NEW ZEALAND INSTITUTE FOR THE STUDY OF COMPETITION AND REGULATION INC.

STRUCTURAL SEPARATION VERSUS VERTICAL INTEGRATION

Lessons for Telecommunications from Electricity Reforms

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OVERVIEW

Joint work
- with Richard Meade & Seini O'Connor

Context
- telecommunications
- electricity
- transaction cost economics
- economics of enterprise ownership

Lessons from electricity industry

Applications to telecommunications

Case studies
- fibre-optic network investments

CONTEXT: TELECOMMUNICATIONS INDUSTRY

Separation origins in USA (1980s)

- local connection services separate from long distance
- to encourage competition in long distance market

Increasingly mandated/adopted in telecommunications markets in 21st century

- UK, NZ, Sweden, Italy, Australia, EU inquiry …

Proposed regulatory remedy for

- low levels of retail competition emerging under other regulatory arrangements
- risk of owner of persistent upstream 'bottleneck' network asset foreclosing downstream competitive retail entry

Strategic reasons for voluntary adoption

- foreclosing more intrusive regulatory intervention

CONTEXT: ELECTRICITY INDUSTRY

Over 20 years experience with separated firms

- retail, generation, distribution

Invoked to:

- increase retail entry, competition
- reduce risk of competitive entry foreclosure

Vertical re-integration (Meade & O'Connor, 2008):

- increasingly common
- the 'natural' state of economic organisation?
- militates against separation-induced
  - mismatches in investment horizons between generators and retailers
  - thin contract markets
  - increased hold-up risk
  - perverse wholesale risk management incentives

CONTEXT: TRANSACTION COST ECONOMICS

(Coase, 1937; Williamson, 1985)

Contractual (short or long term) interaction between distinct economic actors (firms and individuals) prevails

- unless costs of undertaking activities within a firm ('internalising' or 'vertical integration') are less than the costs of market contracting (separation)

Costs of market contracting include

- transaction costs
- contractual incompleteness, bounded rationality
- costs of contractual hold-up
- costs of market power imbalances (e.g. information asymmetries)
- costs of regulation (compliance, distorted incentives, etc)

CONTEXT: OWNERSHIP OF ENTERPRISE

(Hansmann, 1996)

Ownership naturally falls to patrons with lowest combined

Costs of ownership

- agency costs
- costs of collective decision-making
- costs of risk-bearing

And costs of market transacting

- transaction costs; contractual incompleteness; bounded rationality; costs of contractual hold-up; costs of market power imbalances; costs of regulation

VERTICAL INTEGRATION IN ELECTRICITY

Meade & O'Connor (2008)

Internalises many of the costly consequences of contract-based interaction:

- hold-up risks
- wholesale risks
- regulatory uncertainty
- asymmetric information and strategic bargaining
- market power
- ownership costs
- contracting costs
- initial conditions

ELECTRICITY CONCLUSIONS

Some static efficiency gains from separation

But dwarfed by sum of

- increased governance, ownership costs
- dynamic efficiency losses from misaligned incentives

Natural economic tendency is to re-integrate to more effectively and efficiently manage increased costs & risks

PARALLELS IN TELECOMMUNICATIONS

THE MOST IMPORTANT PARALLEL IS NOT THE IMMEDIATELY OBVIOUS ONE

Bottleneck assets

- local loop cf. lines companies

But technological innovation means local loop is no longer the only means of broadband transmission

More informative to compare retail-generation separation

- same motivations
  - encourage retail entry
  - preclude discriminatory pricing
- same underlying economic characteristics
  - cost structures, risk management, asset ownership
  - contracting horizon mismatches
  - oligopolistic competitive interactions

MISMATCH IN INVESTMENT HORIZONS LEADS TO INVESTMENT HOLD-UP

High-value, long-lived (upstream) network assets

- high fixed, sunk costs

Short-term focus of retail operations

- low entry costs
- few sunk investments *cf* network operators

When new investment (new technology/increased capacity) required

- network operator requires long-term agreements with retailers to justify investment
- retailers resist long-term contracts with a single network operator
  - long term shifts exogenous risks onto (risk-averse) retailer
  - another competing retailer may subsequently negotiate a 'better deal'
  - another (better) network technology may be offered (bypass)

ASYMMETRIC INFORMATION; RETAIL DEMAND UNCERTAINTY

Separated network operator lacks easily- and cheaply-verifiable consumer behaviour information

Low-cost entrants have fewer incentives to take care with forecast accuracy

- relatively costless exit

Low-cost, low-risk retail entry encourages over-much retail entry (monopolistic competition model)

- entrants do not adequately take account for the effect of their entry on the residual demand curve facing other market participants when making entry decision
- leads to systematic overestimation of consumer demand

Network operator anticipates effects

- invests in less capacity than ordered by retailers
- invokes regulatory attention for ‘under-investing’

