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Utility Privatization and the Needs of the Poor in Latin America

Have We Learned Enough to Get It Right?

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Do Latin America's poor households lose from the privatization of infrastructure?
How can policymakers minimize the risk of losses while promoting competition and private financing of infrastructure?

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Summary findings

Efforts to reform utilities can affect poor households in varied, often complex, ways, but it is by no means certain that such reform will hurt vulnerable households. Many myths have been perpetuated in discussions of utility reform—and in many cases poor households have benefited from reform.

What is amazing is the extent to which governments and their advisors—sometimes including multilateral organizations—fail to measure, anticipate, and monitor how the privatization of utilities actually affects the poor.

Many questions must still be answered before good general guidelines can be drawn, but Estache, Gomez-

Lobo, and Leipziger offer many suggestions about how social, regulatory, and privatization policy can increase the benefits of utility reform for poor households.

The good news is that many measures can be taken to improve the chances that poor households will benefit from reform. Chief among these is promoting competition, where possible.

Essentially what is needed is political commitment to doing the right thing. If policy is weak before privatization, it is going to be weak after privatization as well. Privatization is no substitute for responsible policy on redistribution.

This paper—a joint product of Governance, Regulation, and Finance, World Bank Institute, and the Finance, Private Sector, and Infrastructure Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the Bank to improve the understanding of privatization and poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Gabriela Chenet-Smith, room J3-147, telephone 202-473-6370, fax 202-676-9874, email address gchenet@worldbank.org. Policy Research Working Papers are also posted on the Web at www.worldbank.org/research/workingpapers. The authors may be contacted at aestache@worldbank.org, agomezlobo@worldbank.org, or dleipziger@worldbank.org. August 2000. (32 pages)

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UTILITY PRIVATIZATION AND THE NEEDS OF THE POOR IN LATIN AMERICA

HAVE WE LEARNED ENOUGH TO GET IT RIGHT?

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1. INTRODUCTION

The number of countries in Latin America that have pursued, or are pursuing utility sector liberalization policies and are trying to rely on increased private sector participation in the sector grew dramatically in the last decade. These reforms have generated total (private plus linked government) investments of US\$236.5 billion between 1990 and 1998 in Latin America, almost half of all the investment in developing countries. While this is significant, it initially tended to be concentrated in the largest southern cone economies, Bolivia, Chile and Mexico—although Central America and the Caribbean are now having their own privatization phase. Moreover, while it represents only a fraction of the infrastructure needs in Latin America, it detracts from the overriding need to increase productive public investment levels as part of a renewed growth strategy in the Region.¹

Of equal importance is the fact that the increased role of the private sector in infrastructure is producing secondary distributional effects that have been too often underestimated or ignored by policy makers pressed by the concern to attract private capital to address fiscal problems. The emergence of the distributional issue often stems from the fact that many of the improvements in potential access are combined with changes in pricing and financing rules under which the private providers operate.² Even when costs go down as a result of greater productive efficiency, improved technology or more effective uses of scale economies, direct subsidies or cross subsidies tend to disappear, either as an explicit government decision for resource allocation reasons or as a natural consequence of market forces acting in a liberalized market.

While average nominal tariffs have declined with privatization in many instances, the need to raise the effective tariffs or fares for some user groups follows from the need to guarantee the financial viability of service providers and their incentive to expand service coverage where it is the most needed. In the process, however, it may increase the financial burden imposed on some groups of vulnerable households. This is a reasonable concern to the extent that the significant private investment figure quoted earlier is equivalent to US\$15/day/inhabitant which the investors will somehow want to recover.³ Balance that against the fact that according to a household survey of 12 large countries accounting for 71% of the population of the region, 1/3 of the population lives on less than US\$2/day, a standard definition of poverty.⁴ This simple arithmetic exercise clearly illustrates the potential conflict and social problems that can arise as a result of the legitimate needs of operators to recover their investments and the poor who naturally feel privatization should improve services at an affordable price.

The paper provides a *tour d'horizon* of the “privatization” experience in Latin America, focusing on some outstanding issues surrounding its impact on the poor, and delves into the reasons why its benefits may be undervalued by some, especially the poor. The idea is to take stock but also to help policymakers improve the integration of social dimensions in the reform of their infrastructure sector and the education of the voters on the extent to which this integration is taking place. The perception that privatization policies hurt the poor is widespread in the popular press and is an important factor determining the political sensitivity of the reform agenda. This is why it is important to consider documenting the *real* impact on the poor of sectoral policies in the infrastructure sector and to

¹ See Leipziger (2000) or Canning, D. M. Fay and R. Perotti (1992) for instance.

² While in most sectors (with the exception of power generation) service concessions tends to be the norm and there is seldom a transfer of ownership of assets to the private operators, policymakers, academic and casual observers continue to talk about privatization. This broad concept of privatization is the one retained throughout the paper.

³ This back of the envelope result is obtained by dividing the average daily investment made between 1990 and 1998 and dividing it by the 1998 population.

⁴ Wodon (2000), including a detailed survey of recent studies on the topic.

examine how countries may have failed or succeeded. The ultimate good is to provide suggestions as to how to proceed to integrate the interest of the poor into these reforms. One of the main points we want to argue here is that, in view of the weakness of the general welfare systems in most reforming countries, there is a need to integrate the social dimension in utility reform processes and to recognize the relevance of the design and process followed for its effectiveness.

The paper is intended to be both naïve—to ensure no simple question is left out—and cynical—to make ensure no tough question is ignored. It is grounded on a combination of macro and micro concerns reflecting the diversity of political agents involved in the debate—from the finance ministry and the social ministries to the infrastructure ministries. The paper will try to document the circumstances under which we will have greater, or lesser, confidence that the poor will gain and on this basis to derive a set of principles or guidelines to help shape a more pro-poor privatization strategy.

We address the following specific questions:

- How and when can the poor lose from infrastructure privatization?
- How to mainstream the measurement of the expected effects of reforms in the context of utilities privatization?
- Is there a case for a special short to medium run “infrastructure specific welfare policy” while a country gets its act together in putting together a more encompassing welfare policy?
- How can this overview help in drawing guidelines for a policy advisor to minimize the risks of losses by the poor from the privatization of utilities given that not all countries face similar circumstances?

Since there is no systematic collection of information which would allow a rigorous cross country comparison, the analysis is based on a review of detailed analysis of country specific experiences. The review of this partial information reveals the existence of many misperceptions of the effects of utility privatization and the poor and provides initial answers to these key policy questions. Possibly more importantly, the review shows that there is a lot more to learn to ensure that the poverty-privatization nexus is well understood and that this policy issue is addressed as effectively as its importance demands.

2. HOW AND WHEN CAN THE POOR LOSE FROM INFRASTRUCTURE “PRIVATIZATION”?

There is a widespread impression that infrastructure privatization has hurt the poor in Latin America—even if as seen in Box 1, this is clearly not always the case. There are many examples where governments have been able to benefit the poor from increased private sector participation.

Three stylized facts lead us to question a naïve acceptance of the proposition that equates privatization with harm for the more vulnerable in society. Infrastructure privatizations are generally part of a wider set of reforms and the status of the poor reflects the interactions of multiple factors (stylized fact 1). While it can be politically convenient to highlight privatization as one of the factors—and there is some evidence of this, as discussed below—it is generally incorrect to focus all blame on that part of the agenda. A series of studies of Argentina—a country that undertook an encompassing privatization process—points to the limits of such blanket statements. Relying on a general equilibrium framework which models the main interactions across markets resulting from reforms, Chisari et. al. (1999) and

Navajas (2000) show that, if anything, infrastructure privatization hurt relatively more the middle class through a redirection or suppression of existing subsidies (stylized fact 2) and may have even benefited the truly poor by increasing access to services (stylized fact 3).

An accurate “before and after” comparison is essential because in most Latin American countries—and Argentina is only one example among many—prior to reform, tariff structures and subsidies tended to benefit the politically powerful urban middle classes, rather than the poor. This second stylized fact is well illustrated by Colombia. A careful study of its public subsidies in 1992 showed that 38% of all public sector subsidies (including health, education, housing and other public services) were, in fact, spent on utility services representing 1.4% of GNP. Of these 80% were spent in the electricity sector where the study found that these subsidies benefited mostly middle income households. Subsidies in the water sector were more focused on poor households but were still not spectacularly progressive.⁵ More recent evidence shows that the distributional impacts of these subsidies have not improved much since 1992. This observation is also documented by Benitez et al. (2000) for Argentina for all utilities. For Panama, an analysis of existing water subsidies in preparation for privatization showed that almost two thirds of client households received some kind of subsidy while only 16% of the public company’s customers were either poor or extremely poor (Foster, et al. (2000)). Therefore, current subsidy schemes mostly benefited the urban middle classes.

A similar situation is recently documented by Wodon (2000) in his study of electricity subsidies provided by public enterprises in Honduras. The subsidy is in principle self-targeted, but in practice it is given to all households who have a level of consumption below 300 kwh per month. This represents 85 percent of the residential clients of the national electricity company, a ceiling clearly too high for the self-selection to be restricted to the poor. Overall, 80 percent of the subsidy is spent on households who consume more than 100 kwh. The main effect of this type of subsidy is that except for the lowest level of consumption in urban areas, it to increase rather than decrease inequality. The suppression or the redesign of this subsidy can only help the poor.

The third stylized fact is that privatization, if designed properly, provides an opportunity to end the exclusion of the poor, perpetuated by many cash strapped public utilities. Indeed, in many Latin American countries, the very poor did not have access to utility services before privatization and generally did not benefit from service expansions. Privatization, however, has the potential to change this. Box 1 provides evidence from Chile of this last point.

⁵ See Vélez (1996).

Box 1: When privatization benefits the poor: Electricity and telecoms in Chile

The table below shows the percentage of households in Santiago who did not have an electricity connection or a telephone in 1988 when privatization was underway and 1998. The percentage of connected households increased rapidly after privatization even for low income groups, especially in telecommunications. However, one cannot attribute all the change to privatization. There was a significant increase in disposable incomes between both years, as well as price changes. In addition, it is difficult to set a counterfactual regarding the investment rate in connections that would have occurred had these companies remained in public hands. However, there are two pieces of evidence that would suggest that a large portion of new connections should be attributed to the increased investment capacity resulting from private sector participation, at least in telecommunications. First, before the telecommunications industry was privatized, there was a notorious rationing of lines, as the companies could not finance the required investment in switching capacity. Serra (2000) mentions that the waiting lists for a new line installation were 40% of the total number of lines installed, and that it could take more than 10 years before a phone line was installed. A secondary market for telephone lines developed with prices of over a thousand dollars per line, depending on the neighborhood. Therefore, although the economic boom of the 1990's would probably have allowed public companies to invest more than the previous decade, it is questionable whether they would have been able to expand the service at the same rate as the private sector. Second, Contreras and Gómez-Lobo (2000), using probit regression techniques have tried to separate the effects of disposable income growth on connection rates from other influences. Their research suggests that a large fraction of new connections can be attributed to factors other than growth of household income. Although other influences may be at work, the presumption is that the increase in connections was a supply driven phenomenon rather than demand induced.

