

Framework for promoting competition

Ingo Vogelsang & Martin Cave

November 19, 2019

I. Executive Summary

1. The task set by the Commerce Commission

We have been asked how the Commerce Commission (the Commission) could reflect in the new regulatory regime the competitive nature of the telecommunications sector, together with the requirement in section 166(2)(b) of the Telecommunications Act 2001 (the Act) to promote competition in telecommunication markets to the extent the Commission considers it relevant. The answer should include (A) a framework to help the Commission decide when/where it is relevant to promote competition, and how strongly to promote it; and (B) a framework to help the Commission decide when/where it is relevant to deregulate any of the regulated fibre services.

Our proposed framework uses the same sequence of steps for both the promotion of competition and the deregulation decisions.

2. Sequence of steps to make decisions on deregulation and the promotion of competition

2.1. Market definition

From time to time (probably once each regulatory period) define the set of “markets” for consideration for promoting competition and for deregulation decisions. Some preliminary suggestions include retail broadband access, divided into residential and business, and wholesale Layer 1 / Layer 2 access and backhaul. An important question for the future would be an assessment of the impact of 4G/5G on fixed line broadband.

2.2. Assessment of state and development of competition

For each market subject to potential promotion of competition or deregulation determine (a) the current state of competition and (b) the likely future development of competition in the absence of promoting competition, where relevant, per the requirement in s166(2)(b)¹ and/or in the absence of deregulation where the market is regulated under Part 6 of the Act.

If done thoroughly this requires a large amount of information and analysis, such as the information requirements proposed in the UK by Ofgem (2019). In order to undertake this

¹ All section references are to the Act unless otherwise stated.

analysis the Commission staff needs access to tools necessary to evaluate the state and development of competition (like the tools discussed in Ofgem, 2019). Also, they need to assess the barriers to enhanced competition. The Commission should systematically evaluate its currently available tools for doing so.

A full-fledged analysis should only be done for markets where either promotion of competition or deregulation might be warranted. A more cursory analysis should indicate which these markets are and which markets can be left out.

2.3. Evaluate the desirability of promoting competition and of deregulation

Evaluate the desirability of promoting competition and of deregulation for the markets analyzed. This would require different counterfactuals for promotion of competition and for deregulation.

For deregulation decisions the counterfactual yardstick would be whether continued competition can be expected under deregulation or partial deregulation. As deregulation criterion we suggest an amended 3-criteria test building on the European framework for regulation of electronic communication services. The evaluation standard for deregulation, which we propose and which in our view is compatible with s210(4) is that the state and expected development of competition are such that competition policy can deal with the problems arising in such markets in a better way than regulation can.

Candidate markets for deregulation are deemed more competitive than candidate markets for promotion of competition by the Commission. This means that in candidate markets for promotion of competition the augmented three EU criteria must be fulfilled and there must be a dominant firm. Promoting competition then means that (a) there would exist net benefits from directly addressing the market failures represented by the three criteria and/or dominance and (b) the Commission has the tools to achieve these benefits.

In order to establish counterfactuals for the promotion of competition we suggest proceeding by the tools characterized by the rungs of the ladder of remedies described below. For the decision to promote competition one would use desirability criteria that, among others, include balancing any downsides of enhanced competition, for example in the form of duplicate investment or loss of synergies, with upsides, such as lower prices and better services. While the analysis probably has to use the methods described in this report, there is no simple and general rule that allows one to move from numerical and qualitative variables like concentration measures or price-cost margins or product variety to a clear assessment of the level of competition.

2.4. Decision stage

a. If the evaluation under step 3 suggests potential desirability of deregulation then the Commission staff needs to consider the scope of deregulation or of softer forms of regulation, such as a move from price-quality regulation (PQ) to information disclosure (ID).

b. If the evaluation under step 3 suggests no deregulation but rather the desirability of promoting competition in a particular market then the Commission staff needs to consider and evaluate the tools for doing that. After the low-hanging fruits in the form of wholesale access have already been harvested by the policy makers, enhancing competition essentially requires innovative acts to find so far undetected or just overlooked possibilities which do not jeopardize the current benefits of the non-competitive but regulated situation. We therefore suggest building a framework for promoting competition around the potential tools for doing so, concentrating on their potential side effects in terms of inducing inefficient competition and creating high transaction costs.

