



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

Price Discrimination, Structural Separation and the Diffusion of Fibre Broadband: policy implications for Australia and New Zealand

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BACKGROUND

Fibre-to-the-home (FTTH) broadband is considered to be socially desirable by Australian and NZ governments

- But was not being delivered “fast enough” by the market

Policy objective of accelerated, ubiquitous deployment of cost-effective, fast FTTH

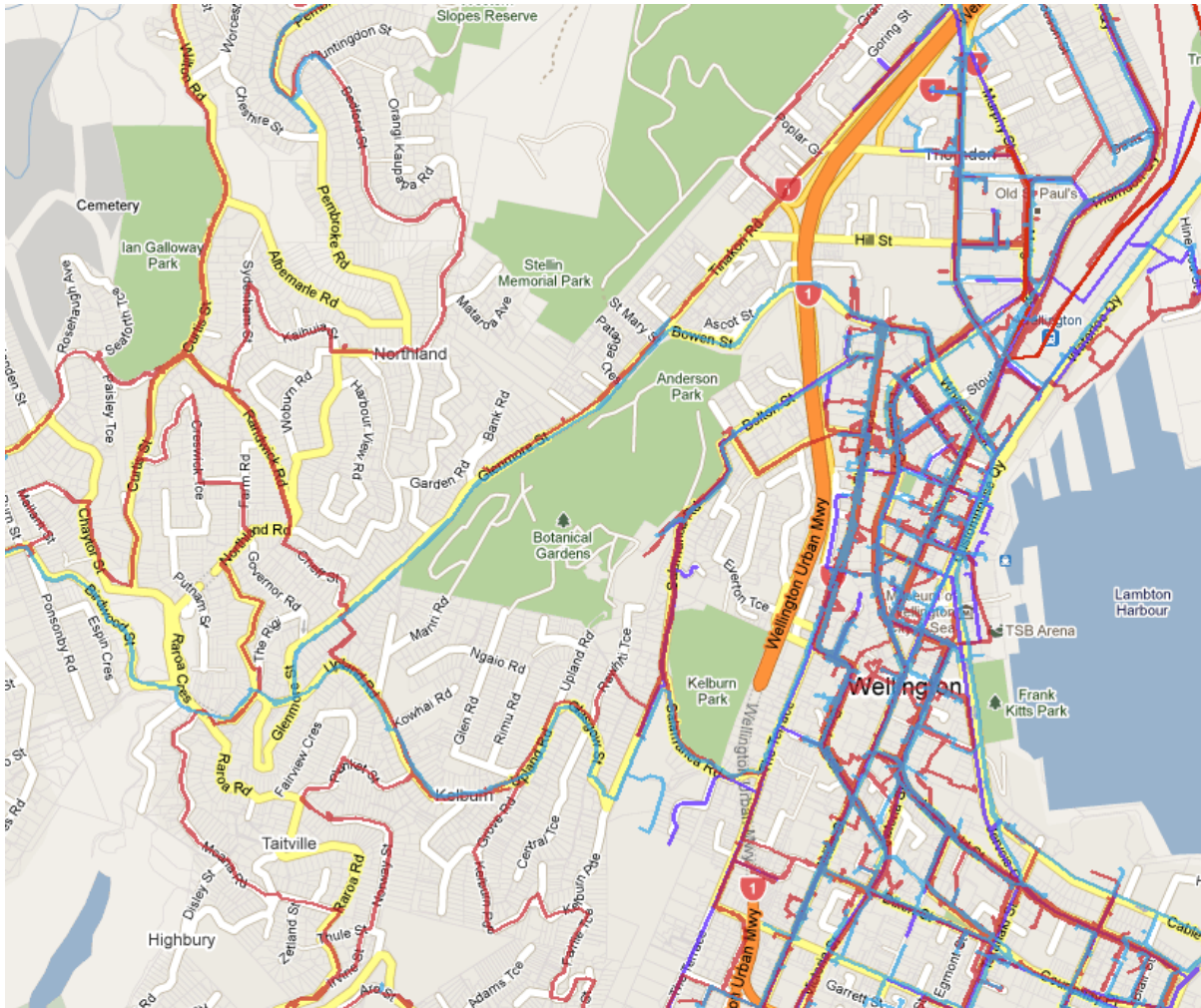
- NBN (Australia) and UFB (NZ) are packages of government investment, new institutions and market regulation
- New structurally-separated, monopoly fibre providers

Research question

- Will the chosen market structure help or hinder the policy objective?