Table B1: Percentage of households with access to electricity and telecoms services in Greater Santiago, Chile, 1988-98

Income per capita decile	Households without electricity		Households without telephone	
	1988	1998	1988	1998
1	29.4%	7.0%	98.8%	68.9%
2	19.9%	4.0%	96.2%	53.2%
3	12.0%	2.7%	91.3%	43.6%
4	11.3%	3.1%	87.4%	35.3%
5	7.7%	2.4%	84.5%	24.6%
6	5.9%	2.3%	72.8%	22.2%
7	5.1%	1.3%	63.9%	14.9%
8	2.8%	2.5%	45.5%	9.8%
9	1.6%	1.1%	29.5%	6.8%
10	0.9%	0.7%	12.0%	4.4%

Source: Family Expenditure Surveys, 1988 and 1998.

The issue of connection to services by poor households is crucial to gauge the potential effects of privatization and in order to improve the benefits of reform that accrue to these households. For instance, Ajwad and Wodon (2000) show that in Bolivia, the poor may not benefit as much as the non-poor from a network expansion even when these are managed by public enterprises. They provide estimates of marginal benefit incidence of increased access to infrastructure in Bolivia in 1996—see Table 1—for municipalities classified into three income groups. They show that in infrastructure,

access to water is the only service for which the poor benefit as much as the non poor from an expansion of the service. In all other cases (sewage, electricity, garbage collection, and telephone), the non-poor benefit more than the poor from a service expansion. While these differences need not persist over time (specifically, once the non-poor have near universal access, the poor may benefit the most from any additional provision), they highlight the need to implement special policies at an early stage for the provision of infrastructure services if the poor are to benefit. The upshot is that if governments fail to correct this exclusion of the poor through specific policies, the poor will be as excluded post-privatization as they were before.

Table 1: Who benefits from an infrastructure service expansion in Bolivia?

	Estimates of the marginal benefit incidence by municipal income group		
	Poor	Middle	Rich
INFRASTRUCTURE			
Water	0.937	1.124	0.940
Sewage	0.219	0.881	1.900
Electricity	0.504	1.355	1.141
Garbage collection	0.534	0.687	1.779
Telephone	0.305	0.654	2.041

Source: Ajwad and Wodon (2000) based on 1996 municipal level data. An estimate of marginal benefit incidence larger (smaller) than one indicates that the corresponding group benefits more (less) than other groups from a national expansion of the service.

A more systematic analysis and summary of the available evidence widens the perspective provided by these stylized facts by focusing on some more detailed aspects of the reforms and show how the poor will often lose in unintended ways if policy makers do not anticipate some of the outcomes of reform. To help in this direction, we classify the potential effects of privatization or liberalization into microeconomic and macroeconomic linkages (see Foster (1999) for the original idea).

2.1. The microeconomic linkages

2.1.1. Losing from joining the formal economy and paying a higher effective tariff?

Starting with microeconomic linkages, it may be worth highlighting that privatization can affect the actual costs faced by poor households through several channels, as summarized in Table 2. First, any type of private participation (even a leasing contract) is likely to substantially increase the effectiveness of revenue collection. If poorer households were not billed prior to the reform or informal connections to the service were tolerated, the actual payments of these households is likely to increase after the reform. This will occur even if nominal tariffs do not change (or even decrease), since these households would have to actually pay for the service whereas before they paid nothing.

The evidence suggests that illegal or informal connections are much more common among poor households and therefore the implicit subsidy from non-payment is bound to be progressive. For example, Vélez (1996) estimates that the implicit subsidy from non-payment by informal or illegal connection in the main urban centers of Colombia in 1992 accounted for 6% of all subsidies in the electricity sector and 24% of all subsidies in water and sanitation. In the gas sector, whereas formally connected households paid a surcharge over costs, non paying households received an implicit subsidy. Overall, close to 9% of all subsidies in the gas, electricity and water sector in Colombia distributed in 1992 were accounted for by illegal connections or non-payment. Furthermore, the

distribution of this subsidy was highly progressive with more than 72% and 73% of the subsidy benefiting households in the five poorest deciles of the income distribution in the electricity and water sector, respectively (with close to 20% of the subsidy in each sector benefiting households in the first decile). The elimination of this implicit subsidy could have a negative effect on poor households if it is not compensated by other measures.

Table 2: Summary of microeconomic linkages between increased private sector participation in infrastructure and welfare of the poor

Side effects of privatization	Possible sources of increase in cost burden for the poor	Possible mitigating factors and welfare gains for the poor
The cost of increasing formality	Revenue collection and discouragement of informal connections are likely to be more effective and result in increase in effective price paid.	<ul style="list-style-type: none"> • A formal connection, even at a cost, may be a true aspiration of vulnerable households. • Safety likely to increase with the formalization of connections. • Informal connection may have been more expensive. • Reform can bring technology choices that lower costs.
The cost of tariff level adjustments	Average tariff levels can increase, due to cost recovery requirements and need to finance quality related investments.	<ul style="list-style-type: none"> • Increase in average tariffs depends on pre-reform price levels and the distribution of the benefits of private participation between stakeholders. • Reform can cut cost significantly enough through improvements in efficiency or new technologies.
The costs of tariff structure adjustments	Tariff structures likely to be reformed in ways which could increase the marginal tariff faced by a poor household.	<ul style="list-style-type: none"> • Competition likely to decrease average tariffs and may also compensate for any tariff rebalancing that affects the poor.
The costs of increasing the price of substitutes	Privatization may restrict access to some alternative services, especially if connection to public network is mandatory.	<ul style="list-style-type: none"> • Access to other types of alternative services will not be affected if foreseen in contracts. • Availability of communal services may increase as a result of privatization.
The costs of increasing the price of complements	The cost of obtaining a connection to the infrastructure service is likely to increase substantially.	<ul style="list-style-type: none"> • The cost of obtaining other complementary equipment is likely to be unaffected by privatization, but will remain high.
The costs of improved quality of service	Quality of service likely to improve, but this may make network services unaffordable for the poor.	<ul style="list-style-type: none"> • There is considerable evidence showing that poor households are willing to pay reasonable amounts to improve quality of service.

Source: Adapted from Foster. (1999)

A similar observation can be made in Panama where close to 7% of the clients of IDAAN, the main public water utility, were subsidized at a level of 100% of their bill at an annual cost of US\$3 million to the company. Eligibility for this subsidy was mainly based on a poor past payment record. Therefore, this subsidy was implicitly a subsidy for non-payment (Foster et al. (2000)).

But there are also examples of countries in which the poorest formally unconnected users get illegal connection from illegal providers and pay these illegal providers for services equivalent to those offered by the formal operators. In the Dominican Republic for instance, flat fees are commonly paid by the poorest for illegal connections. The recent privatization of electricity distribution is not yet having any effect, positive or negative, on the poor since these households were previously paying an equivalent amount to the current bills to informal operators. The introduction of a formal operator concerned with cost recovery may simply provide them with an option and it is not unreasonable to assume that the competition between the privatized operator and the informal operator will result in some type of competition at the retail level which may end up cutting tariffs for the poorest, at least until the private operator takes over the business in full. The evidence of deaths in the Dominican Republic related to improper handling of wires by users and the informal connected shows that in the case of electricity, informal connections also pose a safety threat to the household and the surrounding community. Therefore, even if the formalization of the service and the concomitant increase in expenditure ends up being a direct financial loss to the household, this impact may be compensated by the increased safety. In the water sector this may also be the case when, due to an illegal connection, there is a serious reduction in the quality of the water that reaches the household.⁶

More generally, the coexistence of informal and formal providers is often the result of inefficient management by public utility companies—which are unable to identify and incorporate many of their implicit customers—than a strategy pursued by poorer households to obtain free services. In fact, there is mounting evidence from Willingness-to-Pay surveys undertaken in Central and South America indicating that even very poor households would prefer to pay a reasonable bill in order to have a formal connection to piped water services than maintain an informal connection. This is partly due to the uncertainty regarding the continuation of access to the service faced by a household that is informally or illegally connected. In other cases, being a formal customer of a utility, certified by the presentation of a water or electricity bill, may be necessary in order to obtain other state benefits or in order to proceed with bureaucratic processes within the state apparatus. For urban households who live in recently created shanty towns without proper land titles, a formal connection to a utility, even at a cost, may be a first step in the direction of formal ownership of the property.

2.1.2. Losing from changes in the tariff level and structure?

The inclusion of users into the commercial cadastre of the companies is only the most obvious way in which the poorest can be affected. Their situation may also be influenced by the increase in average tariffs that can stem from privatization.⁷ This is usually the result of the need to make the utility providers financially self-sufficient. Prior to reform, many utility companies do not charge the true cost of the service and the resulting financial deficit of this implicit universal subsidy is funded from government budgetary resources. Since one of the motivating forces for reform is often the reduction in fiscal deficits, privatization will usually be accompanied by a rise in tariffs in order to cover costs.⁸

⁶ The crucial point in this argument is whether the household is aware and values the extra safety and health benefits of a formal connection. If this is the case then the household would presumably be willing to pay for a formal service. However, if the household does not value these benefits then it is a public health concern which may justify some type of subsidy for the service. More on this later.

⁷ Often tariffs will increase prior to privatization as governments improve the financial conditions of the companies in order to make them viable for privatization. This increase, although not coincidental with privatization in a temporal dimension, can nevertheless be attributed to the privatization process.

⁸ Even if governments would like to maintain low tariffs in the context of private participation and continue funding operating deficits through government transfers, this would be quite risky for a private operator. A large fraction of the operator's income would depend on the political vagaries of the budgetary process. Therefore, financial sufficiency may be a precondition to attract private sector interest in the reforms.