Here we suggest considering a ladder of remedies consisting of 4 rungs, starting at rung 1 with simply allowing competition. Rungs 2 and 3 include potential currently available tools for reducing a regulated firm's incentives and ability to interfere with competition (rung 2: reduce behavioral barriers to competition) as well as tools for reducing structural and legal barriers to competition (rung 3). These are the same tools the Commission would use for the s162 purpose alone without the additional aim of promoting actual workable competition introduced by s166(2)(b). The Commission will have to assess how the application of those tools differs when it comes to promoting actual competition rather than only achieving an outcome that is compatible with the outcome of workable competition. Most of these tools are likely to be of little effect for the current purpose. However, the tools may be applied conscientiously to avoid conflicts with promoting competition. At rung 4 the Commission may consider further potential tools not currently available to the Commission, such as duct sharing.

2.5. Make recommendations to the Minister.

3. Conclusions

Deregulation decisions are linked in two crucial ways with the questions of whether, where, when and how to promote competition. First, if competition is found to be sufficient and stable enough for deregulation there is no further need to promote competition through regulatory tools. The market can be deregulated. Second, if the conditions for deregulation are not fulfilled the promotion of competition may be in order. In that case the ultimate goal may be to create stable enough competition to permit deregulation.

Our analysis suggests that a large part of the Commission's promotion of competition would not require invoking s166(2)(b). This would be necessary, however, for Rung 4 and possibly also for Rung 3 of our ladder of remedies, where the Commission would actively create competition rather than just deal with legal and behavioral barriers to competition.

II. Framework for promoting competition

1. The task set by the Commission

We have been asked by the Commission to address the following question: *How should the Commission reflect in the new regulatory regime the competitive nature of the telecommunications sector, together with the requirement in section 166(2)(b) to promote competition in telecommunication markets to the extent the Commission considers it relevant? Including:*

- A. *A framework to decide when/where it is relevant to promote competition (economic conditions and requirements), and how strongly to promote it when/where relevant, including relevant international precedents.*
- B. *A framework to decide when/where it is relevant to deregulate any of the regulated services (economic conditions and requirements), including relevant international precedents.*

Since the two requested frameworks for promoting competition and for deregulation decisions are closely linked, we have decided to establish a common framework for both. It consists of a sequence of Commission initiatives, starting with a determination of markets, where competition may be worth promoting or which may be ripe for deregulation decisions. For each market the Commission then needs to determine the state and development of competition. This can be a complicated and time-consuming undertaking that should only be done intensely for markets that are deemed strong candidates for policy action. In the third step the Commission has to decide whether to take policy action or not. This step requires the evaluation of a counter-factual with and without promotion of competition or deregulation. The fourth step then narrows down the decision in favor of a particular policy. The last step then is a recommendation to the Minister.

The specifications in A and B above are in their chronological order, because services for which the Commission should promote competition should not (yet) be deregulated. Thus, in practice the question of whether, when and how to promote competition may come first. However, since the deregulation decision is more straightforward than the decision to promote competition and since we can build on existing frameworks for deregulation, for expositional purposes we have decided to treat the deregulation framework first and then take up promotion of competition.

This report is therefore structured as follows. First, in Section 2 we discuss the general issues common to both tasks, in particular the criteria affecting the decisions to promote competition or to deregulate. Section 3, using the EU framework for deregulation in the telecommunications sector as a case study, takes up issues specific to deregulation decisions. In particular, it develops a three-criteria test for deregulation that uses a modified EU approach. Next, in Section 4 we address issues that are specific to the promotion of competition in New Zealand telecommunication markets. Here we propose a 4-rung ladder of remedies, starting with less

ambitious and climbing to more ambitious competition-promoting policies. Section 5 puts it all together in the form of a unified framework that has promotion of competition and decisions about deregulation as the two major branches of a decision tree. Section 6 concludes.

