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Pushing on a String: How policy might encourage private doctors to compete with the public sector on the basis of quality

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Abstract

Results from the Philippine Quality Improvement Demonstration Study show that a policy that expands insurance coverage improves quality of care, as measured by clinical performance vignettes, among public physicians, and induces a spillover effect that improves quality among private physicians.

Keywords

quality of care; health care markets; international health; public-private competition; health policy; spillover effect

I. Introduction

That quality is poor, by any measure, is a ubiquity that lessens the combined effects of technology and broad based access to health care (IOM, 2002). This has led to an international policy scramble to find new ways to improve health care quality. Unfortunately, at least so far, this has not been met with overwhelming success. Accreditation, clinical reviews or guidelines, rectifying investment disparities, information technology and even conditional cash transfers all may have a role, but none of these have raised quality consistently, effectively or affordably (Ortiz and Clancy 2003, Oxman and Frietham 2008). One intriguing possibility is to introduce policies that induce public providers to provide higher quality of care. These benefits would be even more salubrious if they created collateral, positive spillover quality effects in the for-profit private sector (Hirth 1997).

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Public private competition in health care markets requires two elements. First, markets have to exist where for some range of price and quality, patients are choosing between public or private providers. Choice, however, is complicated when subsidized public services are significantly cheaper than those provided by the private sector (Brindisi et al. 2004). In situations where subsidies are sufficiently large, even efficient service delivery will not make for-profit providers a viable choice among the undecided segment. They may, however, compete on the basis of quality (Brekke et al. 2006, Gaynor 2006). This raises the possibility that policy that improves quality in the public sector might improve quality in the private sector. The second element required to intensify competition, therefore, is quality measurement. Our earlier research showed that quality scores could be determined using clinical vignettes, which we previously developed and validated (Solon et al. 2009). Vignettes are written cases of hypothetical patients followed by open-ended questions on diagnosis and treatment, among others. This method has been found to produce a valid measure of physician practice and better health outcomes (Peabody et al. 2004).

It is unlikely that health care providers directly observe their own quality levels let alone that of their competitors. Arguably, providers only see relative price (payment), their own patient load and thus any changes in their patient load relative to a constant price. If we assume that discounted fees is not a viable business strategy in heavily subsidized settings, private providers need to compete on the basis of quality. Changes in patient load or service intensity then become a proxy for quality (Baltussen et al. 2002). Patients similarly cannot observe quality among health care providers and are unlikely to distinguish between high and low quality doctors. However, patients may associate higher quality with tangible service elements that they can experience such as service volume and services offered (Gravelle and Masiero 2000). For example, where drugs are not available or equipment is outdated, increases in diagnostic or treatment service would act as a quality signal to patients. Thus any intervention that targeted the public sector which promoted service utilization might shift choice from private doctors to public doctors. Then, if prices are held constant, the private response might be to improve quality in a bid to protect its share of this market segment.

This paper uses data from a randomized policy experiment, known as the Quality Improvement Demonstration Study (QIDS), that we conducted in selected hospitals districts covering a large area of the central Philippines (Shimkhada et al. 2008) and over 1 million households. The randomly introduced policy intervention expanded insurance coverage benefits to children 5 years and under in public hospitals and increased enrollment of poor households into the social health insurance program (PhilHealth) by 39 to 100 percent, depending on the community. Of particular note is that when enrollment and coverage clinical quality in the public hospitals also improved by an average of 9.1% points ($p = 0.001$). These findings led us to hypothesize that when quality is improved among public doctors, we would also find quality improvements among private doctors practicing in the same districts who might suddenly find themselves engaged to defend an eroding patient base.

II. Data

The data consists of two survey rounds of average quality and physician characteristics for 25 hospital districts. At baseline, average proportion of public doctors to private doctors is 3:2. Forty percent of our study sites experienced quality improvements in the private sector. We show the means of selected physician characteristics by public and private in Table 1. In terms of average age and proportion of males and pediatricians, the private and public sectors were similar at baseline. Although public physicians were more likely than their private counterparts to be PhilHealth- accredited, average vignette scores were not

significantly different across sectors. Thus, baseline quality of care was about the same for public and private doctors in our study sites.

III. Methods

We estimate a quality response function of private providers of the form

$$Q^p = Q^p(N^p(Q^g))$$

where Q is a measure of quality change, N is the corresponding change in patient load, and the superscripts p and g refer to private and public, respectively. As public doctors improve quality levels (for example, in response to a quality improvement policy), patient load in the public sector expands at the expense of private patient load. Responding to this shock, private doctors then increase their supply of quality.