Privatization, however, does not always increase effective tariffs. The impact of a reform process on prices will depend on the pre-reform tariff level and pricing formula as well as on how the benefits of privatization are distributed between stakeholders. In particular, who receives the financial compensation for the assets sold or concessioned depends on the tendering mechanism used to award the contracts or utility company. When one of the main objectives of the reform is to reduce the fiscal deficit, governments may be tempted to set a high tariff level and award the service to the private investor who offers the highest up-front or annual transfer to the government. In some respects, high tariffs in this case can be viewed as a tax on consumers to fund the fiscal deficit through a high sale value of the company. If it hurts the poor disproportionately, it can be viewed as the result of taxation rather than privatization per se. On the other hand, if a company is privatized to the bidder that offers to charge the lowest tariff, then consumers would receive more of the financial rewards of the reforms. This effect may even result in a reduction of average tariffs.

There is evidence from a survey of 600 concession contracts from around the world that in most cases contracts are tendered for the highest transfer or annual fee, suggesting that governments tend to use the auction to address more immediate fiscal concerns rather than to address efficiency concerns which would more directly meet the need of the consumers including users (Guasch (2000)). However, some cases illustrate how other stakeholders, and in particular consumers can gain from lower tariffs when the contracts are tendered according to this variable. In 1992, the water and sanitation services in the Buenos Aires Metropolitan Region was concessioned for 30 years. The investment commitments were of the order of US\$4,000 million during the period of the concession. The contract was awarded to the company that offered the lowest tariff. As a result, tariffs were reduced on average by 26.9%. A few years into the concession there was a renegotiation process that resulted in an increase in tariffs of 13.5% due to the need to bring forward the investment plans and increase quality of service. However, the net result was still a fall in average tariffs after services were concessioned which benefited all clients, including the poorest connected customers.

As for the effects of privatization on tariff levels and structures, they will also depend on the degree of competition in the post reform industry. Competition and effective regulation should serve to lower costs and tariffs. The evidence from a General Equilibrium Model for Argentina shows that the indirect gains from effective regulation of the utility industries tended to benefit the poorest income groups relatively more.⁹ While privatization itself tends to benefit the new owners and hence the richest, the effective regulation of the new "private" monopolies cuts tariffs to their efficient levels cutting costs to other sectors of the economy, increasing demand for their outputs and generating additional demand for key labor inputs, including employment for the poor.

To the extent that privatization is a precondition for the introduction of competition, private sector participation may have substantial effects in reducing tariffs. In Chile, when the long-distance telecommunications market was liberalized in 1994, call prices dropped more than 50% (80% for large clients). A drop in prices of a similar magnitude occurred in 1998 in the mobile telephony industry when the PCS system was introduced and the number of mobile telephone companies increased from 2 to 4. In the electricity sector, generating prices fell by 50% between 1988 and 1998. This was due primarily to the arrival of natural gas from Argentina to fuel new Combined Cycle Power plants and, therefore, cannot be attributed directly to the privatization process. However, the question remains whether the gas pipeline, which was privately financed, would have been feasible without the privatization of the generating industry. The fact is that the incidence of the gains is not clear. Retail electricity tariffs have not fallen by the same magnitude as generating prices. Between 1988 and 1998 they only fell by 25%. This result shows the importance of competition in reducing tariffs which in turn should benefit the poor (see Serra (2000)).

⁹ See Chisari, et al. (1999).

In Argentina, the effectiveness of the restructuring process and the success of the introduction of competition was such that the wholesale price of electricity in Argentina dropped from 48.76 US\$/MWh in 1992 to 25.67 US\$/MWh in 1997, a drop of close to 50% in the five year period after privatization. This was due to the intense competition in the generation sector after the entry of new generators (this increased from 13 in 1992 to 44 in 1997). The retail price faced by residential customers (net of taxes) was on average 0.191 US\$/kWh (at constant 1997 prices) between 1970 and 1991, but only 0.115 US\$/kWh in the five years after privatization (1992-1997). Although part of this 40% drop in final prices would probably have occurred without privatization, due to general tendencies for electricity prices to fall, it is nonetheless indicative that privatization is not always accompanied by tariff increases. (Estache-Rodriguez-Pardina (2000), FIEL (2000)). In all of the above cases, the critical variable seems to be competition. Privatization is generally a pre-condition for competition for political reasons but is not the key factor in cutting tariffs. Competition, however, is.

Tariff structures may also change in ways that may be detrimental to some vulnerable groups and not only in poor countries (see Box 2 for the UK experience). Tariffs can be differentiated along at least two dimensions, the category of clients and the quantity consumed by an individual client. In the first case, pre-reform tariffs will usually (but not always) contain an element of cross subsidy, either from commercial or industrial customers to domestic customers or from more affluent customers to less affluent customers (usually by the geographic differentiation of tariffs). On the quantity dimension, tariffs may contain some type of lifeline rate or rising block structure to reduce bills of low consumption households. In some instances, tariffs do not include fixed charges in order to protect households with low consumption. In the water sector, where increasing block tariffs have been known to have disappointing effects, practitioners are now considering the use of uniform price with rebate designs (IPR) in which a volumetric charge set equal to marginal cost is complemented by a fixed monthly rebate (or a negative fixed charge) which can be targeted to the poorest and which can be set to generate enough, but not excessive, revenue while preserving marginal cost pricing.¹⁰

Finally, with privatization it will often be advisable to reduce or eliminate the implicit cross-subsidies in the tariff structure or at least increase their transparency through a redesign—for governments unable to raise the fiscal revenue needed to finance explicit subsidies. Otherwise a private operator will have an incentive to expand and serve customers who generate surplus to the detriment of the groups, possibly poorer, that receive the subsidies. If liberalization brings competition to the sector, the natural incentive to “cream skim” by new entrants will force tariffs to be rebalanced anyway. However, the net effect does not necessarily result in higher tariffs for vulnerable households, as the UK gas experience seems to show. In the Dominican Republic a similar story can be told. Currently, consumption by the poorest households is in fact not measured. They are charged (whether legally or illegally connected) a flat fee. In many instances, actual consumption billing would cost less to the poor. The inclusion of these users in the formal measured network should cut the electricity bill for many if priced normally.

¹⁰ See Boland and Whittington (2000) for more details.

Box 2: What reforming developing countries can learn on the cost of service to the poor from the UK experience in the gas sector

The UK gas experience illustrates the relevance of tariff structure. In that market there are three types of customers: direct debit customers (often wealthier) that pay monthly installments automatically through their banking accounts, standard credit customers that pay a quarterly bill, pre-payment customers who, either voluntarily or because of a bad payment record, use the more expensive pre-payment meters that work based on coins or pre-payment cards. There is an overrepresentation of vulnerable households in the pre-payment category which raises concerns regarding any tariff rebalancing that would hurt this group of customers. British Gas has always posited that pre-payment customers are more expensive to serve and that there is an implicit cross-subsidy in the tariff structure benefiting this group. The regulator has often limited the extent to which British Gas (now British Gas Trading-- BGT) could rebalance tariffs for different types of customers.

When competition was introduced in the residential market in 1997, the regulator imposed 'caps' on each of BGT's tariffs to prevent the company from compensating for a reduction in prices to direct debit and credit customers by increasing tariffs to pre-payment customers. Although there was a statutory duty for all entrants to offer service to both pre-payment and credit customers, there is evidence that the new competitive firms were 'cream skimming' by gearing their pricing structures and marketing campaigns to credit customers and discouraging the service to prepayment customers. This forced BGT to react by offering discounts to its credit customers, but tariffs to pre-payment customers remained the same.

In July, BGT applied to the regulator to rebalance its tariffs by increasing the cap on pre-payment meter customers based on evidence on the cost differential to service each type of consumer. After a cost study undertaken by the regulator, BGT decided to withdraw the application since it was clear that the regulator would reject the petition. In fact, the regulator forced BGT to lower its pre-payment meter tariff in line with its standard credit tariff.

The net effect of these policies is as follows. The initial tariff differential, as of November 1997, between BGT and competitors shows that debit and credit customers obtained the greatest tariff reductions (17 and 16% respectively). Pre-payment meter customers also benefited but much less so (4%). Next, after BGT revised its tariffs downwards in 1998, the bill differentials were somewhat lower, but pre-payment customers could gain by switching from BGT to some of the new competitors. Overall, tariff rebalancing has been achieved with a general reduction in overall prices. Credit and debit customers have gained most from the introduction of competition in the domestic gas market, including many vulnerable households. Pre-payment customers have benefited as well, but less so.

2.1.3. Losing from changes in the prices and availability of substitutes and complements?

An unexpected effect of privatization on the poor is related to the prices and availability of substitute and complementary goods. Substitute goods are those that provide alternative forms of energy, water, light or communication. Table 3 provides some examples for each of the utility services. It is ironic that in many cases, due to the shortcomings of public utility providers, the poor only have access to utility services through these alternative goods, which for the most part are provided by the private sector. Therefore, for many of these households privatization is not "so much a transition from public sector to private sector provision, as a transition from informal private sector provision to formal private sector provision".

Table 3: Substitutes for private household connections to infrastructure services

	Energy	Telecommunications	Water
Self-supply	Collection of firewood		Collection of river water Construction of wells
Communal supply		Public telephones	Stand-pipes
Alternative non-network suppliers	Kerosene Bottled gas	Resale of telephone services	Tanker supplies Bottled water Resale of piped water
Alternative network suppliers	Informal networks	Pagers Mobile telephones Voice mail services	Informal networks

Source: Foster. (1999)

In general, privatization will be neutral with respect to the availability of substitute goods or even increase the options and availability of communal supply. Whether in Argentina, Bolivia, Brazil, El Salvador or the Dominican Republic, private operators are promoting the use of alternative technologies in the power sector. Renewable energy sources are the upshot of a public-private partnership in an increasing number of countries (Brazil, Bolivia, and the Dominican Republic). Cooperative arrangements have been introduced by some of the private distribution companies in poor neighborhoods to increase the number of shared connections (see World Bank Argentina report in 1995). The main exception has been in the water sector when reforms are accompanied by a legal requirement prohibiting self supply and the resale of piped water and where residential units are obliged to connect to the formal public network. This was initially a problem in the Aguas Argentina concession where the need to reduce losses in the network led the private operator to end informal agreements for the use of less reliable connections in the poorest neighborhoods, allowed by the public provider prior to privatization.

Note that the end of the need to rely on substitutes may be good news for many poor households. Consider some figures on the price ratio between what poor unconnected urban households are paying water vendors compared to the price charged by the public utility companies. They provide a stark illustration of how the status quo in many utility industries does not benefit the poor and that the poor are willing to pay quite significant amounts to access utilities. Poor households often pay over 10 or 20 times the price paid by connected households with regular service, thus highlighting the benefits reaped by these households if services are expanded as a result of privatization (provided tariffs don't increase by 10 or 20 times).