2. General issues common to promotion of competition and to deregulation decisions

In this section we cover the tool kit necessary to resolve for the following two sections that deal with deregulation and the promotion of competition in more specific and practical detail. Section 2.1 provides the New Zealand legal background. Section 2.2 addresses the tradeoffs posed by promoting competition. Section 2.3 considers the relevant markets for promoting competition and for deregulation. Section 2.4 covers the information requirements for assessing competition in those markets. Section 2.5 deals with barriers to competition and Section 2.6 with the tools available to the Commission for promoting competition and for deregulation decisions.

2.1. The New Zealand legal context: s162 and s166(2)(b) of the Act

The starting point for setting up the framework this report tries to develop is the Telecommunications Act 2001 as amended by the Telecommunications (New Regulatory Framework) Amendment Act 2018 (the Act), s162 and s166(2)(b) in particular.

The purpose of Part 6 at s162 of the Act concerns “fibre fixed line access services” (FFLAS), for which policies shall “promote the long-term benefit of end-users” (LTBEU) by “promoting outcomes that are consistent with outcomes produced in workably competitive markets”. In particular, they should give “regulated fibre service providers” (a) incentives to innovate and invest, (b) incentives to improve efficiency and supply “fibre fixed line access services of a quality that reflects end-user demands”, (c) allow end-users to share the benefits of efficiency gains, including through lower prices, and (d) are limited in their ability to extract excessive profits. While this is a multi-purpose statement, it appears to be quite compatible with an efficiency objective with a maximum profit constraint.² The purpose statement also provides an implicit definition of the outcomes of workable competition. s162 addresses the regulated local fibre companies (LFCs), including Chorus, as monopolists or dominant firms. In conjunction with the other stipulations the Act provides strong tools for stimulating service competition but is silent on infrastructure competition.

In contrast, s166(2)(b) adds that the Commission or Minister must make a recommendation or determination that best gives, or is likely to best give, effect “to the extent that the Commission or Minister considers it relevant, to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications

² While the properties (a) to (d) seem to get equal weights, in case of conflicts they have to be traded off against each other. In this case the dynamic component is likely to dominate (a) because this is a highly dynamic industry, (b) because two of the four criteria have a strong dynamic component and, above all, (c) because the long-term emphasis of the LTBEU is clearly dynamic.

services”. This section is broader than s162 in that it concerns all telecommunications markets, not just “fibre fixed line access services”. Furthermore, it addresses actual competition, not just mimicking the outcome of workable competition. The relevance of s166(2)(b) for the current report therefore concerns whether and in what way the Act’s policy tools and their implementation by the Commission are likely to affect actual competition. While s162 seems to be more concerned with monopoly regulation of wholesale access, s166(2)(b) adds a workable competition objective to s162. The wording “to the extent that the Commission or Minister considers it relevant” indicates that the s166(2)(b) objective is meant to be restricted to certain situations to be determined by the Commission or Minister. The tools provided by the Act for effecting the objectives of s162 also would have to be used for implementing s166(2)(b). So, the question raised below in Section 2.6 is how their application is likely to differ from this case.

The “infrastructure competition *for* the market” starting point in New Zealand in 2011, enacted through the tender process for selecting partners for the government’s Ultrafast Fibre Broadband (UFB) initiative, is not very hospitable to infrastructure competition *in* the market. Rather the New Zealand government seems to have bet on fibre infrastructure monopoly in different geographies by planning and subsidizing the fibre networks of its UFB partners. This is quite different from the case of service competition, which has received a high priority from the outset. In contrast, the new legislation still does not fully embrace infrastructure competition for the regulated services. Otherwise s166(2)(b) would not talk about promoting competition “to the extent the Commission or the Minister considers it relevant”. In Section 2.2 below we therefore start out with a tradeoff analysis and the factors to weigh when deciding whether and when to promote competition.

It is clear from the wording of s166(2)(b) that all forms of competition should be within the scope of the proposed framework – infrastructure competition, access-based competition in FFLAS, and competition in other telecommunication markets, such as downstream retail, mobile, or backhaul. The tradeoff will differ for different forms of competition. Thus, the framework will also address the question whether there can be tests to find out which form of competition is most likely to benefit end users in the long run. In doing so we characterize the forms of competition as “markets” that can be the subject of analysis.

