

Privatisation of electricity and water - Is it still worthwhile?

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Conference on

POVERTY AND CAPITAL

2 – 4 July 2007

Global Poverty Research Group and
Brooks World Poverty Institute Conference
to be held at Hulme Hall, University of Manchester

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1. Introduction and background

Water and electricity are essential services for economic growth and poverty alleviation. Both are basic necessities for household survival and the quality of life. Lack of investment in water and electricity as part of infrastructure is known to be lowering growth potential. The 2006 *Human Development Report* indicates that every \$1 spent in the water sector generates a static gain of roughly \$8, and higher if its long-run effects are taken into account. Improving access to water is a Millennium Development Goal (MDG) accompanying the poverty alleviation target. Access to water and power plays a key role in achieving other MDGs especially those related to health and education. Close to 1.1 billion people lived without access to safe water and 1.6 billion without access to electricity in 2004-2005. Sub-Saharan Africa and South Asia contain the largest part of the world's population without access to these services.

The electricity and water sectors have been subject to widespread privatisation both in developed and developing countries. Inability of the developing country governments to renovate and extend infrastructure during the fiscal crisis in the 1970s and 1980s provided the ideal conditions for arguments against public ownership to gain a stronghold position. Indeed, public water and electricity utilities in many countries had troubles of poor revenue collection, high technical losses, decaying networks and high costs of operation.

The coercion associated with policy conditional lending by the IMF and the World Bank under these conditions facilitated the proliferation of privatisation projects. Soon, policy advice was standardised into 'templates' to be used in all countries with diverse conditions (Yi Chong, 2005). For electricity the prescription involved 'vertical unbundling'. As for the water sector, horizontal disintegration and the contractual engagement of the private sector (concessions, lease or management contracts) has been customary advice.

The naïve approach of earlier years has evolved to recognise the complexities associated with privatisation and admit that there is no universally applicable blueprint for utility sector reforms. Competition and regulation are emphasized as pre-conditions for the success of utility privatisations (Wallsten 2001, Li and Xu 2001, Bortolotti et al. 2002, Zhang, et al 2002, Newberry 2004, Estache et al 2005, Kirkpatrick et al 2006).

There has also been some reflection recently by the World Bank over its privatisation drive in infrastructure, as revealed by a landmark publication on reforming infrastructure by Kessides (2004). The limitations of utility privatisation in attaining competition and efficiency have been recognised. The rethink of utility privatisation has been initiated not because the poor were badly affected but because the private interests in infrastructure services were damaged especially following the financial crisis in, for example, East Asia and Argentina. This is when major multinational companies reviewed their strategies in the developing world and announced that they would not invest in areas where service affordability is a problem.

This paper aims to review the credibility of the new perspectives which highlight strong competition and effective regulation as prerequisites for the success of utility privatisations. The review highlights several weaknesses in these approaches on the basis

of the empirical evidence from both developed and developing countries. Firstly, it shows that competition remains highly imperfect even in market segments where it has been considered feasible. Investment requirements and associated risks appear significant in impeding the level of competition in the water and electricity sectors. Secondly, the concept of 'regulatory effectiveness' is a new 'black box' in the literature on the privatisation of utilities. The dynamic aspects of regulatory effectiveness are ignored and capacity development is perceived as a mechanical process. The distributional consequences of malfunctioning regulatory mechanisms are ignored. Thirdly, the 'agency theory' and 'incomplete contracts framework' are useful for understanding the problems associated with utility privatisation but they remain as performance oriented approaches and provide negligible insight into the social welfare consequences of privatisation. The social welfare consequences of privatisation of essential services like water and electricity in countries with extensive poverty are important. The tension between profit maximisation and extension or the affordability of services is not only an economic one but also a political one and it is a significant element for policy making.

2. How effective has privatisation been in creating or mimicking competitive markets? The rhetoric and the reality...

a. The power sector

Until the 1980s, vertical integration, mostly under public ownership, was favoured for the power sector because it was considered a natural monopoly with sunk costs, inelastic demand and co-ordination problems in generation, transmission and distribution. After the rise of neo-liberal thinking, this model was criticised for its inefficiency and tendency to create excess capacity. It has been argued that the rationale for integrated power supply under public ownership has been weakened because of technological developments (Jamashb, et al 2005).² In particular, the generation sector was highlighted for its potential to be competitive.