Table 4: Comparing prices paid by water vendors and charges at public utilities

Country	City	Ratio of prices paid to vendor to public utilities tariffs
Colombia	Cali	10
Ecuador	Guayaquil	20
Haiti	Port-au-Prince	17-100
Honduras	Tegucigalpa	16-34
Peru	Lima	17

Source: Gran (1993) cited by Tynan (2000)

Finally, the importance of the complementarity between some goods can be underestimated. To begin with, it is worth noting that in many countries urban water is pumped to the apartments in most buildings. This means that the access to water depends on the availability of electricity. In fact,

increased reliability and lower prices in electricity are a major determinant of improved and cheaper services in water.¹¹ But there is a second dimension to complementarity. When investment is required to connect to the network, privatization may have an adverse effect on the poor if households are legally required to connect to the network and there are no connection subsidies or credit facilities that reduce the large up-front costs that households must incur in order to connect. This is a critical issue in the water sector where connection costs can be several hundreds of dollars. In Buenos Aires for instance, the concession contract charged new customers the cost of the connection plus part of the cost of expanding the secondary network, which totaled between \$1,100 and \$1,500 per connection. The operator was allowed to recover its investments in 2 years. Many unconnected customers were in areas with an average household income of about US\$245 a month, i.e. among the poorest, and were being asked to contribute almost 20% of their income to these complementary investments.

2.1.4. Losing from changes in the options for quality?

Finally, privatization will also affect the quality of service. This may have beneficial effects on poorer households if the pre-reform quality was inadequate, especially as regards the continuity of service. Privatization, especially if accompanied by the introduction of competition, may also spur more diversity in the types of services offered, some of which may be more closely tailored to the needs of poorer households. However, quality improvements may also be costly and will thus be reflected in higher tariffs, which may hurt the poor. The balance between quality and tariffs imposed by the regulator on a private provider may be based on standards relevant for the average customer and may not be the adequate balance for poorer households.

In many instances, the benefits poor households derive from improved service provision may more than compensate for the impact on tariffs. This depends on the exact magnitude of the tariff increase, although the evidence shows that poor households are usually willing to pay substantially more for a reliable service than the pre-reform tariffs. This can be seen in evidence from willingness to pay surveys (WTP) conducted in Central and South America that show that poorer households are generally willing to pay for quality improvements. For instance, between 1995 and 1998, ESA Consultores of Honduras undertook several WTP surveys in Central and South America trying to measure households attitudes and valuations regarding water and sanitation services.¹² The main conclusions from these studies included the following ones.

Where households are not connected there is a high willingness to pay for a connection to the public network. Usually these households spend a significant amount of resources for alternative low quality supplies and are willing to pay to be connected. For example, in Tegucigalpa, in 1995, unconnected households spent an average of \$10 a month for 3.7 cubic metres of water. This expenditure represented 7% of household income for a volume that is significantly below the recommended minimum of monthly basic consumption of 15 cubic meters. These households could reduce their expenditure and increase their consumption if connected to the public supply network. Households in marginal sectors that were connected but did not receive a daily service, were willing to pay \$4.50 per month for a daily 4 hour service. That represents 3% of average household income and is three times higher than the tariff they paid at the time (\$1.50). Similar WTP results were found in the other cities.

¹¹ Arguably, a privatization process may even be beneficial to the poor if reform promotes the development of a more dynamic and productive industry for these complementary goods. As such, privatization may increase the availability of low cost durable goods for poor households.

¹² The cities and dates of these studies are: Honduras—Tegucigalpa (marginal neighborhoods), 1995; Nicaragua—Managua (marginal neighborhoods), 1996; Venezuela—Caracas, Barquisimeto, Mérida (all the population), 1996; Guatemala—Guatemala City (marginal neighborhoods), 1997; Venezuela—Caracas (marginal neighborhoods), 1997; Panama—Panama City and Colon (all the population), 1998.

Where the quality of service is relatively good, households are willing to increase their monthly expenditure in order to reverse a deterioration of the service. In Caracas, for example, households were willing to pay up to three times their tariffs at the time to maintain the quality of service. Therefore, the fact that the poor end up paying more post privatization may not be welfare reducing.

2.2. The macroeconomic linkages

The macroeconomic linkages between increased private sector participation and poverty are mostly indirect as seen in Table 5. If more, and better, infrastructure financed privately promotes general economic growth, this will be beneficial to the poor (see Kraai and Dollar (2000)). Also, if the reforms reduce the fiscal deficit, more resources could be allocated to more progressive public expenditure programs. The magnitude and sign of the above effects will depend on the counterfactual considered. That is, how much would the growth rate be without privatization and how would extra fiscal resources be spent? The difficult problems arise during the transition. Significant changes in relative prices throughout the economy needed to unleash growth can be very damaging to the least prepared segments of the population. Managing the effects of privatization on the relative price of public services is one of the purposes of safety nets.

Table 5: Summary of macroeconomic linkages between increased private sector participation in infrastructure and poverty

Macroeconomic effect	Expected negative impact on poverty	Ameliorating factors
Economic growth	<ul style="list-style-type: none"> May result in difficult transition as a result of tariff rebalancing and service mix changes (more or less standardization) which does not address the needs of the poor, in particular when there are no safety nets in place. 	<ul style="list-style-type: none"> Over the medium to longer run, increased private sector participation in infrastructure should contribute to growth which in turn tends to reduce poverty levels.
Reduction in employment	<ul style="list-style-type: none"> Workforce often reduced soon after privatization. Wages may also decrease for some of the workers during a transition period. 	<ul style="list-style-type: none"> Depends to what extent poor households were employed by public enterprises and on the nature of the compensation provided to workers laid-off.
Reallocation of public expenditure	<ul style="list-style-type: none"> Reduction in overall subsidy allocation during transition as a result of fiscal adjustment may reflect lower priorities for privatized utilities. 	<ul style="list-style-type: none"> "Privatization revenue" and better targeting may ease financing of the needs of the real poor.

Source: Adapted from Foster. (1999)

A second and more direct effect might be the reduction in employment associated with the privatization of a public utility company. Both theory and evidence point to a significant reduction in employment after privatization—although there is also growing evidence, in the Argentine and Mexican transport sectors for instance, that in some sectors, employment will eventually pick up with business. In addition, wages may also be reduced. It is however not possible to make any general assertion regarding these effects since they will depend on the employment structure of the company, but also on the flexibility of the labor market and on the relative wages in the utility and outside. Chisari, et al. (1999), for instance, show that much of the unemployment increase that occurred during

the implementation of the privatization of utilities could best be explained by the rationing of the credit market which prevented the adjustment needed to absorb excess labor.

Finally, it may be worth pointing out that changes in subsidy policies may be intended to help the poor but may also cause damage during the transition. It is quite common that a key companion of a privatization policy is a fiscal adjustment. Most fiscal adjustments end up reducing subsidies—at least initially. This cut in subsidy is commonly handled in a way to keep matters simple and are close to cuts-across the board. This lack of discrimination is a rational source of concern for the poorest, even if they only get a modest share of these subsidies and is often an unbearable price to pay to achieve the longer run gains from reform.

2.3. Concluding on what the facts tell about the linkages between “privatization” and the poor

The main conclusion to emerge from this review of the Latin American experience is that the relation between “privatization” and the poor is complex and in general ambiguous. The evidence on this point is sketchy and incomplete because there is no policy tradition of trying to figure out the expected outcomes of reform *ex-ante*. Often privatization requires swift action that must be accomplished without the benefit of a detailed cost benefit analysis by group. The deal (i.e. signing a contract) is what matters to most governments and at best the winners and the losers who matter are in terms of the next election or in terms of getting the deal done. Much more needs to be researched in this area and in view of the large number of contract renegotiations, much more needs to be anticipated in this respect by politicians as well.

In addition to the relevance of measuring and simulating the consequences of reform, the main general conclusions that can be drawn so far are the following:

- It is a myth to believe that *status quo* arrangements in the utility industries (i.e. public provision) is beneficial to poor households. Indeed, many poor would benefit from the service expansion that may be possible through privatization and which would allow them to avoid the high costs of alternative sources.
- It is a myth that existing subsidies benefit the poor; the middle class tends to be the main beneficiary.
- It is a myth that poor households are not willing or able to pay for a regular and reliable service. Many of these households currently pay much more for a deficient service from private vendors (in the case of water) or alternative sources (in the case of energy) than they would from a public provider.
- It is a myth that there is no role for government once the private sector takes over utilities services. The way markets are restructured, the way competition is introduced and maintained and the way regulatory commitments are implemented determine whether privatization is beneficial to households.
- The weaker the regulatory structure, the less likely generally that the concerns of the poor will be accommodated in public policy decisions.

3. HOW TO MAINSTREAM THE MEASUREMENT OF THE EXPECTED EFFECTS OF REFORM

There are no quantitative rules of thumb that lead the hopes and fears of policymakers. Nevertheless, it is clear that the effects of privatization on the poor will depend on the particular situation of a country and the details of the reform process. Once more this is why as a first step policymakers should try to ascertain and measure the potential impacts of the reforms on the poor. This would entail trying to answer quite specifically the following two main questions:

- *Who is benefiting from status quo implicit and explicit subsidies? Are they poor?* We have seen that many of the “academic” studies of the effectiveness of subsidies targeting prior to privatization suggest that the poor are not the main beneficiaries. It is inconceivable that any privatization program for water or electricity for instance would not try to measure the likely distributional impact of changes including changes to subsidy designs and programs. This requires an analysis of the tariff structure, implicit subsidies and explicit subsidies of the current service provider and try to gauge the socioeconomic status of the benefited households.¹³
- *Are the poorer households connected to the service?* This is a crucial question that needs to be addressed in order to clarify the potential impacts of the reform process on the poor. If not, are they paying informally? What is the true economic value of access, taking into account social benefits or externalities?

Ideally the answer to these two questions would entail a comparison of the welfare of the poor with reform and without reform. At least in principle, all the welfare impacts of the microeconomic effects mentioned above can be measured using a simple consumer surplus framework. But this is not just an academic exercise. Generating the information serves two purposes. First, it can be used to inform public opinion regarding the true effects of the privatization process. Second, it would generate the needed information in order to design the optimal policy tools to counter any undesirable social impacts of the reform.

