LIBERALIZATION AND RENEWABLE GENERATION IN SOUTH EAST ASIA

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Overview

Unbundling and liberalization of electricity systems has been the paradigm model used by policy makers and international institutions as the essential framework for developing the sector and dealing with issues including inadequate pricing, lack of capacity, fiscal constraints, efficiency problems, and underinvestment. . The core principle is that there exists a potential competitive market for generating capacity that will drive continuous commercial investment to efficiently supply electricity to meet the growing demands in developing economies. This requires upfront government commitment in creating and opening the market and eventually minimal government regulation.

The process has been led by the World Bank, which has stated that: '..reforms….are equally or more important for emerging, developing and transition economies…where regulatory failures expose people and the environment to horrify horrific risks' (World Bank, 2012). Among 172 countries that received loans from the World Bank, 88 countries accepted liberalisation of the energy market as a conditionality. These loans are thus expected to 'leverage' private investment.

A recent review published by the World Bank itself (Besant-Jones and Vagliasindi 2013) notes that 'unbundling is not an end itself, but rather a means to achieve better performance'. The report examines links between liberalisation policies and outcomes including price and efficiency. A number of other empirical studies have also examined the link between these policies and performance, but there has been little attempt to analyse the actual investment flows associated with liberalisation; discussion of investment has usually referred to the PPIAF database on investment, which records forecasts of investments rather than actual investment. This research aims to fill that gap through detailed collection and analysis of data on actual investment in electricity generating projects in two major developing countries, Thailand and Vietnam, where economic growth has increased demand for energy by 10% p.a. on average since 1990, and the WB has provided finance of more than $18 billion to the electricity sectors of these countries through over 140 loans in this period.

The research collects empirical data to explores the World Bank financing networks (include lending, granting, guaranteeing and channelling) in the electricity sector in Thailand and Vietnam. Acknowledging the financing and investment environment as 'the social environment can be expressed as patterns or regularities in relationships among interacting units', the research then employs dynamic social network and regression analysis on networks to offer a view into international financial institutions' role, strategy and outcomes of their activities in developing countries (Wasserman and Faust, 1994).

Methodology

Social network analysis fits in the purpose of creating a realistic social network of financiers, recipients and implementers, constructing channels of funds, identifying the key players and active networks of players based on their attributes (ownership, purposes, geography). A longitudinal model of SNA was used to reflect the dynamic aspect of World Bank financing structure from 1957-2013 using UCINET-6.

Regression analysis using Eviews was then employed to explore the regression between public entities' popularity (normalised in-degree degree of centrality) as recipients of funds in oppose to annual generating capacity of each country during the same period.

Findings

1. Public sector actors including government institutions and SOEs are the dominant recipients and create highly dense connections in the financing network whilst the network of private sector actors is much more sparse and receive much less fund from financiers.
2. Funds for Market Reforms account for 38% (in Vietnam) and 44% (in Thailand) of total financing from World Bank, which is comparable to other developmental, infrastructure funds. These loans are directed to the government institutions as borrowers, implementers and end users.
3. Generation capacity has a positive regression with normalised in-degree degree of centrality of dominant electricity SOEs in Vietnam (EVN) from 1994 to 2013 and in Thailand (EGAT) from 1957 to 2006 whilst it is a negative regression with that in Thailand 2006 to 2013 after privatisation was ruled out by the Supreme Court.
4. The most active networks occur between national actors whilst international donors and multilateral funds play an initiative yet less central roles.

5. The value of loans for renewable generations accounts for only 4% on average of total in the last 20 years. Recipients of these loans are VSPP or IPPs whose connection to the network was enabled by the government institutions. Private participation is also limited to government-guaranteed PPAs.

Discussions and Conclusions

The costs of the reforms are themselves substantial, using one third or more of all World Bank financing, directed at government ministries and agencies. These 'reform' loans can be seen as a fixed overhead, without any direct increase in generating capacity or network extension, thus reducing the leverage achieved by direct project loans, and increasing the costs of direct investments. The World Bank's funds for policy reforms and privatisation aims to reduce the role of governments and leverage private sector development, and costs of reforms are substantial. However, the research shows that the majority of WB funds do not actually reach and involve private actors. With increasing generation capacity, the role of government institutions grows, as well as the funds received by the dominant vertically-integrated SOEs. There then exists a contradiction in the Bank between the Bank's objectives of reducing the role of government in the market and strengthening the role of public actors in the market.

The financial support of the World Bank is generally seen as a 'vital source' for development of the sector in developing countries (World Bank, 2011). The Bank reinforces this by employs a flow of an overlapping projects, so that lending period strategy that keeps the countries are continuously in receipt of bank loans for as 'captive for life' by layering loans on loans. However, domestic networks of financiers and recipients are much more active and dominant than the role of international donors and funds. The value of funds directly from the WB is also less significant than that from other sources. These results support the findings of other studies: private funding does not substitute for public investment in the electricity sector, or other infrastructure; national funding, and public sector funding, continues to be of the greatest importance; private participation is largely limited to thermal IPPs based on long-term power purchase agreements which are vulnerable to overcharging and corruption. (Estache 2006, Estache et al 2009, Foch 2013, WB/AFD 2010).

The same pattern appears with renewables. WB funding for renewable generation remains very small, especially in comparison with the continued sizeable funding for reform policies, while the private sector plays a minimal role in renewable energy generation, where governments are still responsible for nearly all such investments. It then raises the question of the compatibility of market liberalisation and renewable generation.

References

Besant-Jones and Vagliasindi (2013), 'Revisiting Policy Options on the Market Structure in the power sector', March 109

Estache, A. (2006), 'Africa's infrastructure : challenges and opportunities'. Estache, Antonio & Goicoechea, Ana & Trujillo, Lourdes, 2009. "Utilities reforms and corruption in developing countries," Utilities Policy, Elsevier, vol. 17(2), pages 191-202, June.

Foch, Arthur (2013), 'The Reasons for World Bank support of infrastructure privatization in Sub-Saharan Africa: a critical overview', International Journal of Transport economics, XL,3,2013

Masini and Menichetti. 2013. 'Investment Decisions in the Renewable Energy Sector: An Analysis of Non-Financial Drivers'. *Technological Forecasting and Social Change*

Wasserman and Faust (1994), Social Network Analysis: Methods and Applications, Cambridge University Press

World Bank, and AFD (eds) (2010), *Transforming Africa's Infrastructure*.

World Bank (2012), 'World Bank Group Innovations in Leveraging the Private Sector for Development : A Discussion Note'.