Furthermore, besides criteria for *whether* it is desirable to promote competition we will consider *when* it might be desirable. The conditions conducive to flourishing competition (for example, technology development such as physical vs. wavelength unbundling, or 5G) are generally not static. Therefore, while promoting competition may not be desirable at a point in time, the evolution of some conditions may be such that it may become desirable to promote competition in the future, once the relevant condition(s) reach a particular level. This is the reason why the European Union (EU) has established competitive tests in pre-set intervals, which recently have been extended to five years. We show below in Section 3 that the EU approach naturally lends itself to answering the question when the promotion of competition or deregulation may become

advisable. In New Zealand the regulatory periods could generate similar intervals. Furthermore, there is similar precedent already in New Zealand for such a cycle. Schedule 1 of the Act lists a number of regulated services (Designated services and specified services), and Schedule 3 (clause 1(3)) requires the Commission to consider, at intervals of no more than 5 years, whether there are reasonable grounds for commencing an investigation into deregulating any of those services.

2.2. Desirability of competition, the tradeoffs

As indicated above, the desirability of promoting workable competition in the New Zealand telecommunications markets via regulatory intervention is not self-evident but rather subject to tradeoffs. The existing regulatory framework, which is based on regulated wholesale access to LFCs' networks, is by its very existence already promoting service competition in end-user markets. Thus, an analysis of the implications of s166(2)(b) would have to go beyond this specific service competition.

The potential disadvantages of promoting competition are directly linked to some of the major reasons why there is little or no competition in the first place. These reasons are typically called "barriers to entry" and are treated more extensively below. The existence and prevalence of some particularly relevant barriers mean that competitive market structures may be associated with higher costs than less competitive market structures, thus creating a tradeoff between the advantages of competition in the form of increased product variety and responsiveness to technical and market changes and disadvantages in the form of higher costs. In particular, the downside of infrastructure competition would, for example, be the cost of duplication or some disincentive to invest and the upside would be, for example, more consumer choice, more innovation or lower prices. In contrast, the disadvantages of service competition include the loss of synergies/economies of scope from various access options, while the advantages include lower prices and potentially more product variety. More systematically, important factors for those entry barriers – which society may find it costly to overcome – are (a) first mover advantages in the form of sunk costs, (b) lumpiness and economies of scale (natural monopoly property), (c) synergies/economies of scope between network elements, and (d) network externalities. Examples of these costs are the following:

- (a) If promotion of competition means that the incumbent's output declines then sunk costs may be wasted, because the output is replaced by one requiring additional infrastructure costs.
- (b) Even if there are no sunk costs but there are unexhausted economies of scale then the total cost of a given output increases if there is more than a single provider ("natural monopoly").

- (c) If promotion of competition requires vertical separation of the regulated firm and the creation of access modes for downstream competitors then synergies are lost and additional costs of access incurred.
- (d) If the incumbent has invested in network expansion in order to generate a critical mass of users then this investment benefits new competitors, thereby reducing the incentives to invest in network expansion.

The disadvantages and advantages of competition depend on several causative factors that need to be identified and ultimately (quantitatively) assessed. These include geography and nature of demand, prior existing infrastructures, emerging new technologies and regulatory commitments.

2.2.1. Geography and nature of demand

Geography definitely is of prime importance for infrastructure competition, for example via (a) population density, (b) urbanization and (c) physical surroundings. In particular, for a given technology geography together with the level of demand determines whether the cost of having duplicate networks can be supported. Here there may be learnings from international experience, where geographical differentiation has been expressly adopted. Three possible regulatory precursors are:

- The EU distinctions between white, grey and black areas, adopted for the purpose of assessing state aid.
- The geographically differentiated approach to fibre regulation introduced in several EU countries (France, Spain and Portugal), where the access regime has varied in accordance with population density.
- In the UK there is now little or no regulation in dense urban areas where competing deployment of fibre through duct access is considered viable/likely; with regulation more focused on active services (e.g., Bitstream) in other areas.

Under the EU state aid framework “black” geographic areas are those where infrastructures are at least duplicated so that infrastructure competition is feasible. In “grey” areas infrastructure investment by a single firm occurs without requiring subsidies, while in “white” areas only subsidized investment is possible.