Why then is it that some of the most creative and politically astute governments in the developing world have not measured these impacts in order to better inform their electorate and better help their poor. While there are good political economy answers (including some tough questions regarding the relative political strength of the winners and the losers from the policies that hurt the poor and some related governance issues), the focus of our discussion is more “mundane” and aims at addressing the analytical obstacles to measurement. In this respect, the main obstacle in this direction is the *weakness of the data* available to evaluate the relationship between infrastructure provision and the poor. To measure the microeconomic impacts, ideally a researcher would need a data set that contains:

- household level observations on a wide range of socioeconomic variables;
- information on expenditure and *physical* consumption of utility services; and
- information on households not connected or informally connected to services.

This type of data would permit the simulation of the welfare impacts of different tariffs, subsidy and connection policies related to reform. For example, rising block tariffs might be proposed as a way to harmonize distributive objectives with economic efficiency and financial sustainability of the service provider. The unit price of the service would be cheaper for the first units of consumption, up to the level considered sufficient for the basic needs of a poor household. All users benefit from this cheap

¹³ For a study in this direction see Gomez-Lobo et al. (1998) where an analysis of the impacts of current subsidies was undertaken for the Panamanian public water supplier.

tariff. Consumption in subsequent blocks could then be charged at their true economic costs or higher. The efficiency and effectiveness of these types of social tariffs will depend on the correlation between household physical consumption and household poverty levels. In order to evaluate this correlation—so that the exact size of the first block can be established fairly—a database which records for each household both socio-economic variables—is required to evaluate poverty—but also *physical* consumption of utility services. This approach has been adopted for water services in Cartagena, Colombia—where in 1998, the maximum rate, UScts0.86/cubic meter, is about 7 time larger than the first block rate, 0.12 UScts/cubic meter—and in Panama City where the tariff differentiation is done by type of users, social (in 1998, UScts0.18/cubic meter), residential (UScts0.21-0.43) and commercial (UScts0.30-48).

More generally, a household level database containing both socio-economic information and physical consumption would be an extremely useful tool for evaluating impacts and designing measures to counter negative effects on the poor. However, such a dataset is rarely available, even in developed countries. Most countries undertake household level surveys—many following the methodology of the Living Standards Measurement Study (LSMS) survey methodology sponsored by the World Bank—which are invaluable instruments to measure poverty, evaluate impacts of different social programs and to design well targeted subsidy schemes. However, as regards the infrastructure sector, these surveys have some serious shortcomings.¹⁴ LSMS record a large number of socio-economic variables which can be used to ascertain the poverty level of the sampled households. As regards water usage, all surveys incorporate a question on the amount the household spent on water services during the last month or the last payment period, although they do not tend to record the volume of water consumed.¹⁵ As such, the only way that physical water use can be inferred from the information collected in the LSMS is to transform the monetary expenditure into a physical consumption variable by applying the corresponding tariff structure to the household's declared water bill.

The deficiencies with the LSMS Survey methodology as regards the infrastructure sectors can be illustrated in the case of water in Panama where a conscious effort was made to anticipate the needs of the poor in the preparation of privatization. Experience with applying this approach in Panama revealed that the expenditure information was deficient in a number of respects, which made it very difficult to draw reliable inferences about the physical volume of consumption. In particular, these include the following problems.

- The fact that there are multiple tariff structures applied to residential customers and that the survey did not contain any information on which tariff applies to which household.
- The absence of a variable identifying whether the household has measured water supply. Therefore, it is impossible to know whether the expenditure transformation gives actual or imputed water consumption.
- The quality of the expenditure data can be poor. Where the household was not able to produce a recent water bill, the estimate is based on memory. In these cases, it is not always clear whether the estimated consumption includes the charge for refuse collection, which in the case of Panama is billed together with the water service.

¹⁴ See for example Gómez-Lobo, Foster and Halpern (1999) for an analysis of the problems of the LSMS surveys related to water and sanitation.

¹⁵ Other water related questions in LSMS include the source of water supply, the average number of hours a day in which a dwelling receives water, and whether there is a sewerage connection. Other questions that are sometimes included are the distance of the dwelling to the water supply, location of the tap, and other characteristics of the water and sewerage services.

To illustrate this last point raised above, consider the quality of the water expenditure data of the 1997 LSMS Panama. In order to gauge how substantial the divergence might be between actual water expenditure and that reported in the survey, histograms were plotted comparing the frequency distribution of expenditure in the survey as against the client database of the Panama water utility, IDAAN. The resulting distributions for the standard residential tariff and the special social tariff are presented in Figures 3.1 and 3.2 respectively. In both cases, there is a striking contrast between the two distributions. The key differences are as follows.

- The distribution of expenditure from the client database shows a marked concentration of households around the B./4.26, B./4.60, B./5.68 and B./ 8.00 (US\$ 4.26 to US\$ 8.00) mark, which represents the minimum charge payable (depending on the specific tariff structure). Moreover, the vast majority of clients seem to have bills around this level. Neither of these features is found in the distribution of expenditure from the LSMS survey, which presents a much flatter distribution of expenditure.
- Furthermore, in the first figure, there is a slight spike in the distribution at around the B./12 (US\$12) mark. Interestingly, this is exactly the level of expenditure that a residential household would incur if refuse collection charges were not subtracted from the water bill (B./6.40 for minimum water consumption on the standard tariff, and B./5.60 for refuse collection). This is suggestive of mistaken inclusion of the refuse collection charge in a significant number of cases.

Figure 3.1: Monthly water bill distribution from different information sources, standard residential customer, Panama

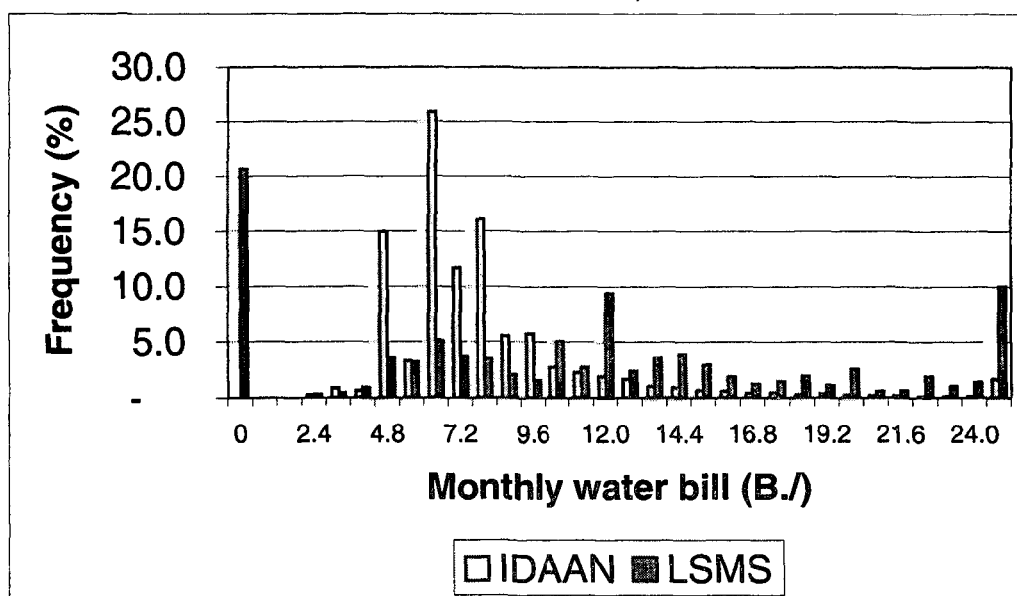
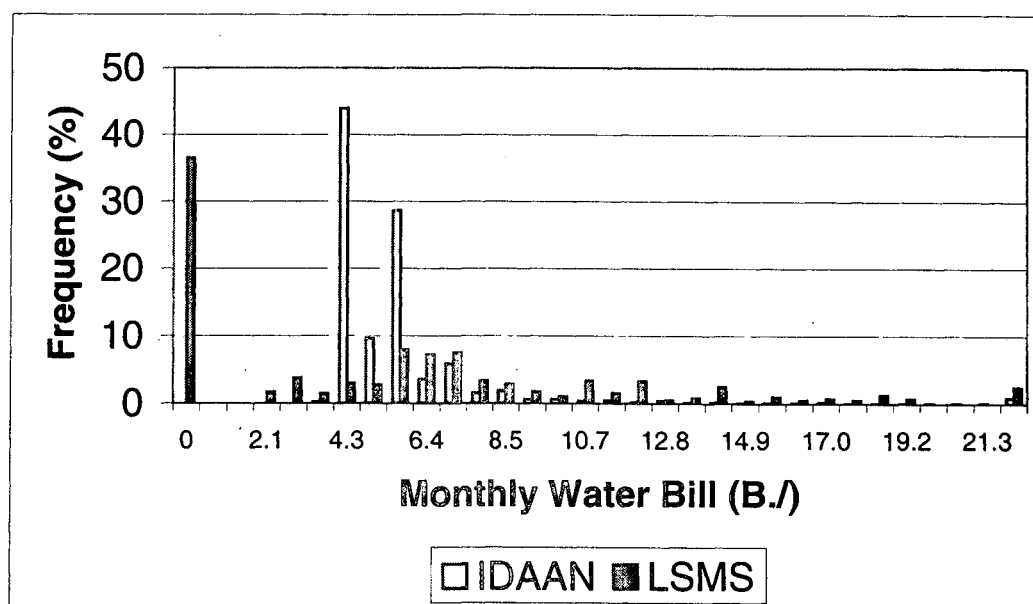


Figure 3.2: Monthly water bill distribution from different information sources, special residential customers, Panama



Source: Gómez-Lobo, Foster and Halpern (1999)

Fortunately, these deficiencies can be eliminated by relatively inexpensive changes to the survey design and implementation.¹⁶ Until that is done, however, there will be a lack of suitable data to analyze the social impacts of sectoral reforms in the infrastructure sector. There is still much that a creative analyst can do to try to answer the questions posed at the beginning of this section, even if poor or incomplete data is available. Komives, Whittington and Wu (2000) show how to squeeze as much information as possible from these LSMS. But more needs to be done. Foster (2000) suggests an expansion of the standard questionnaires used to collect the required information—and provides some guidelines as to how to go about it—but this collection is impossible without a political commitment that may be harder to achieve in view of the stakes for some of the beneficiaries of the unfair policies.