FIBRE WIDESPREAD BUT NOT UBIQUITOUS



Wellington example:

- 4 fibre networks
- Fibre to larger businesses
- Fibre to the roadside cabinet
- Cable and ADSL2+ to the home



PRICE DISCRIMINATION

A supplier with market power prefers to charge different prices for the same (underlying) product to different groups of consumers:

- Relies on a close relationship with customers (to understand their preferences and demand elasticity)
- Bundling and tying are common forms of price discrimination
- Typical for broadband supply (e.g. higher prices for higher speeds though cost of supply is fixed) and airline seats
- Unpopular with many consumers as supplier appropriates more of the consumer surplus ('bad' price discrimination)
- But welfare enhancing if quantity supplied increases as a result



NATURAL MONOPOLY, TECHNOLOGY DIFFUSION & PRICE DISCRIMINATION

A technology with high fixed and sunk costs has a natural monopoly cost curve

In the early stages of diffusion, demand dominated by a small number of high-valuing users. Most potential users unconvinced of benefits or happy enough with substitutes

- i.e. a steep demand curve

The supply and demand curves may not intersect

- no market supply at any single price

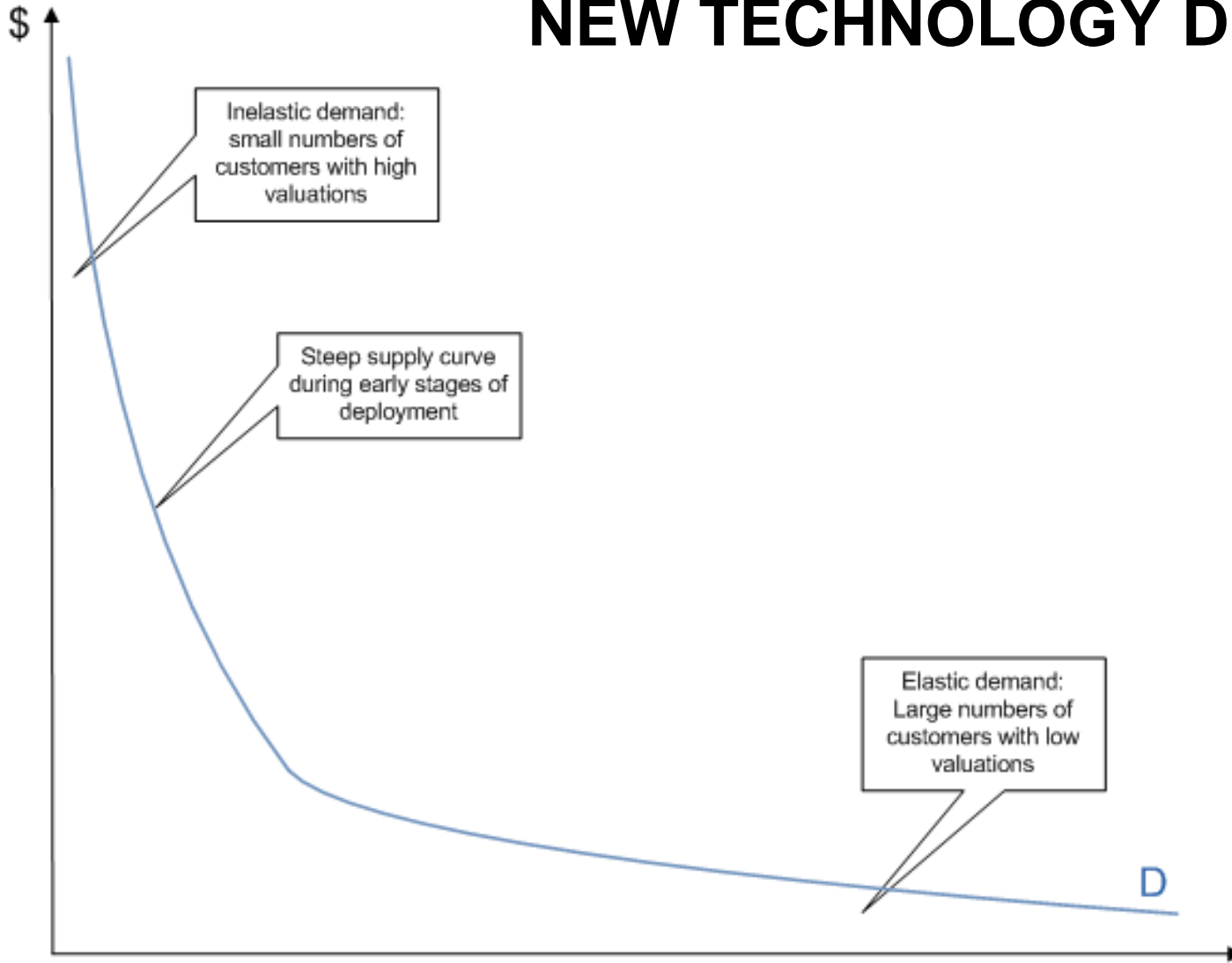
Price discrimination allows high-valuers to cross-subsidize low-valuers