The pioneers in privatisation and deregulation of the electricity sector have been the UK and Argentina. The reform process was gradually standardised for application elsewhere. The prescription often involved unbundling of generation, transmission, wholesale and retail distribution with the introduction of some form of competition in all segments of the market except for transmission.

The experience in the North especially in the US and the UK for over a decade points to the instability of 'the competitive model' in which prices are expected to equal the marginal cost of supply. An increase in the number of new entrants is neither a necessary nor a sufficient condition for competitive outcomes in a market with characteristics of the power sector. Prices reflecting marginal costs can be imposed in a heavily concentrated market. Similarly, prices can be far above the marginal cost of supply in a less concentrated private power industry. Sweeting (2007) demonstrates this in the case of the UK where wholesale electricity prices were close to the marginal cost of supply when the generation industry had a duopoly during 1995-1996, while they were above the marginal cost at a

² For example, lower investment costs with combined cycle turbines increased new entries and developments in IT improved co-ordination within different segments of the industry.

time when the market was much less concentrated following new entrants to the generation sector either because of the exercise of market power or collusion under capacity shortages.

Daunting failures in places like California, Alberta and Ontario during 2001-2003 have dismayed the supporters of these reforms and set back the aggressive efforts for privatisation in developing economies. In particular, the case of California, where the wholesale electricity prices multiplied by five from 1999 to 2001, has been studied extensively. It is being increasingly recognised that privatised and/or deregulated power industries are more susceptible to failures if capacity constraints are pressing (Smith 2002, Borenstein 2002). Use and abuse of market power is considerable in general but worse under capacity shortages (Jaskow 2001, Kelly 2003, Sweeting 2004, Hansen 2005, O'Neill *et al.* 2005). These defects, if combined with tight input supply (e.g. low rainfall, fuel supply problems), fast growing demand and extreme weather during peak periods, can be a recipe for a catastrophe.

The most pressing problem is that 'the competitive model' failed in providing 'incentives' for investment in generation (Jaskow 2003, von Hirschhausen *et al.* 2004). There are two reasons for this. First, investment revenues are generated during peak times when generators are paid the marginal cost of the units with the highest cost of supply, i.e. the units that provide the capacity margin for peak times. This arrangement implies that the base-load plants are overpaid during peak demand periods while high cost units are never paid more than their marginal cost of supply which in itself creates a disincentive effect for new investment and new entrants to the market. The paradox of the 'competitive market' paradigm is that capacity shortages in the power sector push prices far above the marginal cost of supply while excess capacity lowers the prices (Lave, *et al.* 2004, Reeder 2006). Hence, capacity shortage is desirable for the operators as it increases their profitability and power in the market, it is detrimental for consumers and the reliability of supply. Second, customers can switch suppliers which create substantial investment risks and uncertainty for private investors.

Reflections upon these failures in the developed world have led proponents to rethink the pre-conditions for privatisation and deregulation and to improve 'the market design'. Proposals have included making use of long term contracts (Jaskow 2003, Neuho and De Vries 2004, Kelly and Moody 2005) and capacity obligations or payments (Besser, Farr and Tierney 2002, Stauffer 2006), introduction of 'real-time-pricing' (RTP) to achieve some responsiveness on the demand side to changing prices (Borenstein 2002, Kelly 2003), use of 'locational prices' (Green 2004, Turvey 2006) for and the best access option to transmission (open, regulated, negotiated access) and changes in the mandate and responsibilities of the regulatory institutions (Newberry 2002).

Nevertheless, these solutions are not free from problems. Meters for RTP are costly and may only be worthwhile for large power consumers. Even for them, RTP requires more attention to risks (O'Sheasy, 2002) and encourages switching which is why only a small proportion of consumers have remained on RTP in the US where it has been promoted for a while (Barbose *et al.* 2006). Those remaining on RTP reduce their demand for power only when there are extraordinary increases in prices and by a small proportion (Hopper *et al.* 2006). Locational pricing is considered as an ineffective exercise due its complexity and high start up costs (Kelly 2003). Use of long-term contracts and capacity payments are against the paradigm of 'competitive markets' as they would reduce the effectiveness of price signals in regulating demand and supply. The incentives for operators and retailers to

engage in long-term contracts are limited, since end users can switch their suppliers (Roques *et al.* 2005).

