

Expanding rural telephony

Output-based contracts for pay phones in Peru

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Innovations in technology, combined with pro-competitive reforms, are rapidly expanding access to telecommunications in many developing countries. But extending basic telephone access to the rural poor can remain a stubborn problem. To tackle this problem, Peru is using a “least subsidy” bidding approach. Private telecommunications operators bid for the minimum government subsidy they require to provide pay phone service in targeted rural areas. Part of the subsidy is paid on award, part once the equipment is installed, and the rest in semiannual installments for several years, contingent on compliance with performance standards. Winning bidders get a nonexclusive concession defining their rights and obligations. Early pilot results show that the private investment mobilized is twice the subsidy provided.

Peru began reforming its telecommunications sector in 1992, privatizing the state telecommunications companies, establishing a regulatory authority (Organismo Supervisor de la Inversión Privada en Telecomunicaciones, or Osiptel), and gradually opening the market to competition. These reforms were expected to accelerate growth in service, but to leave high-cost rural areas—home to about 30 percent of Peru’s population and 70 percent of its extreme poor—largely excluded from a mostly commercial operation. So in 1992 the government also created a fund (Fondo de Inversión en Telecomunicaciones, or Fitel) with a mandate to improve rural access to telecommunications services by promoting private participation. Fitel’s goal was to provide, by 2003, pay phone service in 5,000 rural towns and public access to the Internet in all 554 district capitals.

Fitel’s funding is assured by an earmarked 1 percent levy on the gross operating revenues of telecommunications companies. Fitel is legally distinct from Osiptel, but Osiptel provides technical and administrative services to Fitel and approves policies and projects. Osiptel defined the target population as unserved poor rural localities with 500–3,000 inhabitants. Osiptel also conducted policy, market, and engineering studies; set up a geographic information system; and defined the project cycle and procedures, including those for identifying target localities, tendering projects, and monitoring performance against targets.

Deciding on competitive bidding

Osiptel selected potential localities on the basis of expressed local demand and project analysis. The final choices are made during field visits, when local authorities, who have far better knowledge of local trade and transportation patterns, decide which towns should be served. Combining a demand-driven approach with top-down studies, rather than using a pure demand-driven approach, allowed network economies. (The Fitel rule now allows a pure demand-driven approach, since network facilities have been extended to most localities.)

Government officials debated whether to hold just one tender for all towns (to promote economies of scale) or to encourage the entry of several operators to foster competition. The final decision was to partition the country into six regions, each with more than 700 towns, and then hold two tenders.

The winning bidder is granted a nonexclusive 20-year renewable concession. The concession requires the operator to install at least one public pay phone in each rural locality listed in the tender, providing access to local and

long-distance voice and narrow-band data communications, and one point of public access to the Internet in each district capital. The operator is obliged to provide service over the entire 20-year concession, though the subsidy payments extend only over the first five years. The operator may use its facilities to provide additional services to individual subscribers, such as Internet and long-distance telephony. Osiptel expects that the service in rural towns will be fully commercial after five years.

Setting pricing, subsidies, and incentives

Retail prices for rural services are regulated by Osiptel under a price cap regime similar to that in urban areas—though the cost to the operator for rural calls is higher (often because of geographic isolation or extremes in altitude and climate). Interconnection charges, also regulated, should result in a net payment to the rural operator. But since most calls originate in urban areas, the provisional sender-keeps-all agreement between the operators has prevented the entrant rural operator from benefiting from this net payment.

A financial contract between Osiptel and the operator establishes the terms and conditions under which Fitel will provide funds, tying the disbursement of the subsidy to project implementation and service quality: 35 percent is paid at the start of the project, 25 percent once the facilities are installed, and the remaining 40 percent in semiannual installments over five years, subject to compliance with service performance targets. The semiannual installments are reduced by US\$1,000 a day for pay phone and network monitoring system outages, and by 10 percent per locality per week of delay in initiating service for up to one month, at which time the balance of the subsidy is canceled.

The financial contract also specifies indicators of performance that are not linked to penalties (though Osiptel can impose penalties for noncompliance): grade of service (network congestion in peak hours), time to get dial tone, and overall quality of service as measured by mean opinion scores. These performance indicators, from International Telecommunication Union recommendations, are readily available and understood by operators.

Osiptel staff supervise project implementation. They use a network management system to oversee system operations (traffic levels, continuity of service) in real time and a required dedicated data circuit in the operator's headquarters to monitor billing, failure reports, and the calls placed and received by the rural pay phones. In a semiannual report Osiptel assesses com-

pliance with performance targets and indicators and makes recommendations on Fitel payments.

Getting started

Osiptel started to collect funds after the privatization in 1994 and had collected enough funds and done enough studies to call for a tender by 1996. But the tenders got off to a slow start. Technically, Fitel had everything to get under way: a clear mandate in the 1992 telecommunications law, strong support from beneficiaries and local authorities, money, technical support, and private operators. But institutional problems and lack of widespread political support at the national level delayed implementation. The 1992 law did not specify policies or procedures, so they had to be designed later by Osiptel, itself a start-up operation. The Fitel model had to compete with different visions of the government's role in delivering assets to the poor, and private interests lobbied against the Fitel mechanism as too transparent. The minister of transportation and communications was reluctant to take political responsibility for approving the projects. The approval process was further hampered by institutional conflicts with Osiptel, high turnover of ministers, and a centralized decisionmaking process.

Still, by March 2001 three competitive tenders had been conducted for six projects covering all 5,000 rural towns due to be connected by 2003. Six bidders competed for a pilot project, and four or more in each of the next two tenders. Winning bidders bid for all regions in the tender. New operators, both foreign and domestic, entered the market.