- benefiting both supplier and consumers

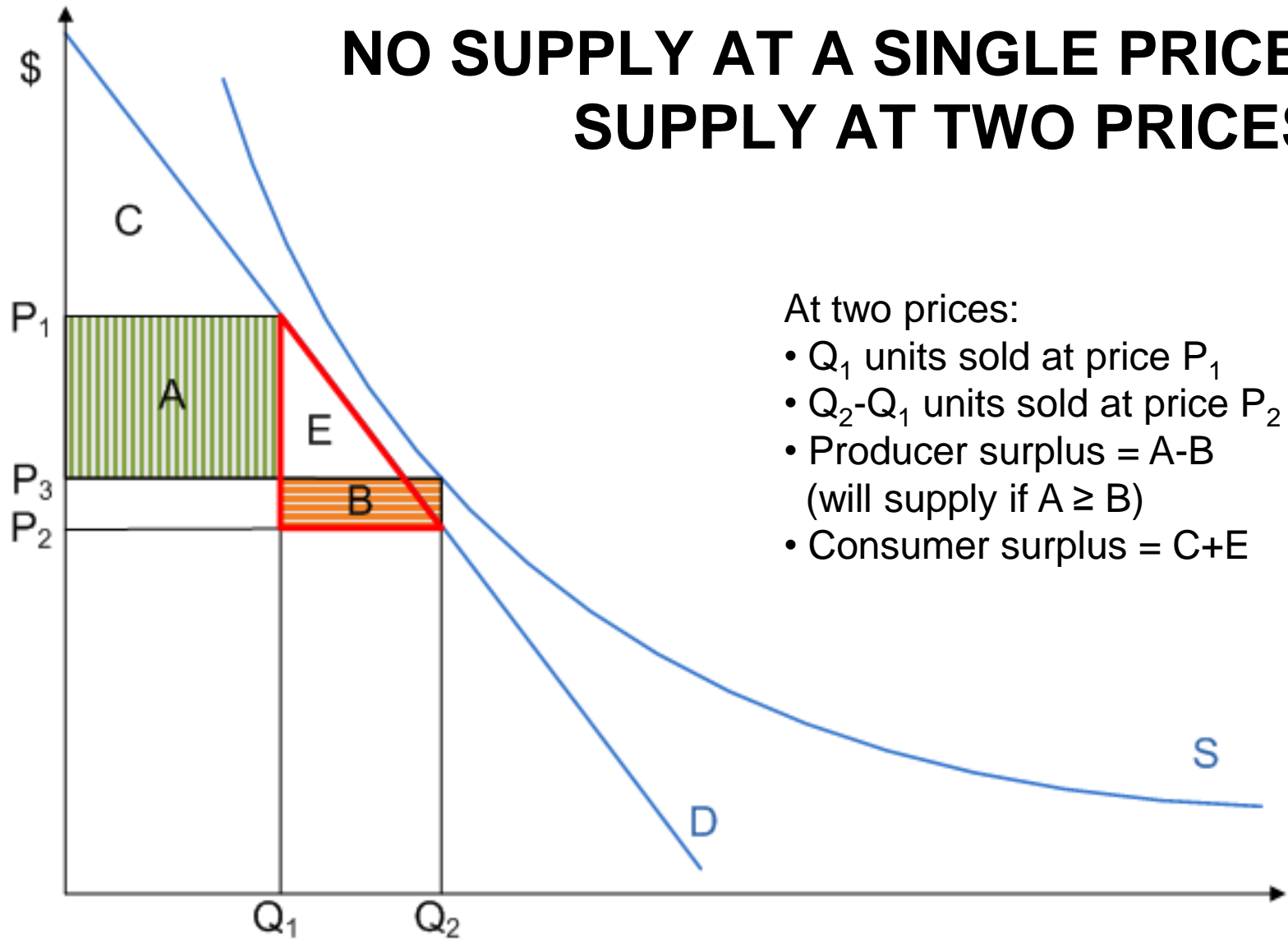
This is 'good' price discrimination