The number of mergers has increased substantially over the last decade as a consequence of the difficulty of recovering investment costs in the power sector except under capacity constraints during peak times, the absence of long-term contracts and considerable uncertainty. Market concentration has increased in the European Union (EU 2004). This process has been particularly noteworthy in the UK since the New Electricity Trading Agreements (NETA) replaced ‘the pool’ (Newberry, 2004). The German power industry has become more concentrated following the liberalisation (Brunekreeft and Tweleemann 2005). In the US, 56 mergers took place amongst power utilities between 1990 and 2000 (Moody 2004), and financial institutions seem to be ‘urging’ regulators not to prohibit takeovers of financially distressed generators to increase investments even if it comes at the cost of lower competition in the sector (Kelly and Moody 2005). In the developing world too, the unbundled power sectors are being re-integrated in some countries (Wamukonya 2003). In countries where there are many producers and suppliers, a few dominate the market. In Chile, for example, three generators own 94 per cent of the installed capacity (del Sol 2002).

In sum, the evidence suggests that full or virtual competition in the power sector has been impracticable with ambiguous long-term benefits in the advanced industrial economies. The integrated model under public or regulated private ownership in the North is now being praised for its reliable supply, low prices and universal access (Hunt 2002, Yi Chong 2005, Woo, Lloyd and Tishler 2003). Advocates are now more critical of the prospects after privatisation and deregulation.

“...there is as yet insufficient experience to assess the long-term benefits from liberalising the electricity industry. As the first countries to liberalise –among which are included Britain and some U.S. states– have now reached the end of their first investment cycle, much attention is being paid to assessing the long-term dynamic performance of the liberalised electricity industry” (Roques, Newbery and Nuttall 2005, p. 122)

Intuition would suggest that it must be harder for similar reforms to work well in developing economies. Indeed, the list of pre-conditions for the feasibility of privatisation and deregulation is longer for developing economies, including the need for sufficient generation, transmission and network capacity, effective regulation, a viable network size, administrative capacity and a strong institutional environment (Navarro and Shames 2003, Kessides 2004, Jamasb *et al.* 2005, Hansen 2005).

‘In many LDCs, electrification is not complete... There is a system size below which vertical separation and competition is not effective or not worthwhile... Losses in the transmission and distribution networks are high. Non-payment is high. Capacity shortages, poor utilisation of existing capacity and unserved demand result in significant economic loss...Regulatory credibility, institutional weaknesses and political interference are more important drivers of private investment in the sector than in developed countries’. (Jamasb, *et al.* 2005)

By the time economists recognised the loopholes in neo-liberal power sector reforms, many developing countries in Asia, Africa and Latin America had already divested some of their existing plants and introduced private operators though independent power producers (IPPs). The IPPs have been trying to reduce their own risks in a number of ways at the cost of higher risks for governments and society at large.

Firstly, IPPs frequently finance their investments with loans from international markets but governments often act as full or partial guarantors for these loans and their obligations can be activated in times of crisis. Multilateral institutions provide loans to governments to pay for management fees or undertake investments and renovation before or after privatisation to attract private investors, etc. These practices raise concerns as to why the utility rents should be appropriated by private firms when risks are increasingly being shouldered by governments and tax payers.

Secondly, most developing economies have not tried 'competition' or 'regulated competition' in power generation as in the US or the UK. Instead, the prospects for competition are circumvented from the beginning through the use of power purchase agreements (PPAs) between the governments and the IPPs, spanning 20-30 years, involving onerous conditions such as fixed prices, foreign currency indexing and 'take or pay' agreements. In Tanzania, for example, power sector reforms increased government transfers to the energy sector because of capacity and energy payment obligations to two major IPPs (Eberhardt, et al 2005). For this or other reasons, contractual disputes and renegotiations are on the rise. In Latin America, for example, 21 per cent of all contracts in the power sector have been renegotiated on average within 2.1 years after being signed (Guasch, 2007).

Finally, the mania for privatisation has meant that large scale projects such as hydropower had to be abandoned in favour of new the technologies employed by IPPs, such as Combined Cycle Turbines. Cheaper and cleaner generation with hydro plants are unattractive for private investors because recovering investment costs takes much longer and financing investments is more difficult. While start-up costs are lower with new technologies, the marginal cost of generation is often higher than conventional hydro units (Briscoe 1999, Wamukonya 2003). This is why in countries like Ghana tariffs increased steeply after the introduction of thermal generation with IPPs (Eberhardt, et al 2005).

b) The Water Sector

The water and sanitation sector (WSS) too has been subject to privatisation both in the developed and developing world. Unbundling in the sector took the form of horizontal disintegration, which effectively broke down the industry into regional monopolies. Full privatisation in the water sector is uncommon.³ In fact, as much as ninety per cent of the water services in the world are still delivered by the public sector (Kirkpatrick and Parker 2005). Where private participation has taken place, it has been through multinational

³ The UK has fully privatised its water and sanitation sector starting from 1988. The regional monopolies did not achieve greater efficiency but the investment levels in the sector have remained low which has raised concerns over the state of infrastructure in the country (Shaoul 1997, Lobina and Hall 2001).

companies (MNCs) and a few of these such as Suez, Veolia and Aguas de Barcelona now dominate the market (Lobina 2005).

