Beyond the Firm: Path Dependent Evolution in Australian Electricity Pricing

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Abstract

This paper shows how the regulatory changes to regional electricity network pricing in Australia reveal the shortcomings of evolutionary economic geography (EEG) in explaining the roles of the state and monopoly firms in complex change processes. Drawing on the political economy critique of EEG (see MacKinnon et al 2009, Oosterlynck 2012) the paper argues that an enhanced appreciation of the role of the state in mediating processes of (uneven) regional development can expand the relevance of evolutionary concepts beyond a narrow firm-centric approach. Nevertheless, I argue that evolution *in* economic geography still needs to be more carefully theorised to account for the full variety of development paths. EEG offers some guidance here but I propose a more robust engagement with institutional theories in both geography and political science (historical institutionalism).

INTRODUCTION

In December 2013 significant changes were made by the Council of Australian Governments to the regulation of electricity network pricing in Australia's National Electricity Market – this paper focuses on the impact of this in two regions, New South Wales and Victoria. The rule changes require distribution network service providers to introduce tariffs that more strongly reflect their underlying costs. The rule change is significant because it represents a shift away from a supply side expansionary model towards a more demand side oriented approach. The extent to which this breaks with path dependent development varies regionally due to differences in the structure of ownership of firms; regional endowments; and the penetration of technological innovations such as smart meters. This paper focuses on how to conceptualise and characterise the nature and modality of change using evolutionary theories.

Evolutionary Economic Geography (EEG) has focused on the capacity for learning and innovation by firms operating within market-based environments: organisational routines, technological change and learning processes are key variables that influence firm decision making under conditions of uncertainty and competition (Martin and Sunley 2006, Boschma and Frenken 2007, Boschma and Martin 2007). There has been less focus, however, on firm behavior in an uncompetitive environment in this case where the state regulates firms in order to simulate competitive market conditions and prevent the misuse of monopoly power. This is indicative of a bias in the EEG literature towards cognitive processes and organisational practices of firms and a neglect of the agency of a broad range of actors involved in patterns of economic development.

The role of the state in mediating processes of regional development has been well addressed within geographical political economy literature (Jessop 1990, Brenner 2004, Allen and Cochrane, 2010). This work shows the privileged role of the state in shaping the economic landscape through access to resources, institutional capacity and political legitimacy. Patterns of regional capital accumulation are shown to be embedded through state practices and where necessary revised and renewed through state restructuring. The state, however, is not a monolithic entity and there is sustained interest in how agency and power are exerted and contested within and across state agencies, particularly national and subnational scales of governance (Cox 1998, Allen and Cochrane 2010, Morgan 2012). The state is seen to be enmeshed in the continuous reorganisation of socio-spatial relations emerging out of the complex articulation of capitalist processes (Brenner 2004).

This multi actor and multiscalar perspective which focuses on the role of the state in mediating path development expands the explanatory potential of evolutionary concepts. It responds to Martin and Sunley's (2015) call for "deep contextualisation" of regional economic development that goes beyond the micro level decisions of firms to take account of meso and macrolevel circumstances that are both geographically proximate and remote, multiscalar and interdependent. Moreover, it situates regional development within the dynamics of capital accumulation and critically examines how micro-level processes are shaped by and shape macrostructures (MacKinnon et al 2009).

Attention to the agency of a broader range of actors throws up new challenges for explaining the pathways of evolutionary change. In EEG four paths have been devised to explain path dependent evolution (Martin 2010, 19): path extension; path exhaustion; path renewal and path creation. In all of these the firm is the key unit of analysis and firm decision-making characterises the pathway. However, in a case study involving national and subnational state actors where firms are regarded as monopolies what are the relevant factors that influence novelty and continuity?

Borrowing from historical institutionalism, Martin describes processes of layering, conversion and recombination that allow for endogenous incremental change within a composite system or entity (Martin 2010, see also Thelen and Mahoney 2010). The notion of layering is familiar to geographical political economy where the spatiality of a region is seen as the product of various 'rounds of accumulation' (Massey 1984). Events legacies and practices are superimposed onto previous layers to both consolidate and transform socio-spatial systems (Paasi 1996). A political economy perspective understands 'regions' in terms of regularised and embedded socio-spatial practices, discourses and relations that are continually constructed, reproduced and contested. In other words the ways in which aspects of regional economies are institutionalised account for different development pathways (see Hodgson 2006 and 2009, Paasi 1996, Storper 1997). Inspired by this approach I propose a more institution-focused typology of path dependent development and use this to try to classify the evolutionary changes to networks in Australia's National Electricity Market:

Path exhaustion: the gradual breakdown or atrophy of an institution over time resulting in some form of *regional decay*.

Path extension: where the underlying institution (or institutions) remains strong and adjustments are made to take this forward into new contexts or environments. The result is regional *resilience*.

Path renewal: where the institution is weakened prompting actors to seek out new fixes that address the weaknesses or ambiguities but these fixes are still cognate with prior institutional formations. The regional economy experiences significant *restructuring but continuity*.

Path creation: where the institution is replaced altogether by a new one or a new institution emerges without a clear socio-spatial lineage. This involves a high degree of *novelty and contrast* with the prevailing institutional landscape.