NEW TECHNOLOGY DEMAND



NO SUPPLY AT A SINGLE PRICE, SUPPLY AT TWO PRICES

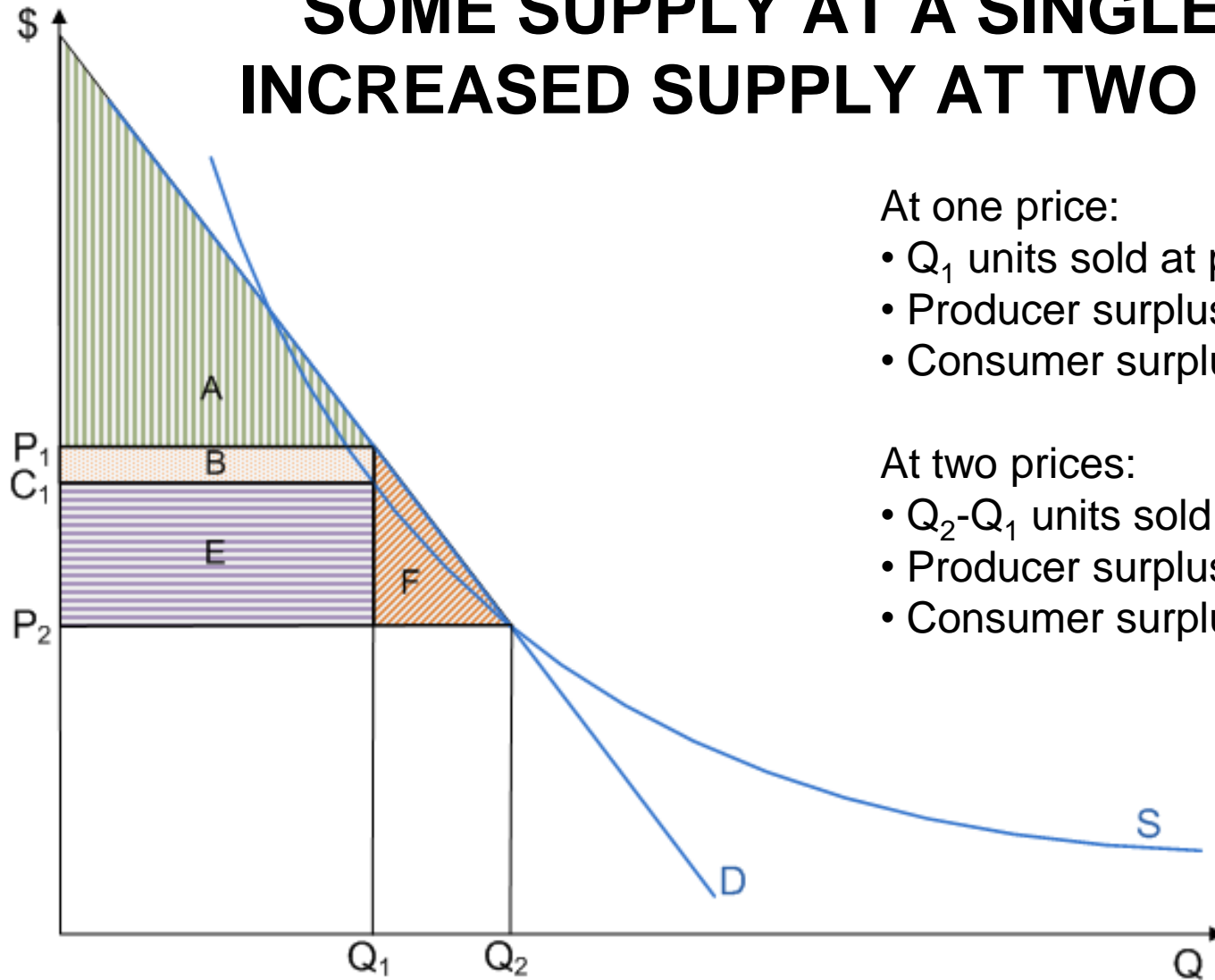


At two prices:

- Q_1 units sold at price P_1
- $Q_2 - Q_1$ units sold at price P_2
- Producer surplus = $A - B$
(will supply if $A \geq B$)
- Consumer surplus = $C + E$



SOME SUPPLY AT A SINGLE PRICE, INCREASED SUPPLY AT TWO PRICES



At one price:

- Q_1 units sold at price P_1
- Producer surplus = B
- Consumer surplus = A

At two prices:

- $Q_2 - Q_1$ units sold at price P_2
- Producer surplus = B+E
- Consumer surplus = A+F

FTTH PRICING IN A COMPETITIVE MARKET

FTTH providers in OECD countries are competing with DSL and cable technologies

- Providers replicate DSL and cable speeds, rather than relying upon technological differentiation
 - Danske Bredband offers a 512Kbps fibre service!
- FTTH is priced at or below competing technologies to induce substitution

A strategy of mimicking other technologies and price discrimination is essential in order to induce substitution and achieve scale economies



FTTH TECHNOLOGICAL SEPARATION

Technological separation possibilities (OSI model)

Layer	Fibre product	% of cost	
3	Network	Internet connection	5-10%
2	Data link	Point-to-point bitstream connection	20-25%
1	Physical	'Dark' fibre	70%

The majority of costs are incurred at the lower layers

Structural separation is possible between these layers

- But just because it is *possible* does not make it *desirable*



FTTH STRUCTURAL SEPARATION

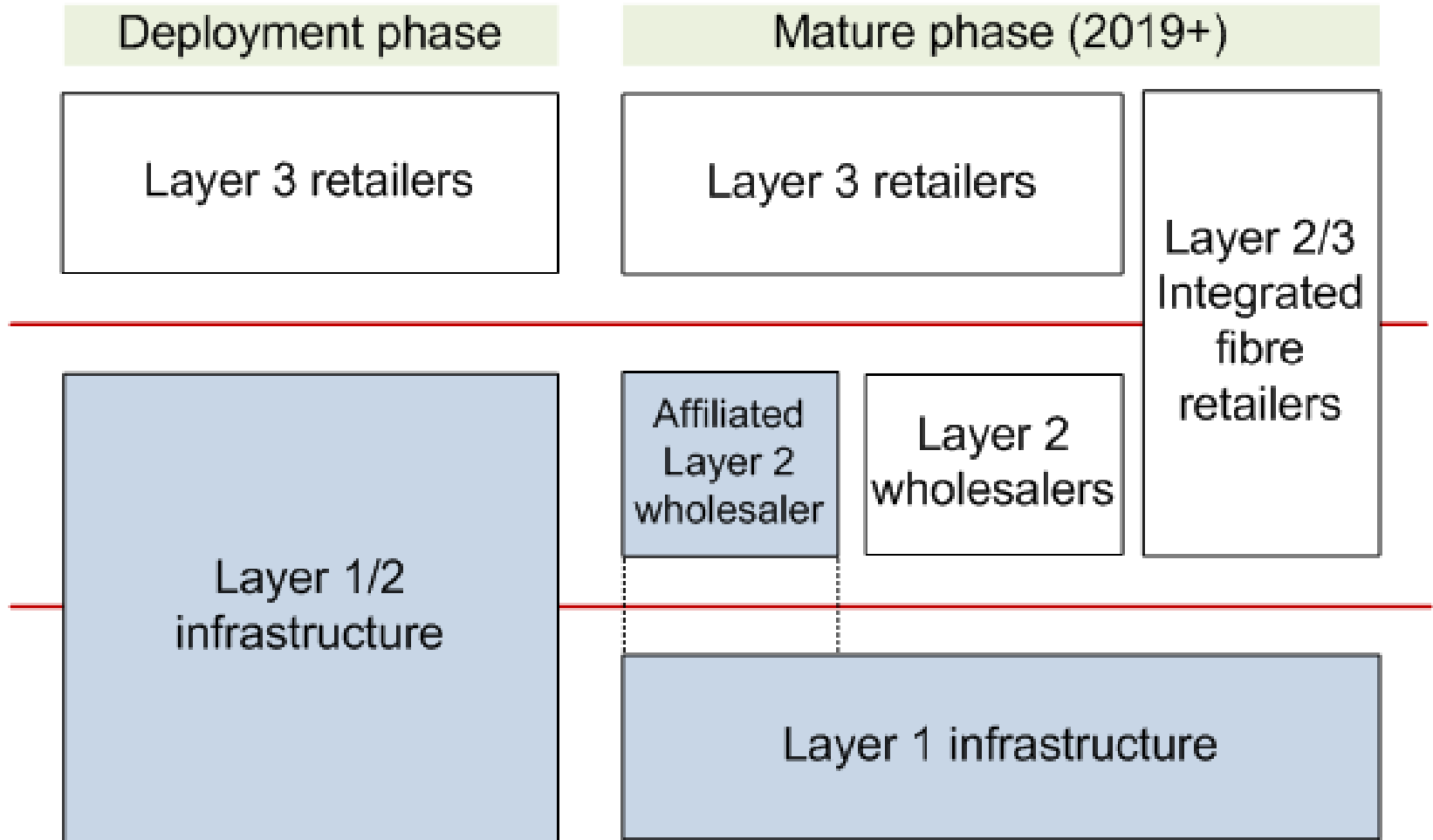
‘Open access’ to bottleneck infrastructure permits competition at higher layers