Private sector involvement in the WSS is through concessions, management and to a lesser extent lease contracts which introduce some 'contest for the market' in the bidding process, involving a small number of international corporations (Kirkpatrick and Parker 2005). Regulatory institutions try to create some sort of 'yardstick competition' amongst different regional utilities, using benchmarks, penalties and rewards (Haggarty, et al. 2002).

Prior to restructuring and privatisation many developing countries had been unable to keep up with the required investments because of the macroeconomic crises in the 1970s and 1980s which increased the levels of losses in production and distribution. Aging network infrastructure, overstaffing, underpricing, inefficiencies in billing and collections (Colling 2002, Alcazar et al. 2002a and 2002b, Menard and Clark 2002b, Davis 2004) created the ideal conditions for an assault on public services and justified the moves towards privatisation. The expectation of privatisation itself led to a reduction in investments in the power and water sectors and further deterioration in the operational conditions.

Trials with different forms of privatisation in the WSS have produced mixed outcomes both within countries and across developing countries (Shirley 2002, Nellis 2003, Ugaz 2003, Bayliss and Fine 2007). Some company level comparisons by ownership show that efficiency is not significantly different in private water companies than in public ones (Estache and Rossi 2002, Kirkpatrick *et al.* 2006). Contractual disputes and renegotiations are most widespread in the water and sanitation sector. In Latin America, as many as 81 percent of all concession contracts with the private sector have been renegotiated, on average 1.3 years after they have been signed (Guasch, 2007).

The efforts by multilateral institutions like the World Bank to privatise the WSS in developing economies have been tested by serious challenges. Most importantly, investment requirements for the renewal and extension of network are substantial and the affordability of charges is a pressing issue where poverty is widespread. For these reasons, in some places such as Mexico City and Zambia private investors have shown no interest (Alcazar, et al 2002b, Dagdeviren 2007). In others they have withdrawn after extensive negotiations (Bayliss 2003). Overall, less than one-third of the poorest countries could attract private sector financing into infrastructure including water and electricity (Estache 2006).

There are cases where WSS reforms without privatisation have achieved a good performance with reliable and affordable services, e.g. power and water in Namibia, power in South Africa, water in Korca (Albania), Porto Alegre (Brazil), Santiago (Chile) (Bayliss and Fine 2007, UNDP 2006, Shirley et al. 2002, Beddies et al 2004). However, the quest for further privatisation continues with measures to improve the profitability of private investors in the water sector. Some MNCs announced that they would limit their investments to large cities with sufficient income per capita or to projects for bulky supply (Marin and Izaguirre 2006). The World Water Council has lobbied for aid flows to be available for water projects managed by private operators and for governments to share the debt payments of the private sector and their foreign exchange risks (WWC 2003).

3. Is Regulation the Answer?

Mainstream economics suggests public ownership for natural monopolies and for firms that produce goods and services with externalities or public good characteristics in order to tackle market failures. The advent of property rights and public choice theories swung the pendulum in favour of private ownership by underlining government failures such as rent-seeking and lack of incentives for innovation.⁴ Regulation is seen as a remedy for market failures in non-competitive sectors.

Indeed, policy oriented research suggests that the outcomes of privatisation in sectors such as water and power are dependent on the effectiveness of regulation. As pointed out by Parker and Kirkpatrick (2004), there is a tendency to conceptualise ‘regulation’ within a relatively narrow framework, e.g. an entity that achieves a set of objectives determined by the government at minimum cost through the use and enforcement of some tools, instruments, rewards, penalties and codes of conduct. Behind this simple definition enormous complexity is hidden.

In general, three issues are crucial for the effectiveness of regulation. The first is the possibility of regulatory capture through which private interest groups influence the way the regulatory process is designed and implemented so as to appropriate utility rents to the detriment of ‘the public interest’ with socially non-optimal outcomes (Stigler 1971). This literature shows a narrow line of interface between politics and economics despite its weaknesses in other areas, e.g. what constitutes public interests, are they uniformly valid and identifiable⁵, where do the other political economy variables such as power and class stand in the process of representation and bargaining.

