This thesis focuses on the electricity sector in developing economies. This is an important sector given the well-documented contribution of high quality electricity services to economic growth and social welfare. Yet, today, 1.2 billion people worldwide lack access to electricity - half of them in sub-Saharan Africa. The sector is characterized by the high cost of electricity investments combined with the tight fiscal constraints often faced by developing countries' governments. In this context, many electricity utilities around the world either do not perform satisfactorily or operate under severe financial stress. In order to improve the performance of the electricity sector, policy makers need to prioritize among competing objectives and identify the most relevant tools.

The first chapter is called "Procuring the right supervisors for infrastructure investments in developing countries". It fits into the set of challenges regarding access that regulatory choices available to policy makers can address. This chapter focuses on a possible way to increase the efficiency of infrastructure investments financed by international financial institutions (IFI) in poor governance countries that has been under studied in the past: the role of supervision consultants, who typically supervise the performance of a contractor firm building the actual infrastructure on behalf of a principal such as the Ministry of Works. I argue that the incentive remuneration of supervisors - understood as a combination of a threat of non-payment and reputation to obtain future contracts - is exogenous to the quality of governance of the country of work. I then apply this exogeneity to the classical Laffont-Tirole (1991) three-tier principal-agent with supervisor setting. I find that the induced contractor's power of incentives of their seminal model change: if the supervisor's incentive remuneration is high enough, effort is optimal; if it decreases, then the effort is sub-optimal but capture is avoided; and if the remuneration decreases even further, then the supervisor is always captured. I then suggest that IFIs could enhance efficiency of infrastructure investments by (i) linking the resources allocated to monitor projects with the corruptibility of the country, and (ii) adding the corruptibility of the country in which the supervisor has successfully conducted previous assignments as a selection criteria when procuring new supervisors.

The second chapter is called "Does size matter for performance? Evidence from Brazilian electricity distribution utilities". It fits into the set of challenges regarding affordability that market structure choices available to policy makers can address. In this chapter, I study the relationship between the size and the evolution of total factor productivity in 33 Brazilian electricity distribution utilities (both public and private) representing 97% of the market. This is of particular interest at this point in time given that the renewal of many concessions of utilities is set to start in 2015. I use an input distance function in a stochastic frontier analysis framework with 2 outputs (number of connections and electricity sold) and 3 inputs (operational expenses, length of the network, and capacity of transformers). I apply this methodology to a database spanning from 2003 to 2012 and then decompose the productivity into various components, paying a particular attention to the effect of firm size on productivity. I find that while large utilities are at the minimum efficient scale, the others are slowly moving towards that point. In addition, I find that, when grouping utilities according to size categories, the scale component of
technical change explains an important part of the TFP changes. Brazilian policy makers and the
regulator would lose an opportunity if they did not consider these findings in the imminent
renewal of concessions.

The third and last chapter is called "When and how does rural electrification increase labor
supply?" and is co-authored with Christian Lehmann. It fits into the set of challenges regarding
access and growth that technology choices available to policy makers can address. This chapter
is motivated by the expanding empirical literature studying the effects of rural electrification in
developing countries that has emerged in the last few years. It focuses on the effect of rural
electrification on the labor markets. While the literature tends to agree that labor supply increases
with electrification, the underlying mechanisms through which this happens are not well
documented: while some authors argue that it is the external market labor supply that goes up,
others claim that it is the in-house labor supply of marketable goods that increases. We develop a
household model that provides a theoretical framework to integrate the results of most existing
empirical studies and explain the theoretical mechanisms behind them. Our model has three
types of goods to which the household can allocate its labor: a subsistence good, an informal
good, and a formal good. We find that, depending on a number of parameters, electrification
increases labor supply either through more labor provided to the market or through more labor
devoted to home production of tradable goods. This result is in line with previous empirical
work. We also find that the effect of electrification is heterogeneous across households and
deduce a number of predictions that, to the best of our knowledge, have not been tested by the
empirical literature yet.