Regulated pricing prevents price discrimination in favour of higher-layer affiliates

Structural separation is a regulatory remedy for non-price discrimination



NBN & UFB STRUCTURAL SEPARATION



WHERE YOU SEPARATE MATTERS

Separation above Layer 1 precludes using price discrimination to drive uptake

- cannot monitor or constrain use of dark fibre
- but 70% of costs at this Layer

Separation above Layer 2 makes enables *some* price discrimination to drive uptake

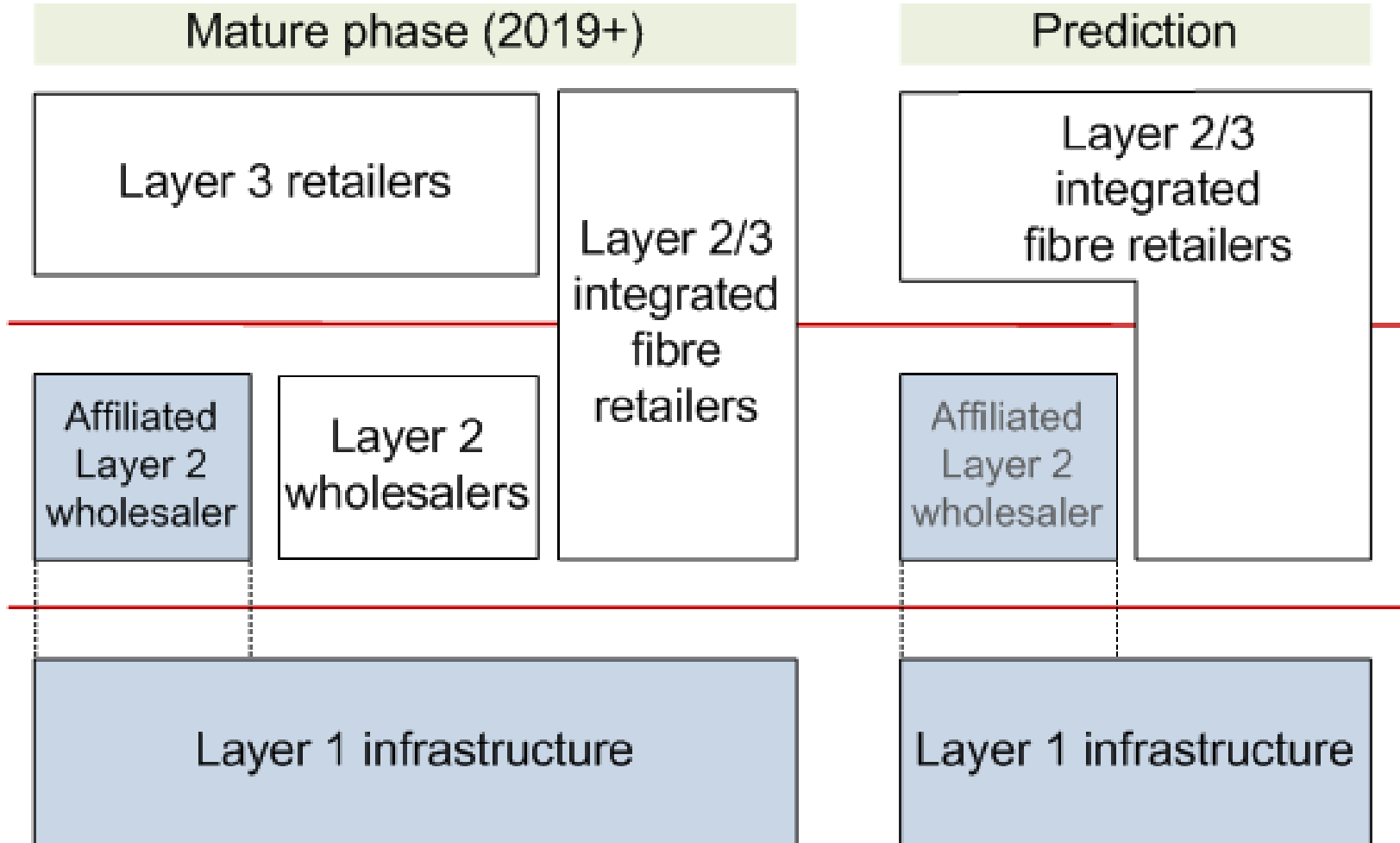
- via a menu of speed/data cap products
- make some contribution to 90-95% of costs