As quality levels and patient loads are jointly determined, we first test conduct a Wald test to determine the endogeneity of N^p . After establishing the endogeneity of N^p , we then estimate a quality equation using instrumental variables for N^p .

The dependent variable of our model is *privatequality+*, defined as a dummy variable indicating an improvement across survey rounds in average quality among private providers. Our main independent variable is *privateload*, defined as the average change across survey rounds in the number of outpatients seen per month. Physician characteristics used as regressors include *age* (average age of private doctors in the district, measured in years), *pedia* (proportion of pediatricians among private doctors in the district), *male* (proportion of males among private doctors in the district), and *philhealth* (proportion of those with PhilHealth accreditation among private doctors in the district), all measured at baseline. A recent study by Quimbo et al. (2008) suggested that PhilHealth accreditation is a significant predictor of quality of care provided in hospitals. We also included an interaction term *pediamale* to test for joint effects between specialization and sex of physician.

Our identifying instruments for N^p or *privateload* are exogenous variables affecting N^g . These include an indicator variable for an improvement across survey rounds in average quality among public providers (based on vignette scores) and a measure of level of service intensity, defined as the sum of the number of times each of the following were utilized: IV tubing, x-rays, ultrasound/echocardiogram, electrocardiogram, otoscope and resuscitation equipment.

IV. Results

Table 2 shows our second stage estimation results. As expected, the likelihood that there were improvements in the quality supplied by the private doctors was negatively correlated with increases in patient load. That is, as the number of patients declined, we found a tendency for private doctors to improve quality levels. This result is consistent with our hypothesis that private doctors protect their market segment with appropriate quality responses. Moreover, we found that a higher proportion of male doctors predicted lower probabilities of quality improvements. Other physician characteristics were not statistically significant.

Figure 1 shows the predicted changes in quality among private doctors associated with quality improvements in the public sector. In the control sites, we found that quality improvements in the public sector were not significantly different with that of the private

sector ($p>0.05$). In the intervention sites, on the other hand, we found a positive relationship between public and private quality improvements ($p<0.05$). This is consistent with our hypothesis that insurance expansion efforts in the intervention sites resulted in more patients using the public hospitals thus prompting private doctors to respond by improving their own quality levels.

V. Conclusion

Our regression analyses examined the average quality of care among private doctors, their patient volumes and the corresponding quality in the public sector. We found that private quality did indeed rise but only in instances where the average number of private patients fell ($p<0.05$). Moreover when quality improved in the public hospitals it was then that we saw a 41 percent probability that quality would improve among private doctors. This only happened if their patients volume dropped, which it did (by an average amount of 32 percent). More specifically, a 10 percentage point drop in the average private patient load predicted a 6 percentage point increase in the probability that quality would improve among the private doctors.

The sequence at work appears to be this: policy intervention leads to change in service and quality among public doctors, inducing patients to shift to public facilities and away from private practitioners which in turn leads to a private provider response wherein they raise the quality of their services. The potential lever is that private doctors appear to be incented through the public enterprise. These results are useful in the Philippine context and perhaps elsewhere, where private physicians are largely self-regulated. Policymakers have long wondered about possible handles on private provider behavior, particularly quality of care. Our experiment shows one new approach. An insurance intervention primarily intended to increase utilization of services in public hospitals appears to have produced unintended positive quality effects in the private sector.

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Figure 1.
Predicted Quality Response Function

Table 1

Differences in physician characteristics in the public and private sectors (baseline)

Variable	Round 1		P-value
	Public	Private	
<i>Age (years)</i>	41.37	42.78	0.451
<i>Male (%)</i>	33.06	36.90	0.673
<i>Pediatrician (%)</i>	27.50	35.12	0.367
<i>Philhealth accredited (%)</i>	96.11	52.98	0.000
<i>Vignette score (%)</i>	53.17	55.40	0.308

Table 2

Estimates of the Probability of Private Quality Improvements

Dependent Variable: <i>privatequality+</i>		
	dy/dx	p-value
<i>Private load</i>	−0.597	0.000
<i>Age</i>	0.007	0.558
<i>Pediatrician</i>	−0.505	0.207
<i>Male</i>	−1.114	0.018
<i>Philhealth accredited</i>	−0.399	0.131
<i>Pediatrician-Male (interaction)</i>	1.154	0.193