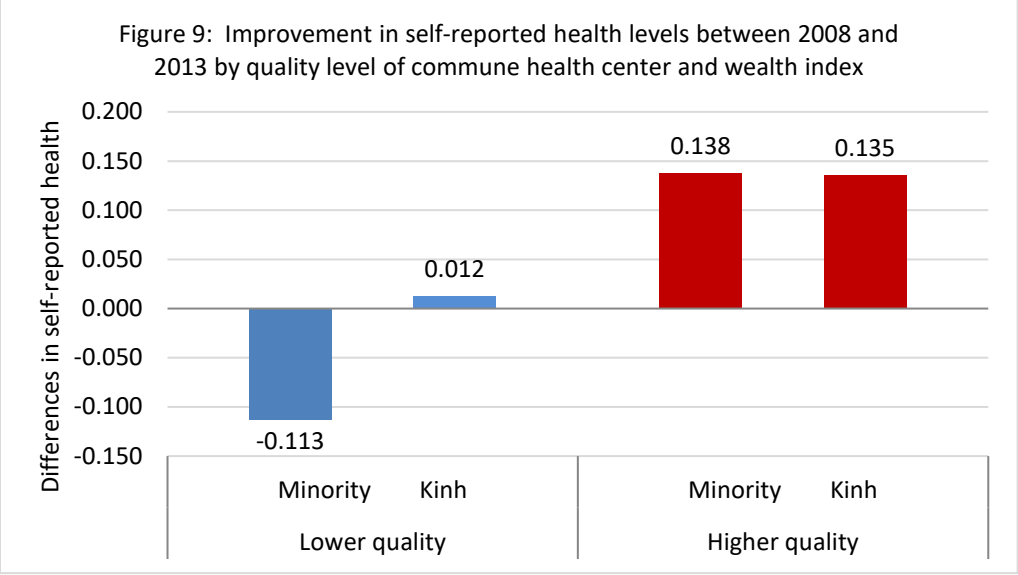
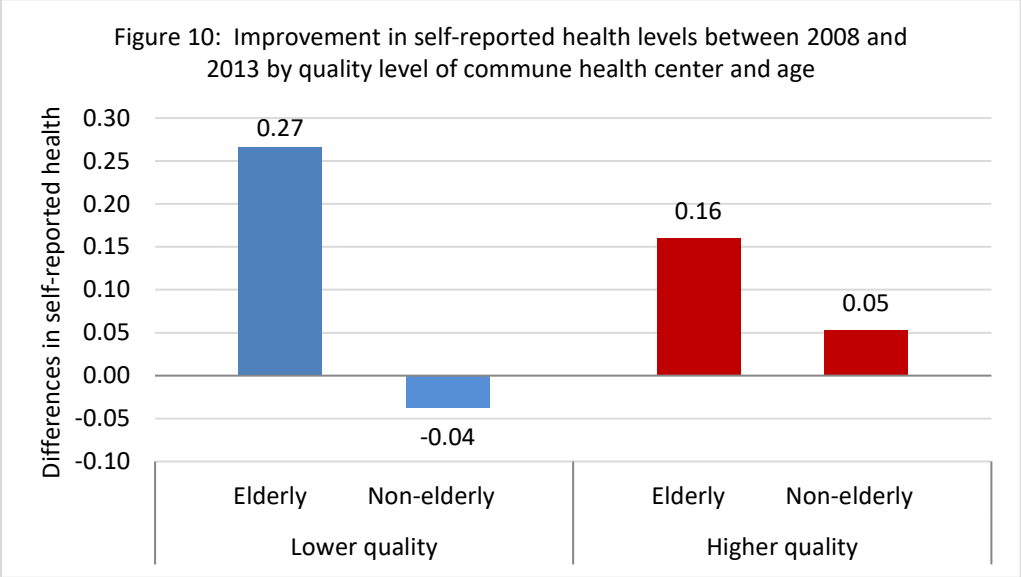


Figure 9 shows the results by ethnic group. In communes with lower quality health centers there was no change in the self-reported health of the Kinh people over time, but the self-reported health of minority groups declined, albeit not statistically significantly. In communes with higher quality health centers, the self-reported health of both groups increased statistically significantly (for ethnic minorities $p < 0.02$, for Kinh $p < .05$).