Retailer in best place to use price discrimination

- Better information, can bundle with content and other services
- If separated from locus of costs will take free profits



SEPARATED ENTITIES GET OUT-COMPETED



COMPETITION WILL SLOW FTTH DEPLOYMENT

NBN model

- Buy out, out-compete or outlaw fixed-line competition
- Expensive but effective

UFB model

- Regulated pricing on competing copper network to drive down consumer prices ensures the fibre network will face strong competition
- Even lower prices if competitors' assets stranded

Critical assumption: wireless broadband will be a complement not a substitute



PRICE DISCRIMINATION AND SEPARATION

Mandated separation of a new network

- constrains ability to use welfare-enhancing price discrimination to drive uptake and achieve economies of scale
- encourages consumer-welfare destroying price-discrimination by retailers (taken free profits rather than invested in infrastructure)



CONCLUSION

Questions remain:

- Why constrain price discrimination if doing so inhibits the rollout of the desired new technology?
- Would competition between vertically-integrated technologies lead to a better outcome?

Neither UFB nor NBN appears to be ideally designed to meet the governments' policy objectives

- NBN may achieve ubiquity but at high cost
- UFB may fail to achieve ubiquity at high cost



THANK YOU AND QUESTIONS

Heatley, D. & Howell, B. (2010). “Structural Separation and Prospects for Welfare-Enhancing Price Discrimination in a New 'Natural Monopoly' Network: comparing fibre broadband proposals in Australia and New Zealand”. ISCR Working Paper. http://www.iscr.co.nz/f580,16593/16593_Efficiency-raising_price_discrimination.pdf.

Heatley, D. & Howell, B. (2010). “UFBI 2.0: Revised separation boundaries may partially address pricing and uptake limitations in New Zealand fibre broadband model, but significant competition policy problems remain”. *Current Comment* 2010 No. 2. ISCR. http://www.iscr.co.nz/f594,16948/16948_Current_Comment_UFBI_2_0.pdf.

Heatley, D. & Howell, B. (2010). “Price Discrimination, Structural Separation and the diffusion of Fibre Broadband: policy implications for Australia and New Zealand”. Paper presented at the 1st ASIA-PACIFIC ITS REGIONAL CONFERENCE 26-28 August 2010. Available from <http://www.iscr.co.nz/>.

