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EFFECT OF CHANGES IN REGULATORY QUALITY ON ELECTRICITY LINES INVESTMENT AND RELIABILITY IN NEW ZEALAND

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Overview

Various studies indicate a negative relationship between investment on the one hand, and regulation, reduced regulatory quality, and increased regulatory uncertainty on the other. Changing an electoral system from majoritarian (e.g. first-past-the-post, or FPP) to proportional (e.g. mixed-member proportional, or MMP) is specifically argued to reduce regulatory quality, and thereby to reduce investment. Similarly, moving from rate-of-return to incentive regulation is also predicted to reduce investment. It is commonly held that uncertainty gives rise to a valuable option to defer irreversible investments, suggesting a negative association between regulatory or other uncertainties and investment, although some models predict an ambiguous relationship between investment and uncertainty.

Reform of the New Zealand electricity sector commenced in 1984, with evidence existing for generation and transmission investments having been deferred due to regulatory uncertainty. Electricity lines (i.e. distribution) companies in particular experienced multiple regulatory innovations over 1990-2005, all of which could be predicted to have reduce investment and thereby service reliability rates. The major such innovations are summarised in Table 1.

This study examines whether these regulatory innovations have had a detrimental effect on lines company investment and reliability rates, using annual regulatory disclosure and other lines company data for 1990-2005 and 1995-2005 respectively.

Table 1: Key Regulatory and Institutional Changes, 1990-2005

Year Ended March	Event
1992	Introduction of legislation creating information disclosure regime.
1994	Binding referendum opts for proportional representation over FPP.
1995	Electricity information disclosure regulations first implemented. Franchise areas finally dismantled (larger customers contestable).
1997	First MMP election.
1999	Forced unbundling of lines ownership from competitive activities. Tightening of information disclosure regulations.
2000	Introduction of abortive legislation imposing incentive regulation. CPI-X incentive regulation recommended by new government inquiry.

Methods

Various forms of q model, with and without lags and additional explanatory variables, and a simple alternative investment model, were estimated using fixed effects, pooled OLS regressions, and unbalanced data. A simple reliability model was similarly estimated.

Results

Our data reveals that both investment and reliability rates were rising over the sample period, not falling as would be predicted based on the above discussion. Part of this these increases is explicable in terms of growing demand and electricity prices, and falling investment costs. Yet a step jump in investment from 1995, and in reliability from 2000 (probably flowing from the increase in investment), remains.

Conclusions

We interpret these results as an indication of investment uncertainty arising in the late 1980s and early 1990s due to wider electricity sector reforms, leading to a deferral of investment over that period. In particular, we argue that the final removal of distribution franchise areas on 1 April 1994, and actual experience of lines company competition, resolved significant uncertainty that had deferred investment over 1989-1995. Subsequent regulatory innovations may well have reduced the increased investment and reliability rates relative to what they otherwise might have been, but our analysis was unable to unearth this. We leave it to future research demonstrate a deferral of lines company investment in the late 1980s and early 1990s as a consequence of wider electricity reforms at that time.