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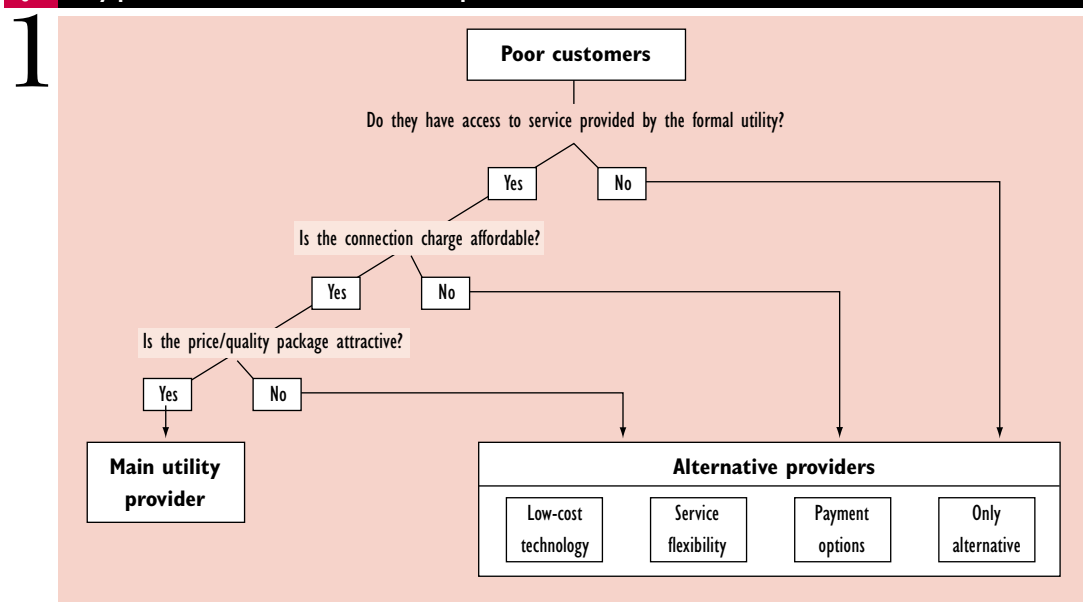
Bill Baker is head of National Economic Research Associates' water economics practice. Sophie Trémolet is a consultant at NERA. Bill has applied his experience of the privatization and regulation of the U.K. water sector in countries such as Peru, Brazil, and Argentina. Sophie has worked in the water, electricity, and health sectors, with assignments ranging from the privatization of electric utilities in West Africa to tariff studies for water companies in Peru and Argentina.

Micro Infrastructure

Regulators Must Take Small Operators Seriously

Small-scale providers of infrastructure services are proving to be more responsive than utilities to needs of poor consumers. They might be delivering water services by tanker, transport services by minivan, or electricity through mini-grids or household solar panels. They make their services affordable to the poor by using cheaper technology or permitting flexible payment. Regulators are customarily hostile to these alternative providers. The interests of the poor would be better served if regulators treated them as valid service providers and brought them under a regulatory umbrella.

Figure Why poor customers choose alternative providers



Market share for small providers

Small scale providers operate where traditional network utility providers fail to provide access at conditions of price and quality that satisfy the needs of the poor or other well-defined segments of the population. There are many types of such providers. Some produce services themselves (small independent power producers, or water suppliers with their own wells), others buy services from the main utility provider and retail them (vendors of water from trucks or by the bucket). Their institutional structure may vary greatly, from community-based businesses and NGOs to commercial entrepreneurs.

These providers often take up a large share of the market, especially when access to main providers is relatively low. For example, it is estimated that between 20 and 30 per cent of urban dwellers in developing countries buy water by the bucket, either from licensees of standpipes owned by businessmen (as in Nairobi) or from traditional water carriers.

Alternative providers have proved to be more responsive to the poor than main providers, providing services that correspond more closely to their demand patterns and ability to pay. Unlike the main providers who mostly provide a one-size-should-fit-all service, they recognize the range of circumstances and markets in which the poor might resort to alternative providers and provide price and quality bundles to match (figure 1).