Second is the regulatory capacity which is contingent upon the powers assigned and resources available to the regulatory institution (including funding, education, skills and experience of personnel such as accountants, lawyers, inspectors, engineers with good remuneration). Thirdly, the institutional environment in which regulators operate is important. The existence of regulatory institutions with appropriate tools, powers and capacity is not sufficient. Outside the regulatory bodies, the legal system, dispute settlement mechanisms, efficient administration of regulatory matters by public institutions, corruption and bankruptcy procedures are some of the factors that influence the effectiveness of regulation. Finally, culture, politics and social context play a significant role in general and in the nature of ‘commitments’ and ‘credibilities’⁶ of the contracting parties in particular.

The degree of regulatory effectiveness varies from country to country. Generally, however, there are serious concerns about regulatory objectives, processes, capacity and institutional environment in developing countries (Bell 2003, Parker and Kirkpatrick 2004, Minogue and Cariño 2006). There are many examples in the literature on the lack of regulatory experience, regulatory ineffectiveness and capture in the developing world.⁷

⁴ See, Florio (2006) for an in depth discussion of the evolution of the theoretical perspectives on ownership and company performance.

⁵ See, Levine (1998) on legal and economic interpretations of public interest.

⁶ See, Newbery (2000), Spiller (1993), Bortolotti and Perotti (2007) on the importance of these issues.

⁷ See, Alcazar, *et al.* (2002a) for Buenos Aires water concession, Menard and Clarke (2002) for Conakry (Guinea) water concession, Bayliss (2003) for Cote d’Ivoire water supply and Berthelemy *et al.* (2004) for the case of South Africa.

There are also cases in which utility privatisations have been carried out without a regulatory institution or with one functioning as window display.

The whole debate about regulation and its role in the success of utility privatisations in the developing world is problematic. I would like to draw attention to several matters in this respect.

Firstly, while it is possible for developing economies to develop an effective regulatory system and capacity over time, the nature of this *development process* is very much a ‘black box’ in the literature on the privatisation of utilities. The dynamic aspects of regulatory effectiveness are ignored and capacity development perceived as a matter of adapting the ‘best’ regulatory tools –often developed elsewhere– and as if there is an ultimate ideal regulatory entity that needs to be built to tackle the market failures. For example Cubbin and Stern (2006) suggest that it takes on average 14 years to build up a regulatory capacity with maximum impact. In reality, the performance of regulatory entities is often ‘second best’ even in pioneer countries like the US and the UK. They learn their ‘trade’ along the way. Responses to emerging problems are hardly ever simultaneous. Improvements on one front reveal weaknesses on other fronts. For example, most regulators have used ‘cost-plus’ (or rate of return) regulation in the early years which led to over investment and revealed considerable inefficiencies in containing costs (Berg and Lin 2005, Menard and Clarke 2002a). As a result, there has been a shift towards ‘price-cap’ regulation, which is about to be discarded in favour of more ‘hybrid regimes’ (Estache et al 2005) because of its disincentives for investment. The financial crises in Asia and Argentina revealed other contingencies such as indebtedness of companies which can also become subject to regulation (da Silva, Estache and Järvelä 2006).

Regulatory inefficiencies have distributional consequences. Intertemporal loopholes until the regulators take corrective measures create winners and losers. In the UK, the benefits of higher productivity in infrastructure were not always shared with consumers (Price and Young 2003). In Argentina, gains after privatisation have either been captured by companies or the government. The power sector regulator’s price caps initially underestimated the cost savings.

Overall, as pointed out by von Hirschhausen et al. (2004) ‘regulation is a repeated game between the regulator and the regulated enterprise’. The outcomes of this game are dependent upon myriad number of economic, social, political and technical factors. The time lags in the responsiveness of the best ‘second best’ regulators can have significant social costs, which in the case of developing countries that are far behind ‘the second best’ ideal are likely to be substantial.

Secondly, the problems associated with asymmetric information and incompleteness of contracts in most utilities are inherent. These cannot be entirely and permanently solved by regulation or other corrective policy measures.⁸ For example, in the power sector, regulators could not distinguish between the exercise of market power and legitimate scarcity rent (Fraser, 2003) when price hikes are allowed to signal capacity shortages.