ADDITIONAL CHALLENGES FOR TELECOMMUNICATIONS

Very rapid network technology development occurring
- relative to electricity generation, distribution

Threat of technology bypass very real

Separated network operator often competing with vertically-integrated operators of partial-substitute technologies (e.g. mobile, wireless)
- adverse selection problem leads to risk of inefficient entry
- incumbent bears higher costs of separated network, but competitor can accrue savings from internalisation via integration
- entrant will invest in own network when own cost equals incumbent's cost (including separation costs)
- but incumbent's network costs (absent separation) are less
- 'cherry-picking' – separated company serves most costly market segments; vertically integrated least costly

RISKS EXACERBATED BY REGULATORY CONTRACT PROVISIONS

Regulated contracts typically finite, short-term

- large renegotiation costs, risks
- militates against long-term retail-network operator contracts

Enable retail entry by parties with negligible assets

- exacerbates investment term incentive mismatch
- encourages excessive and ‘hit & run’ entry (Hausman & Sidak, 2005)

Designed to facilitate low-cost consumer switching

- e.g. number portability
- lowers retail incentives for long-term contracts even further

Price-setting methodologies (e.g. TSLRIC)

- falling regulated prices simulate ‘future better offers’ effect

IMPLICATIONS

If network investment incentives are to remain neutral when separation occurs

Regulatory provisions must be relaxed relative to regulation-only counterfactual, e.g.

- mandatory longer-term contracts
- refraining from frequent TSLRIC-type regulatory price reviews
- allowing retailers to lock in consumers for contractually-meaningful periods
- requiring upstream mandatory investments in network by downstream retail entrants (i.e. mandatory LLU investment)
  - aligns retailer incentives with network operators

BUT MANDATORY RETAILER INVESTMENT IS VERTICAL RE-INTEGRATION!

Separation creates investment incentive problems that are most efficiently resolved by vertical re-integration

So why mandate separation?

RETAIL SEPARATION HAS NOT BEEN A 'NATURAL' STATE FOR TELECOMS

Retail lock-in has been important to justify investment

'Missing markets' for investor-led firms in high fixed, sunk cost industries arise from lack of certainty that consumers will support the venture

Historically, most solutions to the 'missing market for investment' in telecommunications have begun as consumer-led vertically-integrated ventures; e.g.

- consumer-owned co-operatives
  - fixed & mobile telephony (Finland)
- government investment (UK, NZ)
  - as low-cost means of operating consumer co-operative
- exclusive retail franchises (USA)
  - ensure welfare-raising services provided to consumers by constraining consumer choice

CASE: CITYLINK (WELLINGTON)

One of world's longest-established fibre networks (1995)

Supplies dark fibre on open-access model

Network extensions have been underwritten by contractual agreements with key high-volume commercial customers

- customers 'locked in' by significant network-specific investments

CASE: NZ GOVT ‘FIBRECO’

“By keeping the new fibre business out of retailing, it will have no incentives to act anti-competitively”

“The intention is that each LFC will operate purely as a “fibre infrastructure carrier”, providing wholesale access to dark fibre, and optionally providing other wholesale services. It will not provide retail services”.

“The government will not exclude *partners* that own or operate telecommunications retail operations, but such partners may not have the majority of voting control on the board of LFC (unless they divest themselves of any retail business)”

BUT

"It is expected that the partner will offer both investment (by way of capital and/or assets) and the commercial and technical ability to deploy and operate a fibre network"

"The main risks in this proposal are that:

a there could be insufficient viable proposals, because the Crown offer is not sufficiently attractive"

INDUCING INVESTMENT UNDER THESE PROPOSALS WILL BE PROBLEMATIC

Consumer demand for fibre highly uncertain

Multiple bypass/close substitute technologies already present

- fibre-to-the-kerb
- increasing capabilities of 3.5G mobile networks
- some are vertically integrated (cost advantages, cherry-picking potential)

Rapid technological development in bypass networks

Retail fibre consumer lock-in issues

- specific investments required, but much larger than under bypass technologies => difficult to get retailer/residential consumer commitment (especially when regulation of legacy technologies encourages easy, low cost switching)

A ‘MISSING MARKET’ FOR INVESTMENT PARTNERS?

Removing separation mandate

- in part addresses investment incentive misalignment by enabling integration between retailers (best informed re consumer demand and best able to ‘lock in consumers to fibre network) and network operation
- will likely increase the share of private sector investment committed to NZ fibre deployment
- recognises the reality of competition between vertically integrated broadband companies differentiated on technology type
  - encourages ongoing dynamic network innovation
  - prototype is mobile telephony

TELECOMMUNICATIONS CAN LEARN FROM ELECTRICITY'S EXPERIENCE

Whilst technologies differ, and there are some industry-specific differences, broad principles are the same

Separation for short-term competitive gains risks foreclosing long term dynamic efficiency benefits