Finally, Figure 10 shows results by age, contrasting the elderly (again, defined as those age 60 and older) with those younger. As in the analysis by treatment, the results are again somewhat puzzling. In communes with lower quality health centers, the self-reported health of the non-elderly decreased slightly but was not statistically significant, while the self-reported health of the elderly increased considerably ($p < .05$). In communes with higher quality health centers, the self-reported health of both groups increased statistically significantly (for the non-elderly $p < 0.02$; for the elderly $p < .01$).



IV. SUMMARY OF RESULTS

Figures 11 (for treatment level) and 12 (for quality of the commune health center) summarize the results of the analysis. In the more treated or better quality communes overall and in all special groups, average self-reported health increased from round 1 to round 2. In 14 of the 18 groupings, this improvement reached statistical significance at conventional levels. In the less treated or lower quality communes, on the other hand, 10 of the 18 changes in average self-reported health care were negative, and the only group to show statistically significant improvement between rounds of our survey was the elderly.

Females improved on average more than males in more treated and better quality communes, but not in less treated or lower quality communes. The better-off improved on average more than the bottom 40% in all groups of communes. Minority groups, on average, improved less than did the Kinh, except in higher quality communes where minorities improved on average slightly more. The elderly improved more on average than the non-elderly, with the biggest differences occurring in less treated or lower quality communes.