⁸ From, a theoretical point of view, the agency theory (Sappington and Stiglitz 1987) and incomplete contracts framework (Crocker and Masten 2002, Hart 2003, Martimort 2006) made important contributions to the privatisation debate and these are particularly relevant for utility privatisations. Both of these perspectives indicate that there is no *prima facie* case for the superiority of one form of ownership over the other. Rather, the outcomes of privatisation are contingent upon various other factors (e.g. sector specific factors, competing objectives, information asymmetries between different agents, the hazards of contract incompleteness and incentives under different ownership).

Legal battles and renegotiations with private water sector and electricity companies highlight the dangers associated with ‘contract incompleteness’ in utility concessions. Various factors are considered in the literature for the renegotiation of concession contracts in the utilities. For example, high transaction costs in contracting out services on a long term basis (Ng and Loosemore 2006) act as deterrents for governments to cancel contracts in case of contractual disputes. This is a source of opportunism for operators in that they can place the most attractive bid and request renegotiation after contracts are signed. These costs may multiply several times in cases where renegotiation of contracts takes place due to the contingencies over the life of the contract. Opportunism by governments or firms (Parker and Kirkpatrick 2004), manipulation by private companies, external shocks, underestimation of the costs of business (Bell 2003), weaknesses in contract design, quality of administration and regulation and elections (Guasch et al. 2006) are also mentioned in the literature.

Such disputes and renegotiations have been common in the developing world. In Buenos Aires, non-payment after tariff increases led to renegotiation of the contract, which transformed regulation towards a ‘rate of return’ regime (Alcazar, *et al.* 2002a). Lobina (2005) give details of renegotiations in Belize and South Africa. Following the crisis in Argentina and abandonment of the US dollar denominated and indexed tariffs, 62 public services contracts went to the World Bank's International Centre for the Settlement of Investment Disputes and close to half of them have been in the power sector (Haselip 2005). In Maharashtra (India), a new government reviewed the contract with Dabhol power company and decided that it favoured the interest of the private company over those of the people. As a result, non-payment by SEB increased and a legal battle started (Parker and Kirkpatrick 2004). In Latin America, more than half of the concession contracts during 1988-2004 involving the private sector in infrastructure have been renegotiated in less than two years after the contracts were signed (Guasch et al. 2006 and Guasch 2007).

Thirdly, while the ‘agency theory’ and ‘incomplete contracts framework’ are highly relevant for analysis especially in the wake of the increasing tendency for contractual disputes and renegotiations after the privatisation of water and electricity utilities they have two particular weaknesses:

- a) They are based on a relatively simple agency framework, often with one principal and one agent. In reality, agency composition in the delivery of services like water and electricity is much more complex with multiple principals and agents, each with potentially different objectives and interests (e.g. ministers as agents of electors but principals as service providers, the poor as consumers and voters, regulators as agents of governments, foreign and local managers of private companies with mixed ownership, company shareholders).
- b) They have a focus on the microeconomic aspects of ownership changes, especially on the performance of companies like other relevant theories (e.g. orthodox view, public choice, property rights) and have nothing to say on the political economy aspects of utility privatisation, including inequality, poverty, affordability and the lack of access to services, which are pressing problems in the developing world. The tension after privatisation between profit maximisation and extension of services, or the affordability of services, is not only an economic one but also a political one. Of

particular relevance for developing economies is the role of regulation in poverty alleviation which has not been discussed in detail so far. Regulatory practices in this respect vary (Figueira-Theodorakopoulou *et al.* 2007)

4. Privatisation of essential services and poverty

The assessment so far has raised question marks about the sustainability of the efficiency gains from privatisation either via competition or regulation and about the validity of the economic rationale for the privatisation of water and electricity services. The purpose of this section is to discuss the compatibility of private investors' objectives with social objectives such as poverty alleviation, partly through the provision of essential services.

The first issue is the record on the affordability of service charges, which is a serious issue that cannot be overlooked, especially in low income economies. Under public ownership services have been heavily subsidised. The advocates of privatisation argue that these subsidies benefited the middle classes because the poor often do not have access or are not connected to the services (Harris 2003). Many studies confirm that a considerable portion of poor households, in some cases up to 80 per cent, do not benefit from subsidies for essential services (Komives *et al.* 2005, Estache 2006, Walker, *et al.* 2000).