Reviewing results from the pilot project

For the pilot project, covering 193 localities, the competitive bidding resulted in a much smaller subsidy than expected. The winning bid requested a subsidy 41 percent lower than Osiptel's estimate and 74 percent lower than a previous offer by the incumbent operator. Results from the first year of operations (ending December 2000) are encouraging. Pay phones have typically been located on the premises of a small business or local authority. Retailers provide space and security for the pay phones in return for a percentage of the price of the prepaid cards. In addition, they may charge users for an informal messenger service to alert them to incoming calls. They also benefit because the phones help to cross-sell other products.

The pilot project has reduced the average distance to the nearest pay phone to less than a tenth of what it had been, and nearly doubled the share of the population living in localities with pay phones (table 1). In response

to user needs, the operator introduced service innovations, such as prepaid calling cards, and is providing dedicated Internet access and long-distance services.

The operator met the deadline for initiating service in all 193 localities and also installed additional pay phones and individual telephone lines. Traffic exceeded Osiptel's forecasts by 7 percent in the first six months and 32 percent in the next six. The operator met targets for network management and average service reliability, but failed to meet service reliability targets in five localities. That resulted in a fine of US\$27,000, equivalent to 1.6 months' revenue or a sixth of the semiannual subsidy payment.

During the first six months the operator also failed to meet the target for grade of service, failed to supply enough prepaid cards, and had operational problems. Osiptel delayed the first semiannual payment until these problems were corrected. It also postponed the second payment, because the operator failed to act on a minor observation in the first supervision report. If uncorrected, minor observations become major observations in the next review and may delay payments. The delayed payments were equivalent to 1.8 months' revenue. Several performance indicators were not reported because of technical difficulties.

Surveys of users in June and December 2000 showed that a growing number were satisfied with overall service (up from 57 percent to 75 percent) and had access to prepaid cards (up from 35 percent to 50 percent). The surveys also showed modest progress on service outages, hours of service, and customer knowledge of how to use the facilities.

TABLE 1		Access to telephones in the pilot project by department, December 2000				
Indicator	Amazonas	Cajamarca	Piura	Tumbes	Total	
Rural towns served	57	54	54	28	193	
Beneficiaries ^a	39,086	45,359	46,370	13,707	144,522	
Distance to the nearest phone (kilometers)						
Without the project	251.4	26.1	26.1	9.0	n.a.	
With the project	6.2	4.9	4.2	3.0	n.a.	
Penetration (percent)^b						
Without the project	10.0	20.0	16.0	91.0	48.3	
With the project	90.0	85.0	71.0	99.0	88.5	

n.a. Not applicable.
a. Includes both direct beneficiaries (inhabitants of the towns served) and indirect beneficiaries (those living within 5 kilometers of the towns served).
b. Share of the population in the project area with telephone access.
Source: Fitel 1998.

Assessing Fitel as a policy instrument

Initial results confirm that Fitel is an effective means for extending telecommunications services to rural populations. Fitel attracts and leverages private participation and investment. And it enhances sustainability by spreading the subsidy over five years, which helps maintain a positive cash flow until revenues build up from growing traffic. The pilot project required a subsidy of only US\$11 per inhabitant while mobilizing private investment estimated at US\$22 per inhabitant. Subsidy administration costs are low: according to Osiptel's operating plan for 2000, after start-up costs (US\$1.7 million) Fitel's administrative costs have averaged less than 2 percent of the funds collected.

Improvements are needed, however, in the links between performance and subsidies. First, performance targets and indicators should evolve over time. Since those used are typical for mature networks rather than start-ups, a one-year grace period without penalties might be appropriate. Targets and indicators should also become more demanding over time, putting pressure on the operators to continually improve service. Second, performance targets should reflect use, not just access. Where call charges are below incremental variable costs—as they may well be, since the regulated rural and urban tariffs are similar despite the higher cost of rural service—the operator has no incentive to encourage traffic growth. Yet much of the benefit for the rural population comes from using the facilities, not just having access to them. Moreover, the business case for investors and equipment suppliers may be determined largely by initial capital outlays and subsidies rather than recurrent costs and revenues. A performance target that ties recurrent subsidies to traffic may better align the interests of operators, pay phone retailers, and the economy. But it would be much more complicated to administer and would require Osiptel to monitor financial results, which it does not now do.

The tariff caps are another problem: there are high policing costs for Osiptel, cost shifting from the operator to the pay phone administrator, and reduced incentives for operators to generate traffic.

Given these three problems, a more effective approach might involve fewer performance targets and regulatory controls, less use of penalties, and more emphasis on customer service. Project supervision, for example, which now not only verifies compliance with concessions, contracts, and performance targets and indicators but also seeks to influence project management, would be focused on a few key parameters and stripped of discretionary powers. This alternative approach would require more collegial relationships between operators, civil society, and Osiptel than envisaged in Fitel's original design.

There are three ongoing challenges: First, the risk that private operators will underbid for subsidies and later default on their commitments, even though Osipitel has required operators to post performance bonds.¹ Second, the need to shift Fitel's support to smaller and less accessible localities as technological innovations and network growth reduce the cost of reaching rural areas and as the private sector becomes increasingly willing to provide services on commercial terms. And third, the exemption of cable television and Internet service providers from the levy, which raises concerns about the fairness and economic efficiency of Fitel's funding.

Note

1. The operators are required to provide three financial guarantees: a guarantee ensuring the seriousness of their offer (to prevent the "winner's curse"), an installation guarantee, and a guarantee against default on their contractual obligations.

Reference

Fitel (Fondo de Inversión en Telecomunicaciones). 1998. *1998 Annual Report*. Lima.