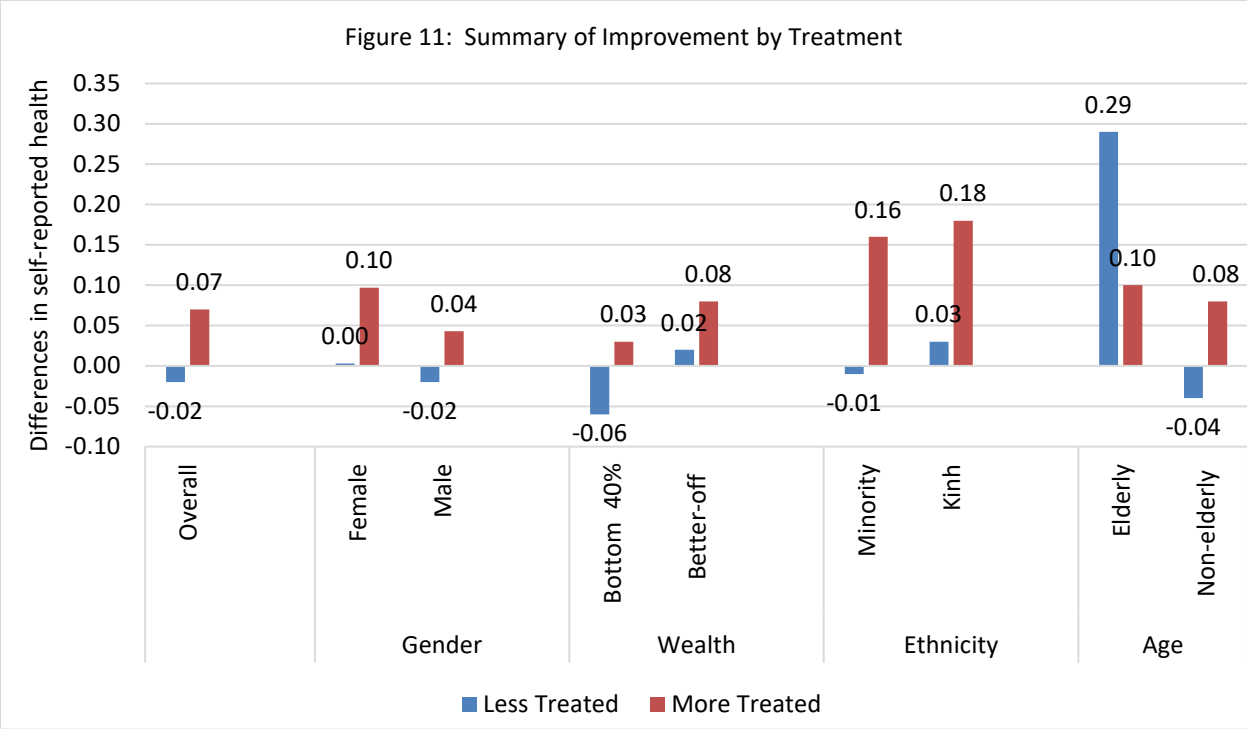


Figure 11: Summary of Improvement by Treatment
Differences in self-reported health
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
0.07
-0.02
0.10
0.00
0.04
-0.02
0.03
-0.06
0.08
0.02
0.16
-0.01
0.18
0.03
0.29
0.10
0.08
-0.04
Overall
Female
Male
Bottom 40%
Better-off
Minority
Kinh
Elderly
Non-elderly
Gender
Wealth
Ethnicity
Age
Less Treated
More Treated

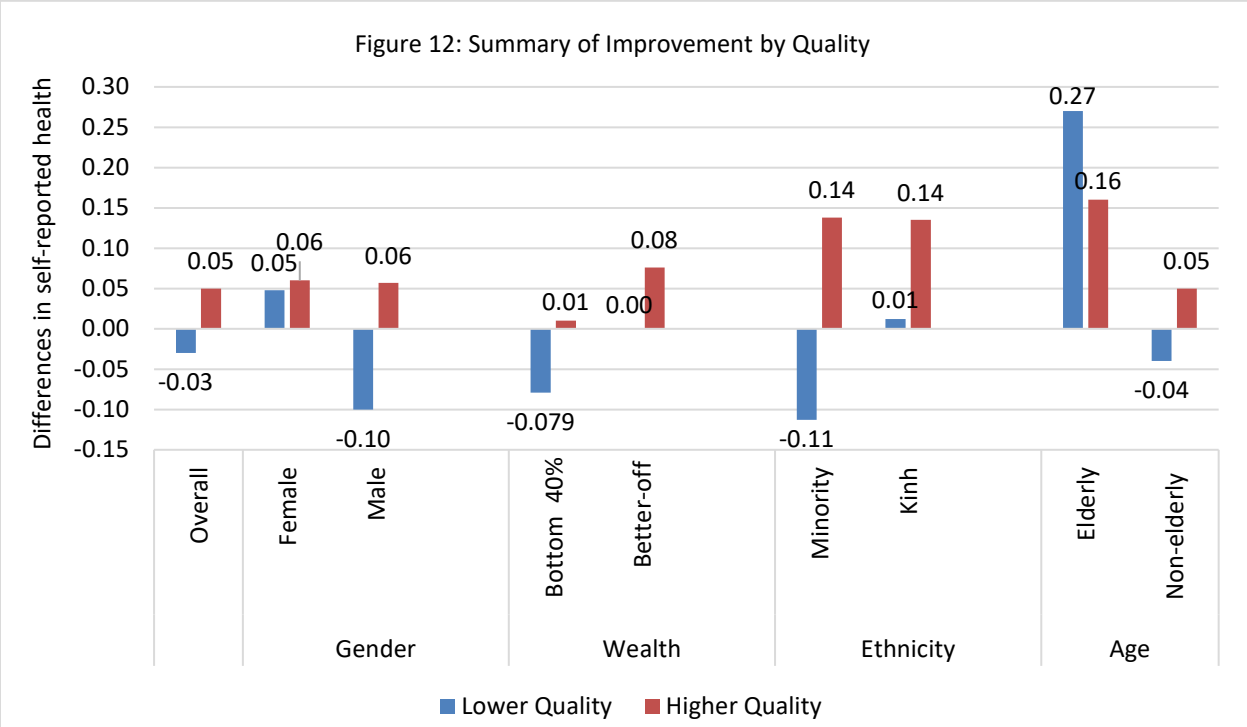


Figure 12: Summary of Improvement by Quality
Differences in self-reported health
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
0.05
-0.03
0.05
0.06
-0.10
0.06
0.01
-0.079
0.00
0.08
0.14
-0.11
0.01
0.14
0.27
0.16
-0.04
0.05
Overall
Female
Male
Bottom 40%
Better-off
Minority
Kinh
Elderly
Non-elderly
Gender
Wealth
Ethnicity
Age
Lower Quality
Higher Quality

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