4. IS THERE A REAL CASE FOR A SPECIAL WELFARE POLICY IN THE INFRASTRUCTURE SECTOR?

To motivate the discussion, it may be useful to see how the potential costs of not having a special welfare policy work out in practice with the help of a recent crisis in Argentina. In 1995 the water and sanitation services for the Province of Tucuman in Argentina were concessioned to a consortium of Compagnie Generale des Eaux and a local investor for 30 years. To fund the required investment program, the concessionaire bid a tariff increase of 68%. The tariff increase would be immediate and would affect all customer groups equally in a population with a significant share of urban and rural poor. With hindsight, this last characteristic of the winning bid was probably a misjudgment. The tariff increase proved very unpopular and was considered unjust by low consumption users. The situation deteriorated with a series of episodes of turbid water. The result was a non-payment campaign by consumers which provoked a financial crisis for the concessionaire. Provincial elections brought to power a new administration which was much more hostile to the concession program. At first the authorities and the concessionaire began negotiating the contract. One initiative was to

¹⁶ See Gómez-Lobo, Foster and Halpern (1999).

introduce a special tariff for low income users and a system of rising block tariffs for regular customers. However, the negotiations did not prosper and the case ended in international arbitration.

This example illustrates the challenges of addressing social issues in the context of privatization. Although the causes of the failure of the Tucuman water concession are many and complex, perhaps earlier attention to the social and distributive issues related to the tariff increases would have increased the chances of success or an explicit subsidy program would have helped diffuse the explosive situation. However, the main problem may have been that the government had not addressed the poverty issue as part of its general welfare program and was trying to get the job done through the renegotiation of the design of the concession.

More generally, the following generic questions should be addressed in the context of utilities privatization in developing countries in general and Latin America in particular. The very first question is whether as a matter of principle, the linkages between poverty and infrastructure in general should simply be viewed as just another manifestation of poverty in a generic sense and, as such, should be tackled through the general welfare system? In general, the answer will be positive. But the more pressing question is: given that there is no credible general welfare policy in most countries about to reform, if a serious analysis of the situation raises legitimate concerns regarding the impact of reforms on the poor, is there a real case for welfare policies in the infrastructure sector at least in the short to medium run? More specifically, should changes in the utility industries warrant special policy measures in these industries, and should this response link any potential transfer to actual consumption of the utility services. In sum, are the “fuel poor”—a term used in the United Kingdom to refer to vulnerable households that under consume energy resources—any different from the “general poor”?¹⁷

More generally, what these questions suggest is that linking welfare programs to changes in the utility industries is quite complex. First, it is quite difficult to isolate the effects on the poor of changes in utilities from the effects of other simultaneous policy changes and an explicit link to utilities could generate a situation where economic welfare effects are evaluated and countered in isolation without proper consideration of these multiple effects. For example, it is not uncommon for privatization to raise tariffs faced by poor households, but other changes in the economy (possibly indirectly linked to the privatization process, such as higher economic growth) may compensate for this effect. Second, welfare programs aimed at utility consumers would not reach the unconnected poor, which in some cases can be a substantial proportion of vulnerable households. An alternative is to consider more general poverty alleviation programs which may be more efficient in gauging the overall net impact of economic conditions on vulnerable households, in establishing the appropriate welfare benefits required and in targeting benefits to the truly needy. This seems promising but make take too long to implement.

This discussion begs the recognition of a final issue, more institutional in nature. Once social objectives have been recognized as important and once the limits of general welfare systems have been recognized, should utility regulators have social and welfare objectives in their statutory duties? Some critics, such as Vickers (1998), argue that “the advantages of regulators having discretion to pursue distributional ends are outweighed by disadvantages of capture, influence activities, uncertainty and unaccountability. Regulators, perhaps like central bankers, should have focused objectives”. At first then, it would seem that the distributional impacts of utility reform should be

¹⁷ It may also be worth wondering if the special treatment to be granted to the fuel poor is based on society’s judgement that access to utilities is desirable from a more “philosophical” viewpoint—a merit good argument in the public finance literature—or is it based on more technical assessments of the needs of the poor since this would have to influence the design of the privatization strategy since the valuation of the activities are no longer based on commercial or social criteria alone.

tackled through more general welfare policies aimed at alleviating poverty, and therefore should not be addressed directly in the utility industries nor should they be part of the concerns of the regulator.

Before looking into the options available to rely on utilities to implement the focused objectives chosen by politicians, it is worth revisiting a question currently haunting many reformers: how realistic is it to expect that the government will be able to put together general welfare policies which will support privatization policies.

4.1. *The conventional public economics wisdom: let the government take care of the poor*

Conventional public economic wisdom suggests that the most efficient tax/benefit system would be one based on lump-sum transfers. This means that it assumes that governments have the ability to not only raise taxes without distorting static and dynamic resource allocation decisions but that in addition they know exactly who the poor are and how to get the money to these poor to help them have access to potential welfare gains. Few would argue that this is a realistic option in practice

In most developing countries, the tax system is usually quite inefficient and unable to raise resources at a low enough cost to enable sufficient funding of a welfare system. While distortions to raise taxes and to transfer income are difficult to avoid, taxes should be introduced where they cause the lowest welfare loss. The rule of thumb is that distortions should be applied to goods and activities with low demand or supply elasticities—known as the Ramsey pricing rule. On the demand side, this can be quite dramatic since the poorest often are likely to have few reasonable alternatives to the services offered by the utilities and hence social and efficiency consideration would crash into each other.

To decide how hard to try to rely on the general welfare system to address the need of the poorest in the infrastructure sector, it is worth considering what public finance economists call the cost of public funds. It measures the efficiency of the tax system of a country. The cost of public funds is the welfare loss that occurs when an additional unit of tax is raised to fund an expenditure program. It is positive because as, we just saw, taxes tend to distort some resource allocation decisions in the economy.¹⁸ Most developed countries have costs of public funds between 0.15 and 0.35, meaning that to raise one additional dollar in taxes costs the economy 1.15 to 1.35 dollars. The higher this cost, the more a welfare program funded through utility prices is likely to be the way forward. Indeed, while efforts should be geared to improve the welfare system, time is often quite pressing in the privatization context and short run alternatives are needed and addressing poverty problems directly in the infrastructure sectors may well be more efficient.

4.2. *Towards a new conventional wisdom: make the utilities take care of the poor*

The common practice of using two-part tariffs in utility industries opens up the possibility of following a Ramsey recipe. The connection and disconnection elasticity for utility services is probably very inelastic for a broad range of the income distribution. Therefore, taxing and transferring

¹⁸ A common source of distortion influencing the opportunity cost of public funds arises in capital markets because the financing of an expenditure program may end up crowding out private investments. The percentage difference between the present value of the stream of consumption that the private investment would have yielded and the present value of the consumption allowed by the expenditure program is one way of measuring the deadweight loss of a specific program. More "macro" measures are also used in the literature. For a more detailed discussion see Boadway and Wildasin (1984), Ahmad and Stern (1991) or Sandmo (1998).

income through the design of tariffs and in particular through the design of the fixed charges of utility bills may well be very efficient, at least for some limited range of tax values. Fixed charges in utility tariffs will be very close to true “lump sum” taxes if the disconnection elasticity is low, which is probably the case for most households. Therefore, implementing welfare programs through a transparent cross subsidy in the utility rates, especially if undertaken such that only fixed charges are affected, may well be more efficient than a general poverty alleviation program undertaken with general tax funds.

This has implications not only for the efficient design of utility subsidy programs—where taxes or transfers should be based on the fixed charges of tariffs as much as possible—but it also opens up the possibility of using this vehicle for other poverty alleviation programs.¹⁹ Indeed, tailoring welfare programs to the utility industries allows benefits to be linked or conditioned on the consumption of utility services. At first, this may seem as sub-optimal, given that unconditional cash transfers, such as raising the minimum wage or increasing benefit payments from other poverty alleviation programs, should increase the utility of households, since they are then free to spend the extra resources as they freely wish. However, there are several reasons why benefits in the utility industries should be linked to the actual consumption of the services.

First, policy makers may be interested in guaranteeing that households *consume* a minimum amount of a service rather than simply guarantee that they have sufficient monetary resources to potentially purchase the services. This argument may be relevant where individual consumption provides important social externalities, such as the public health benefits of water and sanitation. It is probably less relevant for electricity and gas. Another type of consumption externality occurs in the telecommunications industry, where the value of the service to all users increase with the aggregate number of users. In these cases, the social value of consumption (or connection in the case of telecommunications) is higher than the private value.²⁰ Therefore, welfare transfers linked directly to observed consumption may be preferable to unconditional transfers to vulnerable households.

Second, as mentioned in Serra (2000), it may be that the consumption of certain goods by poor households enter directly the social welfare function of society.²¹ In other words, the general public may care about the actual consumption of certain goods by poor households not necessarily their income level. Therefore, equivalent cash transfers would not be a perfect substitute from a social point of view. This situation may also determine the way vulnerable groups articulate their welfare demands, since a petition for subsidies directly linked to utility services may have more political resonance than cash transfers.

Third, some welfare programs that transfer goods rather than monetary resources may be less prone to fraud. This is because the value of the good to each household will be different. Say, for example, that vulnerable households are given a subsidy for their electricity consumption provided they consume less than a predetermined amount. If consumption is correlated with income, relatively wealthier households would not have an incentive to apply compared to a program that gave unconditional cash transfers.

Fourth, introducing distributive considerations into a reform process, perhaps by designing a special welfare program, may be unavoidable for political reasons. The success of the privatization process may depend on such a policy, even when strict welfare considerations may not justify it. This

¹⁹ See C. Waddams (2000) for a recent review.

²⁰ This argument also justifies the imposition of universal service obligation considered now to be a standard to address the needs of the poor (see Chisari-Estache (1999) for a discussion of the design of these obligations).

²¹ Arguably, this may just be another case of consumption externality, where the consumption of one household enters the utility function of another directly.

approach to welfare policy design may not be very recommendable since it risks generating public transfers that benefit particular interest groups and not necessarily the most needy. However, as the experience in Tucuman suggests, disregarding social issues altogether can be a very risky strategy for a reform process.

In summary, there is a case for adverse distributional effects to be addressed directly in the utility industries with measures aimed at lowering the financial burden on vulnerable households that consume the services.²² However, this does not necessarily entail that a utility regulator designs and administers the welfare program. On the contrary, it is advisable that as far as possible these programs be integrated into the general welfare and poverty alleviation policies of a government, thus maintaining coherence with complementary poverty reduction efforts and to guarantee efficient and encompassing eligibility assessments.