It is true that the urban bias in development plans, mismanagement, corruption, patronage and clientelism in the developing world may have excluded the poor from having access to essential services for prolonged periods. Nevertheless, there are also economic reasons which justify the circumstances described above. Most importantly, targeting the poor is often difficult, costly and ineffective. The most effective targeting is known to be 'means testing' but administration is costly and it is not free from errors of exclusion. Geographic targeting does not work if the poor are dispersed across the country. Cross subsidizing consumers through increasing block tariffs (IBTs) is widespread in both the power and water sectors but it is not highly effective either in targeting (Komives *et al.* 2005). To benefit from IBTs, the poor do not only need to be connected but their connections have to be metered, which is costly for government or for the poor households to shoulder. Effectiveness of meters in measuring consumption can be low in places where supply is erratic. Also, IBT increases the cost for vendors and hence indirectly for the poor who are not connected to the public network for water (UNDP 2006). In a nutshell, if the poor do not benefit from subsidies due to lack of access, eliminating subsidies is not the most appropriate policy response but increasing investment to extend access. While the record under public management may not be impressive the service by the public sector suppliers is cheaper than that by the private suppliers (UNDP 2006).

In many countries in Africa households devote a much larger proportion of their income, for example, to water than in the industrial countries after privatisation (Mehta and Canal 2004, Prasad 2006). This is partly because capital costs in many industrial countries have been fully amortised while in developing economies prices reflect the costs of investments in infrastructure extension and upgrading (McDonald 2002). Sunk costs in the water and electricity sector are substantial and the marginal cost of production and delivery is very low. Under public ownership, governments could apply prices reflecting marginal costs (which are lower than the average cost of supply) and finance investment costs out of tax revenues. As competitive pricing does not always permit cost recovery and profit

making, privately operated utilities use a mark-up on marginal costs or impose additional fixed charges for connection, infrastructure or service.

In most African economies, electricity tariffs were raised substantially following privatisation or restructuring (Eberdthart et al, 2005). Policy makers disregarded the importance of designing tariff structures for the affordability of services during the process of restructuring and privatisation (Estache 2006). In a study of water utilities in Africa, Kirkpatrick *et al.* (2006) find that charges are on average 82 percent higher in the private sector than the public sector. Average tariffs in Guinea increased from 2 cents per cubic meter before the reforms in 1986 to 84 cents in the mid-1990s (Menard and Clarke 2002b and Nellis 2003). In Zambia, increases in water prices after commercialisation affected the poor most and rendered prices unaffordable (Dagdeviren 2007). In some cases, tariff hikes were politically difficult to implement.

The trends in Latin America are more complicated. In some cases, prices declined after privatisation following escalation during the restructuring period prior to privatisation. In Chile, tariff increases have not been in the limelight because the government provides means tested subsidies for the poor (Paredes 2003). In Bolivia, utility prices did not change dramatically because of the use of ‘capitalisation’ as a means to improve investments (Barja and Urquilo 2003). In Argentina, wholesale electricity prices were halved but the cost of distribution increased, so households paid more for power (Haselip, 2005). Utility bills absorb 17% of the income of the poor (Delfino and Casarin 2003). In Buenos Aires, the affordability of connection to the water system was a problem for poor households in spite of the improvements achieved by the concessionaire in other areas (Alcazar, *et al.* 2002a). In Peru, welfare gains of the reforms and privatisation in terms of access to services were reduced because of tariff hikes (Torero and Pasco-Font 2003). Affordability of services is generally a problem for the poorest households in Latin America but regulatory interventions such as essential service obligations in some cases relieved concerns about affordability or undersupply in some locations (Chisari et al. 2003).

In the North, prices declined initially only to rise later above their initial levels. For example, power prices declined substantially in the UK (Pollitt 2005) from the mid-1990s as a result of restructuring, new investments and price-cap regulation. Recently, though, they have been on the rise because of the downturn in investments, market power problems, emission charges and the bias in technology which created heavy dependence especially for gas. Lave et al. (2004) examine the long-term trends in power prices in the US and conclude that the restructuring for more competition in the power sector has had no effect on prices except for mandated cuts in domestic tariffs. Therefore, short-term results can be misleading. What matters is the sustainability of affordable prices for essential services in the long term.

In general, countries with better initial conditions in the water and electricity sectors (universal population coverage, well maintained infrastructure, good availability of water or fuel resources, favourable climate and geographical conditions) have managed to contain the adverse effects of privatisation on service charges to some extent.

