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Reforming Electricity Reforms? Empirical Evidence from Asian Economies

Executive Summary

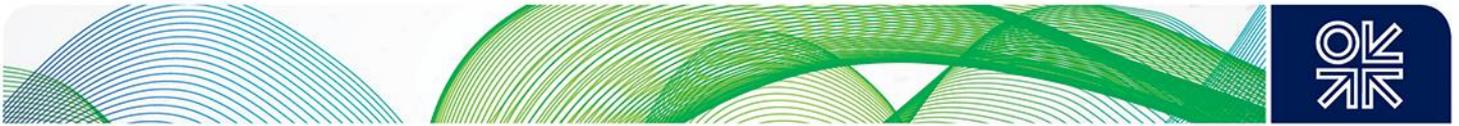
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After more than two decades of attempts at electricity sector reform, there is a strong case for assessing empirical evidence on its outcomes, particularly for developing countries. Electricity reform programmes, implemented through the 'standard' or 'textbook' model, have their foundations in standard microeconomic theory and are based on the rationale that restructuring towards greater competition can lead to higher efficiency, maximise economic welfare, and transfer surplus to consumers. In practice, this has not always been the case, even in the OECD economies which pioneered the standard model. This paper investigates the outcomes of the standard model for developing countries, by applying instrumental variable regression techniques on an original and previously untested panel dataset covering 17 non-OECD developing Asian economies spanning 23 years.

While there is some cross-country literature on the effects of electricity reforms in developed and developing economies, there has been no systematic attempt thus far to examine their technical, economic and welfare impacts whilst accounting for cross-country institutional differences, for non-OECD Asian developing economies. This paper fills a gap in the literature in the following ways: First, to our knowledge, this paper is the first to empirically assess the impact of electricity reforms on non-OECD Asian countries as a whole. Second, it applies econometric techniques to a new panel data set on 17 non-OECD developing Asian economies, from 1990-2013, which allows for cross-country comparisons whilst controlling for differing institutional and political contexts. Third, it draws the link between electricity reform and sector (technical) performance, economic impacts, and welfare indicators, assuming a cumulative impact of reform.

In contrast with the theoretical literature, our results show a tension between wider economic impacts and welfare impacts for consumers: namely, the variables that are associated with a positive effect on economic growth appear to be associated with a negative impact on welfare indicators. Our results show that institutional factors have influenced the outcomes, underscoring the point that the uniform application of the standard model without reference to the heterogeneity of the countries is unlikely to have resulted in originally intended outcomes. Our results therefore call for a renewed thinking, or a shift in focus – in other words, a 'reform' of electricity reforms. Specifically, the 'textbook' model of reform in its original form is incompatible with the contexts of non-OECD developing countries' electricity sectors, which possibly call for more localised reform programmes.

Our results have some important policy implications, opening wider questions for the role of government in electricity reforms. First, it is evident that governments have tended to select 'pieces' of the standard model of full retail competition (or even wholesale competition), where competitive markets determine investment, prices and consumption. Certain structural measures – particularly unbundling and corporatisation – have appeared to be successful in improving technical measures and economic impacts. Others, such as regulation, have an ambiguous effect. For instance, where



regulation may have led to welfare improvements, it is not clear whether this has been due to the regulator preventing price increases, or to the regulator transferring the benefits of lower system costs to consumer via external means. Truly independent regulation (from government as well as interest groups) is required for the latter, and this may not have been achieved in most of non-OECD Asia.

Second, competition in generation (as opposed to monopoly) has helped to lower costs and introduce new capacity, albeit through badly-managed IPP programmes. This implies a much greater role for competition in order to meet public policy objectives, even when there are policy constraints related to final price levels. For instance, this could be through effective auctions to select new generation plants, which is increasingly popular in developing countries such as India. And finally, it is evident that in many non-OECD developing countries, marginal costs were above average costs when liberalisation took place, implying that prices would need to rise in the first instance after liberalisation, and that governments were likely to intervene. A rethinking of reforms would entail taking advantage of competition through the structural reform measures to lower system costs without raising average prices, or without raising prices for the poorest. If prices do need to rise to encourage the efficient use of electricity, other policy measures, such as fiscal transfers to poor consumers, would be needed to ensure that the surplus obtained from competition and liberalisation is transferred to poorer consumers, enhancing welfare.

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