The Chilean water subsidy scheme and the Colombian residential utility subsidy provide two examples of designs in which policies in the utility industry are integrated to more general welfare policies of a government. In the first case, it is the Ministry of Planning (MIDEPLAN), the social welfare ministry, and not the water regulator who determines the number of subsidies allocated to each region. This allocation is based on yearly household surveys that portray the socioeconomic conditions of each zone, the water tariff in each area, and fiscal budgetary constraints. This evaluation is better undertaken at a central level by an organism with expertise in poverty and social issues. Once the number of subsidies is determined at an aggregate level, it is up to the municipalities in each region to distribute these subsidies to eligible households. This is undertaken using the same socioeconomic assessment instrument as any other public subsidy, a "poverty score". This is a numerical synthesis of a poverty assessment exercise based on a household interview by a social worker. A household's poverty score is used to determine eligibility to almost all public subsidies and therefore guarantees that all poverty alleviation measures are correctly targeted. In Colombia, households receive a subsidy (or a tax in the case of wealthier households) for all utility services based on the geographic location of a dwelling. There are six categories depending on the characteristics of neighborhoods. The important point to note is that the category of each zone is determined by the Secretariat of Planning based on census data and other information. This means that one prerequisite for using the tariff for redistributive purposes is an accurate poverty mapping. This is, however, proving to be a challenging task as discussed later.

5. WHAT ARE THE OPTIONS/GUIDELINES TO MINIMIZE THE RISK OF LOSSES BY THE POOR

Recognizing that social issues should be an integral part of a successful privatization strategy in the utility sector, what would be some of the guidelines that policy makers should consider when designing reforms? The first task is to generate the needed information to make an informed judgement as to the true potential impact of reform on the poor. Once armed with this knowledge is it possible to distinguish the groups affected, characterize the nature of the impact (via possible tariff increases or some other effect) and devise effective and efficient counter measures. As for possible policy actions, three broad spheres of public policy can be distinguished: the privatization strategy, regulatory policy and social policy. These three areas should be viewed as complementary, although the timing and institutional responsibility may be different in each case. Privatization policy and social policy actions have to be considered early in the reform process and will probably be the task of institutions distinct from the regulatory agency but they need to be specified first to ensure that the regulatory concerns are consistent with the privatization and social goals. Any future changes in policies and social priorities should also be anticipated and regulatory rules providing guidelines to

²² Below we will describe the different options available to policy makers.

address this kind of situation are likely to be part of the more general rules regarding renegotiation of the commitments made to the private operator at the time of privatization.²³

5.1. Privatization strategy

The evidence shows that in general, competition will be good for all consumers, including the poor. This reinforces the need to undertake structural and regulatory reforms that promote competition, such as vertical and horizontal separation, elimination of exclusivity clauses in contracts and laws, and the development of a regulatory 'culture' that promotes competition. These recommendations are also worthy from a strictly efficiency viewpoint, a case where efficiency considerations and welfare considerations coincide.

The only drawback that competition may have is that it forces the elimination of cross-subsidies, which may hurt the poor. However, the impact of the general fall in tariffs or the greater variety of services which may accompany competition may more than compensate for the effects of the elimination of cross subsidies. Furthermore, it is still possible to maintain internally generated cross subsidies even in the face of competition through the creation of a universal welfare fund or to use Chilean style targeted subsidies outside of the tariff formula.²⁴

Another area which deserves careful attention is the investment and quality targets that are set at the time of privatization, especially in a concession contract as part of the definition of the service obligations imposed on the operators. It will often be the case that poorer households are not connected to the service, therefore the connection targets set prior to privatization may have an important impact on the poor. If tariffs are sufficiently high so that it is profitable to serve poorer households, then a private company should extend services to these households out of its self interest—as happened in the residential telecommunications market in Chile, for example. However, if the economics from the viewpoint of the operators make it unprofitable to serve more vulnerable households, then it may be convenient to specify investment targets in the contract. These connection targets must specify the geographic area or the type of customer who should benefit. Furthermore, the regulator will need to monitor the company to guarantee that such commitments are honored. In the La Paz-El Alto water concession there is an explicit number of new connections mandated for water, with specific neighborhood targets in fringe areas. There are percentage coverage targets for sewerage. In Monteria, Colombia, specific water and sewerage expansion targets were set. Similar targets can be found throughout Latin American concessions.²⁵

The setting of quality standards also impacts on the poor. The recommendation here is to avoid setting targets based on developed country benchmarks that may make the service too expensive for poorer households. Flexibility may be in order as regards this issue. This means leaving some flexibility in the contract to allow the company, the regulator and users in the future to agree to a different price/quality combination when it is convenient. This does not imply that quality standards should not be set in the contract, which may give an incentive for a company to reduce cost by eroding quality,

²³ The arrival of the Blair administration resulted in such changes and an increase in social concerns and these were addressed without changing the financial equation faced by the private operators. Similar changes are occurring in Argentina and Chile with the arrival of Presidents De la Rúa and Lagos respectively and a UK type strategy to introduce the changes is likely being considered in both countries.

²⁴ A recent report by Cremer, Gasmi and Laffont (1998) provide detailed examples from many OECD countries in all sectors. For a longer discussion of universal social funds see Chisari and Estache (1999).

²⁵ Mandatory connection requirements in the sectoral laws should also be given careful thought. This is usually an issue in the water and sanitation sector, where public health considerations make this a reasonable requirement. However, connection charges, unless subsidized, could be an enormous financial obstacle for poorer households. See Esrey (1996).

but rather, leaving the door open allows, in certain specific circumstances (for example, when the representative leaders of a community demand it), the company, with due sanction from the regulator, to alter the price/quality combination for that community to improve efficiency within the same cost parameters.²⁶

It is important to eliminate any legal obstacle that may prevent more innovative or alternative projects from being implemented. Although it may be the task of the future regulator to promote such projects, it is important to avoid at the outset any legal constraint in the contract which may limit this type of initiative in the future. One way of doing so is the inclusion of the clear specification of the universal service obligations (USO) in the scope of responsibilities of the monopolies. USO is an obligation imposed on the provider of infrastructure services. It ensures anyone in their service area the access to an affordable minimum level of a standard quality service bundle. This does not mean that the provider has to deliver access to the infrastructure network which would be a more specific requirement. This distinction is important in the case of water for instance, where alternative technologies can provide more effective ways of meeting the needs of the poor. But this requires more flexibility than most large utilities are typically willing to offer. One of the best known successful examples is the condominium system adopted in the Northeast of Brazil for the delivery of sanitation services. It is essentially a negotiated co-ownership agreement for a small community of users of local public services. The negotiation allows the adjustment of preferences to the form of supply of the service which explains why very different sewer systems can co-exist in cities such as Fortaleza or Recife.

A major source of concern for potential investors is that sometimes “affordable” means at a price that may not necessarily cover the cost of delivering the service. Moreover, the precise definition of the range of services to be covered through the obligation varies from sector to sector and from country to country. In addition, who the main beneficiaries of the USO are can vary. USO obligations may address spatial or geographical differences, specifying for instance that rural areas or inner cities are to be serviced just like richer urban areas. The USO is then said to be aiming at benefiting high cost-customers. It can also be focusing on criteria more related to the income level of the potential users or to specific demographic or institutional characteristics (retirees, schools, hospitals). Low income groups for instance cannot necessarily afford the connection costs to a water main at prices that other income groups can afford. Moreover, they typically cannot borrow either—because of capital market imperfections in many developing countries—which further limits their access to these services.

Attention should also be paid to the way a contract or company is tendered in the privatization process. As mentioned earlier, the variable chosen to award the company or contract will determine the distribution of benefits between all stakeholders, including poor users. Choosing a tendering mechanism is a complex issue, which should cover many considerations. However, as regards the poor, the following rule of thumb should be borne in mind: if poor households are connected to the service, then they will benefit more if tariffs are chosen as the competitive variable, while if they are unconnected, then choosing investment commitments as the tendering variable has a higher potential of benefiting the poor.

5.2. Regulatory policy

Earlier, we argued that it would be best that the regulator’s duties should not include distributional or welfare objectives. However, there are many actions and decisions within the traditional sphere of activities of a regulatory that can enhance the benefits that poorer households can obtain from utility

²⁶ Community preferences will have to be considered along with public goods aspects of the service of course.

reform. If the reformers go for flexibility this should be given in laws and contracts regarding the price/quality combination, regulators should mirror this flexibility in their regulatory decision. This would entail allowing for different combinations of these variables in different circumstances. It is important that regulators be careful to sanction sub-average quality standards only when there is a real social demand from the community in this respect and not as a way for a private company to increase its profitability by reducing quality.²⁷

Related to the above point, regulators should be reasonably open to new and innovative approaches to solve investment and operational issues related to poorer users. These include, for example, community participation in the construction and operation of networks which may reduce their cost, the supply of communal services, or even permitting small scale private vendors or networks in certain circumstances. This is the case of aguateros in Paraguay. There are hundreds of small scale private service providers of water services, including relatively large companies supplying as many as 800 connections (Solo and Snell (1998), cited in Ehrhardt (2000)). Another example are the telecommunications micro-entrepreneurs in Peru, who turn regular cell phones into mobile pay phones by charging a mark-up over the normal tariff, and who are often seen in public gatherings wearing brightly colored hats or clothes (Melo (2000)). These activities should not be suppressed by a regulator provided that they cater to an underserved market segment.

Perhaps the most effective means that a regulator has to benefit lower income users is to promote competition in the services where this is possible. Besides its impact on tariffs, competition will increase the range of available goods and services, often generating services specifically tailored to the needs of poorer households. A clear example was the introduction of a "calling party pays" system for cellular telephones by the telecommunication regulator in Chile. The introduction by telephone companies of cellular telephones based on the use of pre-paid cards together with the above regulatory decision has prompted an accelerated increase in the access of poorer households to cellular telephony. These households do not have the credit record to access more traditional credit plans and usually favor pre-payment methods which allow them to have a strict budgetary control over their expenditure. Thus, this system is especially attractive to poorer households. In Peru, pre-payment cellular users account for over 60% of cellular clients (Melo (2000)). The private sector may also develop other services which may be attractive to poorer users, such as special voice messaging services which can be accessed from any telephone (including a pay phone).

Besides promoting competition, a regulator can also allow and even promote the use of new and innovative tariff structures which may benefit low income users. Ideally services should be offered as an optional or menu choice to users. Optional, or menu tariffs, have the advantage that users can decide what is the best choice for themselves and thus reduces the informational requirements of the regulator when it comes to deciding the best quality or service standards. Aguas de Illimani in Bolivia, for example, offers households a choice between the regular connection fee for the water service or a lower fee provided households supply their own labor for the connection activities (Komives (1999) cited in Ehrhardt (2000)). In Peru, companies offer "popular lines" in the telecommunication sector, which have no initial connection fee, only a flat monthly rate has to be paid, but monthly traffic is limited (Melo (2000)). This may be an attractive service for some poor (and even non-poor) households with low telephone usage. By offering this service as an option, users can self select the option which is best suited for them and could be an attractive way to overcome the obstacle posed by high connection charges for poorer households.