CASE STUDY

Victoria and NSW electricity distribution networks exhibit strong supply side oriented path dependence due to the following factors:

- Regarded as natural monopolies (although this is changing) – market power
- Investment in large capital intensive fixed assets (wires)
- Temporal limits to adaptive potential: approval for investment occurs within 5 year regulatory cycles
- Governance characterised by risk aversion: essential service, pricing politically sensitive
- Regulatory model: incentive regulation
- Institutional arrangements for regulation are complex and regulator lacks simple veto rights
- Information asymmetry between regulator and network provider
- Small number of powerful actors: consumer participation in regulatory proceedings limited
- States have jurisdictional responsibility for electricity pricing: national-scale regulation of networks voluntary and has moved slowly over last decade (Victoria moved first)
- Firm characteristics:
    - Cultural human capital factors i.e.engineering profession, construction oriented
    - In Victoria investors are largely super funds looking for a safe return
    - In NSW government owned and return regular dividends to state
    - Adversarial regulatory proceedings and use of legal challenges to erode regulator authority

Selection pressures relevant to rule change:

- Falling average demand for electricity since 2009
- Rising peak demand: penetration of air conditioners
- Significant rise in capital expenditure in NSW, South Australia and Queensland since 2009 (compared with Victoria)
- Privatisation agenda: Victoria privatised in mid 1990s, NSW ongoing political struggle to privatise
- Causal connection drawn between privatisation and lower network costs: ‘goldplating’
- Competition due to technological change: emerging PV technology, battery storage and smart meters

- Transition to national-scale regulation and gradual removal of regional (State) retail pricing restrictions
- Discourse of consumer sovereignty ascendant (consumer choice advocates, AEMC "Power of Choice" Inquiry)
- Politicisation of electricity pricing due to carbon tax debate led to Prime Ministerial intervention in network pricing
- Shift to Federal regulation

DISCUSSION

Since the onset of market liberalisation in the early 1990s cost-reflective pricing has been presented as a holy grail for achieving allocative efficiency. CRP was seen as the market corrective to the system of cross subsidies which saw uniform spatial pricing across the region. This was a legacy of the so-called 'modern infrastructural ideal': a post-war vision for state-led capitalist territorial organisation based around centralised supply side expansion, cheap tariffs, and full electrification. These principles were embedded through state-enforced institutional practices such as minimum service guarantees and "postage stamp pricing" rules.

In the 1990s market-oriented political actors in Victoria led efforts to disembed cross-subsidisation and institutionalise a 'user-pays' system of pricing but faced considerable opposition from consumer advocates, politicians and rural/regional interests. The language of "customer protection" and "fairness" persisted in network regulation and the appetite for bold disruptive reforms has been weak. Instead there has been an overlaying of new practices onto old and the commingling and coevolution of commodifying and market-constraining logics in network regulation over a 20 year period.

This case study shows the following factors to be key to the gradual institutionalisation of CRP for networks. Firstly, the cognitive incongruity between large and costly network investments and the falling demand for electricity. Technological change coupled with changing social practices and state-led environmental initiatives produced an unprecedented shift from consistently rising to falling electricity consumption. NSW and Queensland networks, however, proceeded along a growth-oriented business model. The characteristics of regional firm behaviour alone cannot explain the shift in the regulatory landscape. The second relevant factor: the issue of rising network prices was strategically implicated in public debates about privatisation and climate mitigation (the carbon tax debate) thus becoming highly politicised and prompting strong Federal leadership to reform network regulation and override State (regional) autonomy. This reflected a gradual struggle to transfer regulatory responsibility from State to Federal scale over the previous decade. Thirdly, the idea of "consumer sovereignty" had been vigorously prosecuted and become hegemonic across relevant state, consumer and corporate actors thus diffusing opposition to the rule change on the grounds of equity and fairness.

Macro processes of capitalist restructuring (marketisation and technological change) intersected with sub national and national political ideological struggles and changing social practices to produce a complex adaptation process. The way in which network pricing was linked to wider extra regional discourses, the carbon tax and privatisation, elevated its profile and helped overcome institutional inertia. The shift away from an expansionary supply side orientation was informed and circumscribed by formal and informal institutions namely national and regional governance arrangements; and the (regionally-specific) structure of electricity network ownership. All of these institutions are heavily mediated by state power.

The case study also shows how the nature of path evolution varied depending on socio-spatial characteristics. For Victoria, the rule change represents ***path renewal***. The persistence of a supply rather than demand side orientation and the dominance of networks in regulatory proceedings was dealt a blow through the rule change. However, supply side expansion, strong market power, information asymmetry and subnational governance had been incrementally challenged and eroded over the previous decade. The impact of the rule change was less disruptive in Victoria due to stronger regulation, the early transfer of regulatory control to the Federal scale and the mandated roll out of smart meters. In NSW there is a high degree of novelty in the new path requiring major changes to firm behaviour. The rule change is more one of ***path creation***. Current legal challenges to the rule in NSW and the highly adversarial regulatory proceedings (ABC *NSW 'poles and wires' electricity giants challenge ruling over lower prices'* 29 June 2015) are indicative of the threat that the rule change makes to established firm behaviour.

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