Energy Efficiency in Market versus Planned Economies: Evidence from Transition Countries

EPRG Working Paper 1322

Cambridge Working Paper in Economics 1345

Rabindra Nepal and Tooraj Jamasb

Economic theory suggests that market-oriented macroeconomic and sectoral reforms should promote energy efficiency due to the adoption of commercial policies and practises and increased openness to private investment. It is believed that a combination of privatization, regulatory reform and liberalisation enhances economic efficiency and improves service standards in all economic sectors. Improvement in energy efficiency also coincides with the aim of improving overall economic productivity and competitiveness. Efficient use of energy can bring energy costs down and free up resources that can be mobilized elsewhere more productively. Hence, the reliance on market, both, as a resource allocating agency and as an incentive mechanism can optimize energy allocation. It also incentivises consumers to reduce waste and adopt the most cost-reflective energy saving equipment and appliances.

This paper analyses the impacts of different market-oriented economic reforms on energy efficiency during the two decades of market driven reforms among the transition economies (TECs hereafter) using panel data econometrics. The TECs being highly energy intensive and energy inefficient prior reforms initiated economic transformation from central planning towards market since the early 1990s allowing us to capture the effects of market-based economic transformation on energy efficiency after more than two decades of reforms. Hence, the lessons drawn from the massive market driven economic transformation process across the TECs can provide a helpful guide to policymakers undertaking energy efficiency programmes in other developing countries.

Our analysis suggests that the progress of market driven reforms is characterised by distinct heterogeneity across the TECs. Reforms have progressed the least in the CIS countries primarily reflecting the legacy of central planning. As such, the collapse of central planning was not a choice of any country or government but rather a consequence of dysfunctional political and economic system of early years. Hence, this translated into slow willingness and commitment towards implementing market-based reforms in the CIS countries. This also indicates that there still exists a potential for progress in economic reforms in the CIS countries. On the contrary, the motives to join the EU accelerated reforms in the CEB and CIS countries after which the process stalled. However, governance reforms and reforms in other infrastructures can still be pursued in these countries.

The varying progress of reforms generated varying magnitude of impacts on energy efficiency. The results show that market and liberalisation reforms, reforms in other infrastructure sectors and reforms in the financial sector are crucial drivers of energy efficiency in transition countries. These results send out two messages to policymakers. Firstly, energy efficiency improvements can be achieved by pursuing polices designed to correct energy market failures and capital market failures through market pricing, reliance on market principals such as commercialisation and decentralisation and access to finance and loan programs. Secondly, energy efficiency improvement requires coordinated progress across all relevant sectors of the economy and the role of market driven reforms in other infrastructures apart from the energy sector should not be overlooked.

Similarly, electricity sector reforms and governance reforms generated adverse impacts on energy efficiency. These results send a clear signal to policymakers that reform implementation may not always translated into reform performance or outcome unless implemented properly. This implies that the effect of reforms on energy efficiency performance is a non-linear and complex relationship. Likewise, privatisation generated a mixed impact on energy efficiency improvements. This provides a lesson that only effective implementation of reform measures can achieve the desired outcomes of reforms.

Contact tooraj.jamasb@durham.ac.uk; r.nepal@uq.edu.au
Publication October. 2013