	Total population without access to (million)		Poverty Headcount Ratio (\$2 a-day, PPP) 2002
	Safe Water 2004	Electricity 2005	
East Asia (incl. China)	401.2	224	40

Latin America	49.1	45	23.4
Middle East &N Africa	31.5	48	19.8
South Asia	225.6	707	77.8
Sub Saharan Africa	317.6	547	74.9
World	1097.8	1574	-

Source: World Bank (2006), IEA (2002, 2006)

Secondly, there are investment requirements to close the gap in access to services and the question of who would shoulder the cost of investments. Close to 1.1 billion people live without access to safe water and 1.6 billion are without access to power in the world. The circumstances are worst in Sub Saharan Africa where around half of the population lack access to safe water and two-thirds have no electricity. The estimates suggests achieving universal access to these services requires investment sums amounting to 22 billion US dollar for electricity (Fall 2005) and 10-30 billion US dollars for water per year in the next 30 years (WWC 2006).

Investment by the private sector in water and electricity services is for profit. Cost recovery and profitability in these sectors are difficult in developing countries where network size is small, investment needs are huge and affordability of services is a problem. Komives et al. (2005) show that around 40 per cent of utilities in the developing world cannot recover their operation and maintenance costs and close to 70 per cent fail to cover full capital costs.

So, does the objective of profitability in services with intensive fixed costs coincide with social welfare objectives such as the extension of services to the poor at affordable prices? Not unless governments fund the investments for increasing access in unprofitable areas, subsidies for the poor and other priority groups and the profits of the private operators. Many developing countries cannot meet such costs through budgetary transfers. So the default position at present is that private, mostly multinational, companies retain the profitable elements of service supply (supply to large users, high income areas, or supply with public subsidies). They try to contain investment risks by using long term contracts (foreign currency indexed payments, take or pay), government guarantees or public finance.

Multilaterals did not provide finance to governments to enhance the capacity of the public sector for better service delivery. But they were keen to provide loans to governments to restructure for privatisation, to pay for tenders and management fees, to rehabilitate the infrastructure and undertake the risks that private investors were unwilling to take. In fact, the World Bank database on Private Participation in Infrastructure (PPI) indicates that 70 per cent of the investments involving PPI projects were committed by governments, eight per cent by donors and a mere 22 per cent by private investors (Estache 2006). In Brazil, around 44 per cent of the total investment carried out by privatized utilities during 1995-2000 was financed through funds from a state-owned development bank (Amann and Baer 2005).

Conclusions

This paper provides a review of developments in the privatisation of water and electricity industries. Overall, it highlights several flaws in key arguments and suggests that privatisation of these services is an inferior policy alternative to a well reformed public supply system in the developing economies. The first two raise questions about the superiority of the 'private model' in terms of utility efficiency while the last point emphasizes the welfare implications of privatisation.

Firstly, the theoretical and empirical validity of the assertion that privatisation enhances competition and hence efficiency remains dubious. The water sector, where it is privatised, remains at best a regional monopoly with a periodic contest for the market taking place at the time of contracting out the service. Competition in the electricity sector has remained highly imperfect even in the segments of the market where it has been considered feasible. Problems of market power have been identified in countries such as the UK and the US, which are most advanced in the implementation of power sector reforms. Market concentration has been increasing in the sector. The goal of efficient supply with affordable services and reasonable profits has been hijacked by the difficulty of providing optimal incentives for investment in the sector. In the developing world, competition has been impracticable from the start through the use of power purchasing agreements. Increasingly, the public sector is involved in private projects to undertake or share the risks that the private sector is unwilling to take on.

Secondly, the emphasis in the recent literature on regulation as 'the cure' for market failures after privatisation is problematic in some respects. Regulatory effectiveness, however defined, requires regulatory capacity, which continues to evolve in developed countries but remains far from 'the ideal'. In the presence of information asymmetries, incomplete contracts and future uncertainties, our perception of what that ideal may be is vague. The response to emerging problems is piecemeal, partial and not simultaneous. Developing regulatory capacity in the South with a mechanistic view of institutional and procedural replication is fraught with difficulties. Regulatory weaknesses, whether structural or transitory, have distributional consequences.

Thirdly, performance oriented approaches dominate the literature on privatisation. The welfare consequences of privatisation in essential services are of crucial importance in general and more so in countries where there is non-universal access to services, high levels of poverty and a partial welfare system. The profit motive of private investors in the water and electricity sectors in such environments is likely to be in conflict with sector specific developmental objectives (i.e. increasing access to services at affordable prices) unless this burden is imposed on the public budget, which often has meagre revenues and intensely competing needs.

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