²⁷ But of course communities can be myopic or not anxious to pay full cost, including externalities.

5.3. Social policy

If there is an overriding social concern regarding the impact on the poor of a reform process, then special counter-measures can be introduced through the welfare system. It was argued above that there is a case for special welfare programs in the utility industries, although this does not necessarily mean that it should be administered by the sectoral regulator.

Although the optimal design of a subsidy scheme goes beyond the limits of this paper, we attempt to give some criteria that may be useful to consider if special welfare programs are to be created. All subsidies, including implicit ones, can be classified according to the source of the funding, the eligibility criteria used to identify beneficiaries, and the good or service being subsidized.

The funding of subsidies can come from a variety of sources. First, governments can provide the funds from general tax revenues. This is quite typical in the case of urban transport and “negative concessions” as those awarded for many toll roads. Second, they can be raised by charging certain customers a price higher than the cost of service. This has been quite standard for public utilities in Latin America and is likely to continue to be common for private utilities when governments cannot make credible commitments to finance subsidies. Third, a fund can be established whereby all companies must make a contribution according to some proportional rule (e.g. proportional to the number of customers that each company serves or proportional to each company’s revenues). Companies will still charge a price cost markup on customers in order to pay for this contribution. However, unlike the second case, the company is free to decide which prices and which customer to charge. In Argentina, a sector specific levy finances the expansion needs in electricity distribution and transmission in the poorest provinces but the telecoms sector is the one in which subsidies are most commonly funded out of sector specific funds or fees as in various Central American countries. Which type of funding is more convenient will depend in part on the efficiency, equity and administrative costs associated with the distortions created by the general tax system (the cost of public funds). When the tax financed subsidies are too costly to enforce and tax reform is not a realistic option, it may be more efficient to raise funds from the utility industry, especially if done through the fixed charge part of utility tariffs. The specific system selected should, however, depend on its sustainability in a competitive environment. Unlike general taxation which is quite neutral for the utility industry, cross subsidies in a competitive environment will create incentives for ‘cream skimming’ high paying customers and to ignore low paying customers. The third alternative avoids this last problem since all companies will have the same proportional responsibility in the funding of the subsidy scheme—although this may also allow for implicit and less transparent subsidies across operational zones.

The eligibility for a subsidy can be determined according to some categorical variable, geographical zones, or directly testing the income and welfare levels of each individual household. Argentina has subsidies benefited e.g. pensioner or students, and Chisari and Estache (1999) show that while the intended categories benefit, many others also do. As mentioned earlier, in Colombia, a geographic subsidy has consumers taxed/subsidized in their utility bills according to a national socioeconomic classification system based on neighborhood characteristics. It is a consumption subsidy funded by price cost margins over some consumer, although an important part of the subsidy is also funded by transfers from central government. Vélez (1996) has shown that, while intended, in Colombia, the subsidy is not well focused on the poor. Rather it is neutral in terms of its impact on income groups. In general, in spite of the fact that they are easier to implement, categorical and geographic subsidies have major drawbacks. They will incur higher errors of exclusion (poor customers that should be eligible are not chosen) and inclusion (relatively wealthier households are erroneously deemed eligible) than a means tested subsidy. However, this is an empirical issue that will depend on the correlation between poverty and other variables and the geographic concentration of poverty which

should be studied at the design stage of the program. While subsidies in utility industries generally account for a small proportion of household income, means tested subsidies have the undesirable consequence of affecting incentives, especially with respect to labor market participation. This is sometimes labeled the 'poverty trap' problem in the welfare system. Geographic subsidies also have secondary economic effects that are often ignored. Such subsidies, for example, may alter the housing value or rental price of properties in the benefited areas, thus reducing the purported benefits of the scheme for those living in those areas.²⁸

Finally, once the specific type of subsidy has been decided, its object has to be picked as well and a criteria must be followed to avoid mistakes. Subsidies can be classified according to the good or service which is the object of the subsidy. In utility industries, this can either be the consumption of a utility service or the connection costs to the network. Ideally, the subsidy scheme should be directed to those goods with the highest difference between willingness to pay and costs. There is a strong presumption that in Latin America at least this would indicate that connections or network expansion subsidies should be favored over consumption subsidies. This is because the capital market failures have a stronger impact on connections. Indeed, while the willingness to pay for a connection is quite high—it is almost impossible to borrow to pay for this connection..²⁹

Maybe the most effective schemes developed so far—i.e. the ones internalizing the lessons discussed so far—have been proposed by Chile. One is the individual targeted subsidy scheme as implemented by Chile in the water sector. In this case, households applying for the program are interviewed individually by a social assistant. Based on household economic status, measured indirectly by the physical characteristics of the dwelling and the ownership of durable goods, a social economic ranking is given to each applying households. Those that are eligible for the subsidy (the 20% poorest households) are then given a three year subsidy that covers a maximum of 85% of the water bill for the first 20 cubic meters of consumption. Although the Chilean individual subsidy scheme will probably be better targeted than the Colombian cross-subsidy scheme, recent research results show that a substantial amount of the subsidy is leaked to higher income groups. In addition, the administrative costs of implementing such a scheme are high and may compensate for the extra targeting benefits.

In recent years, innovative schemes have been implemented in Chile to subsidize the expansion of the network in rural areas, both in electricity, water and telecommunications. In this case projects are chosen and evaluated by the government. A concession contract is then tendered to the private sector. The winning firm is the one that requires the lowest amount of public subsidies in order to undertake the project. The novelty of this approach is that the required amount of subsidies is determined by market competition and experience shows that this amount is lower than what the government had originally estimated. Since the introduction of these schemes, the rural electricity program has benefited 113,090 households, raising rural electricity coverage from 57% in 1994 to 75% in 1999, for a cost of about US\$24 per year (Serra (2000)). In telecommunications, since the program began in 1995, close to 6,000 public phones have been installed in rural localities. By the year 2001, over 80% of the rural population will have access to a public phone up from 10% in 1995. The cost of this program has been modest, below US\$20 million since its inception (Serra (2000)). The use of competitive bidding for the use of public subsidies has allowed the authorities to make the most of limited resources.

²⁸ Unless of course they are the original owners of the property in which case they make a windfall gain in property values.

²⁹ In fact the net present value of the benefits from—and the willingness to pay for—a connection are for many poor and for society is, in many cases, likely to be higher than the amount of the loan which would be needed to finance the connection. An efficient capital market would be willing to provide this loan.

There are many other considerations and complications for the design of subsidy schemes in utility industries. For example, it will often be the case in poor urban areas that households share a common dwelling. How should eligibility be determined in such a case if utility services are shared? According to the poorest household of the group or the median household? Are decisions made by regulators responsible for tariff setting coordinated with the decisions on social and welfare institutions in charge of subsidies? Budgetary planning must take into account the impacts that expected tariff changes will have on the financial requirements of subsidy schemes. These and other issues require careful consideration. The optimal design of a subsidy scheme is a complex task that requires careful numerical analysis.³⁰ The main point to record at this stage is that there are no recipes in this area. It may well be that a cross-subsidy may be overall better suited to a particular situation than an individual targeted scheme. Table 6 summarizes questions and concerns to address when deciding on a subsidy.

Table 6 Criteria to select subsidies

	<i>Options</i>	<i>Economic consideration for choosing alternative</i>
Options for funding	General tax revenues	cost of public funds (reflecting tax collection difficulties, improper design) may be too high in comparison to the benefits of the expenditure programs
	Users faced with positive price cost margins	While it may be easier to monitor inefficiencies and unfairness that may arise, sustainability of this explicit or implicit cross-subsidy in competitive environment may be dubious as cream skimming can erode the potential revenue base needed to fund the poorest
	Utility company revenues (e.g. flat percentage of revenue levied on all operators)	Sustainability in competitive environment may be less dubious and quite easy to implement but not always fair or efficient since it involves implicit cross-subsidies
Which eligibility criteria to adopt?	Categorical	Easiest to achieve some desirable targeting properties but may result in some perverse incentive to try to join specific customer categories to be eligible
	Geographic	May combine poor and rich, high costs and low costs and hence may be inefficient and may not generate the right incentive since they may influence housing values for instance, but may be the cheapest to implement
	Means tested	Most efficient and fair way of allocating subsidies but requires largest amounts of information and is hence costly to implement; in addition, may reduce incentive to look for a job
What to subsidize ?	Consumption	Focus on good or service for which there is the greatest shortfall between willingness to pay and cost of the service
	Connection	

³⁰ See Foster, V., A. Gómez-Lobo and J. Halpern (1999) for a case study of the design of a water subsidy scheme in Panama.

6. CONCLUSIONS

The main conclusions of this paper are that:

- utility reform processes can affect poor household in varied and often complex ways and while a typology of issues would be useful, it is quite challenging to develop without a more detailed analysis of experiences so far;
- it is by no means certain that vulnerable households will be hurt by reform processes. There is much myth in the discussions surrounding this issue and there are many examples where poorer households have actually benefited from reforms;
- it is quite amazing to see the extent to which governments and their advisors—including sometimes multilaterals—fail to measure, anticipate and monitor the effects of privatization on the poor;
- the good news is that there are many measures that can be taken to improve the chances that poorer households benefit from reforms. Foremost among these is the promotion of competition where this is possible; and
- finally, although there are no recipes, there are many suggestions that can be made regarding privatization policy, regulatory policy and social policy that will increase the benefits accruing to poor households after reform during the transition to the implementation of an effective general welfare policy...but there are many more questions that still need to be addressed before good general guidelines can be drawn.

The upshot of this discussion is that what is really needed is political commitment. If previous policy on expenditure incidence was poor pre-privatization, unless something is done about them as part of the reforms, it will be weak post-privatization as well. Privatization is not a substitute for responsible, redistributive welfare policies. Welfare discussions are complex, especially inter-household welfare discussions. Moreover, welfare options open up the possible, but not much more. Policies leading to *potential* welfare gains abound in economics. Policies leading to real welfare gains are a much rarer commodity. Whether a policy achieves a real gain consistent with its potential depends on its design, its implementation ...and in particular the commitment to implement it!

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