For consumers who do not live on a service network, or for those who do but cannot afford a connection, alternative providers may be the only option. Many alternative providers allow connection charges to be paid in installments. Even consumers who are connected may not use the service much if high quality standards make prices too high.

Low-cost technology, high flexibility

Some alternative providers make their service affordable by using low-cost technology or offering lower quality than the main provider. Others do so by offering more flexible customer services (in particular, more flexible payment methods and low or no connection charges).

An example of cheap technology is the building of sewerage systems using cheaper, shorter

pipes than the main provider, not buried as deep. The Orangi Pilot Project run by an NGO in Karachi, Pakistan developed a cheap technique for providing low-income households with in-house sanitary latrines, household sewers and connection to underground sewers in adjoining lanes and streets. This innovative system cost \$100 per household, instead of the \$1000 required for installing a sewer connection in the traditional way and was quickly extended to connect 600,000 people in the urban area of Karachi.

In Brazil, condominial sewers have been introduced in shanty towns as a form of lower-quality affordable sewerage system. These sewers run through backyards instead of the street. Sewers can be placed at a shallower level, and the length of sewer required to connect each household is reduced. Households receive lower quality service, because it is not a separate household connection. In addition, communal cooperation for maintenance of sewers is essential, because individual connections are no longer independent of each other.

Alternative providers also provide services needing no network, such as local electricity generation or cellular phones. More consumers in rural Kenya get electricity from household solar cells than from the official rural electrification program, which is constrained by limited resources. For low power loads, this solution is cheaper than other solutions, such as grid connections, isolated generators, kerosene or drycell batteries.

Examples of flexibility in customer service are smart cards that allow prepayment for water or power, pre-paid telephone cards, and load limiters that keep electricity consumption to affordable levels. Prepaid cellphone services have proved very popular with consumers and providers. The user is assigned a number to receive calls, and can buy recharges to make calls. He pays no connection or rental charges but would typically pay a higher usage fee. Those who would not otherwise be able to afford or qualify for normal telephone services can do so. Providers have lower costs because prepayment relieves them of the cost of collecting debts. Some even introduced lower-cost prepayment schemes, with activation costs lowered by 80 per cent and usage costs by 40 percent.

Regulators are hostile or indifferent

Regulating the quality of alternative providers is difficult, because they are diverse, numerous, and often outside the formal sector. The authorities are often reluctant to try, hoping the alternative providers will disappear as soon as service from the main provider becomes accessible. The official attitude ranges from hostility (banning alternative providers, or granting an exclusive concession to the main operator) to neglect.

Regulation is often limited to construction standards, through licensing requirements, and enforcement is often weak. A policy of active encouragement is rare. Most aspects of price and quality are left to market forces, but this means that alternative providers can be harmful for customers' safety and the environment. Some attempts at self-regulation by providers are evident, possibly to enhance reputation (but possibly also to organize cartels).

The authorities often accuse alternative providers of causing harm. Informal urban transport providers are often blamed for much of the pollution and congestion in the cities of the developing world. Governments ban them repeatedly, overlooking the fact that they provide an important service option for the poor. For example, the Indonesian government once banned cycle rickshaws, saying they were dangerous and created traffic congestion.

Informal providers are also accused of delivering sub-standard and dangerous services, such as dirty water, unsafe electrical wiring or dangerous transport, although hard evidence of inappropriate quality levels being delivered is not easy to document, which is unsurprising given the lack of regulation and consistent enforcement. But there is some evidence that informal urban transport is often less safe than formal transport, because drivers compete for customers. For example, in Delhi, private buses were 0.15 percent of registered vehicles in 1995, but they were involved in 11 percent of accidents.

When alternative providers charge high prices, official hostility is sometimes to blame. High prices can be contrived by a monopoly or cartel, but they also arise because providers that operate under the threat of expropriation will invest only in technologies with low capital

costs, even if this involves high operating and maintenance costs. A survey in the Kenyan city of Onitsha found that vendors of water from tanker trucks there seemed to be able to charge excessive prices. But in many other developing countries water vending seems to be a competitive industry in which prices are determined by market forces. The survey report attributed the high prices in Onitsha to the fact that a project for developing water supply, funded by the World Bank, had been announced (and repeatedly delayed) and had created uncertainty about future profitability of tanker truck vending, deterring the vendors from productivity-enhancing capital investments.

