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# Reforming the Power Sector in Transition: Do Institutions Matter?

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The early 1990s brought about fundamental changes in economic and political settings among the popularly termed 'transition economies' (TECs hereafter) comprising twenty-nine countries of Central and Eastern Europe and the Former Soviet Union (FSU). The end of central planning paved the way towards implementing economy wide market-oriented reforms in the TECs as a part of thoroughgoing political and economic changes. The systemic change of early 1990's also coincided with rising popularity of power sector reforms around the world including the TECs. The pace and magnitude of reforms varied markedly across different countries in transition. After 20 years of reform, it is debatable whether the reforming countries like Hungary and the new EU members have significantly benefited from power sector reforms more than the non-reforming ones like Turkmenistan. It is also worth pondering whether the energy-rich countries like Kazakhstan, Azerbaijan, Russia, Turkmenistan and Uzbekistan have benefited since reforms as compared to other non-energy rich countries.

The current power sector performance across TECs portrays that formulated policies did not effectively understand the functioning of a market economy coupled with the misunderstandings of the reform process itself that largely failed to take country-specific conditions into account. So, similar approaches to power sector reform have led to utterly different outcomes in TECs depending upon the formal and informal institutions existing in each country. But, the early phase of the systemic change rested on the notion that market-oriented policies would automatically install the institutions of a market-based economy during the transition process. This led to a decade long of neglecting institutional difference across countries in implementing power sector reforms. However, it can be inferred that economies where reforms are most effectively implemented are able to do so by adapting to the required political and legal changes

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through suitable institutional development. Similarly, power sector reforms and institutions should reflect current know-how and political conditions of the power sector. We quantitatively examine the role of country-level institutional structure and framework in explaining why some power markets work and some do not based on the 'New Institutional Economics' (NIE).

This study contributes to the relatively scarce literature on the quantitative analysis studying the link between power sector reforms and economy-wide institutional reforms across the TECs using panel-data econometrics. It begins by identifying the importance of institutions as a means to support market-oriented reforms which was largely ignored by the neo-classical economics. The motivations and context of power sector reforms are also identified and distinguished. A set of appropriate hypotheses are formulated to assess the economic, technical and environmental impacts of power sector and other economy-wide institutional reforms. Relevant data was collected for 27 out of 29 transition countries included in the sample over a time period spanning from 1990-2008, although with some missing observations. A dynamic panel data econometric technique was then applied to study the much unexplored link between power sector reforms and broader institutional reforms by also accounting for some possible interactions among reforms. Factors other than reforms as well as the inherent differences among countries were accounted for in our analysis.

Results show that power sector reforms, electricity consumption and large scale privatisation are important factors to explain the per capita Gross Domestic Product l (GDP) levels in transition countries. Large scale privatisation and corporate governance structures are crucial factors in explaining the per capital installed capacity levels across the TECs. Per capita renewable installed capacity levels and per capita renewable electricity production are however dependent on the overall financial sector reforms in the economy. Our results also show that one way to counter the inefficiency of power losses would be to harmonize power sector reforms with the overall market reforms of price liberalization, open trading and competition policy. Moreover, per capita electricity production is significantly responding to per capita electricity consumption across TECs symptomizing a functioning electricity market to some extent. The results also show that reforms water sector that leads to increase hydro production can significantly reduce the levels of carbon emissions intensity in the transition countries.

These results confirm that electricity sector reform is indeed a complicated process primarily due to its dependency upon broader

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institutional framework in the economy. The link or association between power sector reforms and other institutional reform is not as lucid and direct as policymakers would have liked. Thus, the need to formulate priority driven reforms rather than theory driven reforms based on individual capacity, resources and needs is what the developing world including countries in Asia and Africa can learn from the ongoing massive reform experiment in the TECs.

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