Exclusion of existing alternative providers also takes place when governments try to secure a dominant position for the main operator. Examples include concession arrangements with international private providers. The contract for the La Paz-El Alto water concession in Bolivia specifies that new water and sewer connections must always be in-house connections and gives an exclusivity agreement to the concessionaire, which results in the elimination of all communal standpipes, even though they are low-cost alternatives to in-house connections. By contrast, in the Manila water and wastewater concession, such exclusivity rights were not granted to the concessionaires. Any licensed pre-existing private provider was allowed to remain in place, operating in "pockets" within the service area, with the concessionaire able to compete to extend service to those areas if customers there are willing to pay the concessionaire's price. Also, for new developments within the concession area, the concessionaire can obtain a license to supply the service only if it can do so at a cheaper price than any competing third-party supplier. Non-piped suppliers are not specifically regulated (they do not hold a license) but they are not banned either. Indeed, much of the population still buys water from them.

Self-regulation by association

Confronted with a lack of formal regulation and in search of the advantage of signaling quality, some small private providers have chosen self-regulation as a way to enhance their

reputation and secure a consumer base. In Benin, SIBEAU, a private firm which disposes of about 60 percent of latrine waste from its local area, and 10 other sewage collection firms have formed an association to standardize collection procedures and prices.

Route associations play a significant role in organizing informal urban transport markets. They exist at all levels of private urban transport services in the developing world, and are formed to bring order and avoid inefficiencies and redundancies within a spatially defined service area. For example, they would prohibit members from stealing customers by running ahead of the pack, a practice known as “head-running” which is very common in the developing world. They would levy a fee on their members in order to finance their activities, and hire field agents, to ensure orderly behavior at pick-up points, along routes and at major traffic intersections. As income levels rise, route associations tend to be more formal. The most developed and organized ones are in Latin America and the Caribbean, for example in Puerto Rico, Mexico City and Buenos Aires.

Regulation of a continuum

There are a number of reasons why governments prefer infrastructure services to be provided by centralized networks rather than alternative providers. Building high quality networks may be cheaper in the long term than if the network has to be upgraded several times. Economies of scale and scope attached to network supply mean that the prices of network supplies are also likely to be lower in the long run. But given that public funds are usually not available to develop the entire network at once with the level of quality required for long-term investments, alternative providers must be allowed to co-exist with the main provider and provide low-cost solutions at acceptable levels of quality.

If given the chance, some alternative providers can consolidate into networks and provide healthy competition for the main provider. For example, there are approximately 400 *aguateros* in Paraguay—small private water suppliers operating their own wells and providing piped water to households in areas usually not served by the public operator. These

providers evolved from being truckers a decade ago, and switched to pipe supply because it was cheaper and more efficient. They are entirely privately financed and appear to be more efficient than public suppliers. Government agencies regularly test the water, and an *aguatero* can be shut down if its water fails the test. *Aguateros* compete with each and with the municipal water companies, which offer subsidized prices.

The issue for regulation thus becomes one of transition between service levels: in the first instance, alternative providers should be allowed to complement the main providers. As possibilities for network provision increase, alternative providers can compete with the main provider for the supply of network services best suited to customers’ needs. Alternative providers should be allowed to evolve to avoid the risk that their customers are locked into a “poverty trap.”

One solution might be what is often adopted for privately-owned main providers: a gradual tightening in minimum service standards, with some incentives placed on alternative providers to enter the formal sector and upgrade their service in the long run. For example, this could be done through giving financing facilities to those alternative providers that want to expand their activities, on the condition that they would fulfill licensing or operating quality requirements.

Such an approach would treat alternative providers as a valid long-term solution to be considered in full alongside other options and to be taken into account when designing institutional structures and regulatory mechanisms for quality and price.

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viewpoint

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