When setting up its UFB investment scheme New Zealand embarked on an approach that combined all three types of areas to be supplied with fibre-to- the-home (FTTH) networks by single firms that promised full coverage in their areas in return for some state aid.³ Thus, Chorus and the other LFCs⁴ in the initial fibre bidding process implicitly cross-subsidized expected

³ However, in New Zealand, the more remote/high cost areas are outside of the UFB initiative – these areas are the focus of direct government subsidy programmes through the Rural Broadband Initiative (RBI).

⁴ The other LFCs are Enable Networks Limited, Northpower Fibre Limited, Northpower LFC2 Limited and Ultrafast Fibre Limited.

profits from “black” and “grey” areas with losses from “white” areas to come up with a required net subsidy for the whole coverage. A geographically disaggregated approach to promoting competition or to deregulation decisions therefore raises some thorny issues if it, for example, means that Chorus and the other LFCs due to increased competition lose the subsidies from “black” and “grey” areas necessary to support “white” areas. Conversely, if a geographically disaggregated approach were used for deregulation, the “black” areas would be deregulated. Then the remaining “grey” and “white” areas would have to cover their costs under building block regulation and would therefore very likely suffer significant price increases.

Geography plays a less decisive but still important role for the unbundling of layer 1 (L1) services and subsequent provision of layer 2 (L2) services by unbundlers. The reason why unbundled L1 services are or will be demanded only by large service providers is that unbundling is associated with significant economies of scale and is only justified if a service provider has sufficiently many customers to serve in an area. This again favors the densest geographic areas over less dense ones.

The nature of demand works together with geography, for example under the heading of urbanization.⁵ Together geography and nature of demand determine economies of scale and density relative to willingness to pay. This comes out of analytical cost models that – for areas of various densities – show how many firms can be supported in an area at a given price.

2.2.2. Prior existing infrastructure

The criterion of prior existing infrastructure might also, for example, suggest that existing cable TV and copper operators may have a spring board for entry into fibre, and that (by extension) other experienced infrastructure competitors may be more likely to enter the lucrative fibre infrastructure markets in Auckland and Wellington. For example, there is some HFC infrastructure covering parts of Wellington and Christchurch, offering broadband plans of 100Mbps, 200Mbps, and up to 700-900Mbps. It appears that UFB uptake in these areas to date is lower than elsewhere in NZ (eg 44% uptake in Wellington, vs 55% for the covered areas as a whole).⁶

There exists an array of current substitutes (most currently provided by Chorus) for wholesale fibre service generally, but over time the choice of substitutes might be lessening or intensifying for some sub-sets of services as the roll out is completed and in face of technological evolutions and of changing consumer demand.

⁵ The impact of urbanization is very clearly pointed out by Ofcom on page 6 in https://www.ofcom.org.uk/_data/assets/pdf_file/0018/142533/consultation-promoting-competition-investment-approach-remedies.pdf.

⁶ Uptake figures as of September 2019. See Crown Infrastructure Partners, Quarterly Connectivity Update Q3: to 30 September 2019, available at: https://www.crowninfrastructure.govt.nz/wp-content/uploads/2019/11/Quarterly-Broadband-Update-September-2019_FINAL.pdf.

Prior existing infrastructures also play a role for assets that are not originally meant to be used by competitive telecommunications providers but can be used by them. Such assets include but are not limited to other utilities' ducts and poles that are currently not fully utilized.

2.2.3. Emerging technologies

Emerging technologies are the subject of considerable but as yet unresolved debate, revolving around the aspects already noted. These include technologies that allow networks to be virtualized, meaning that the same competitive outcomes may be achieved at higher levels in the technology stack (not L1 or L2 per se).

2.2.4. Breach of regulatory commitment: The takings issue

In considering upsides and downsides of competition, the Commission has expressed an interest in our view on whether the policy background of the New Zealand fibre policy, in addition to being an exogenous factor that drives one to consider upsides and downsides of promoting competition, is also a factor that *directly* affects the upsides and downsides of promoting competition. This clearly comes out above for the case of an LFC covering all of “black”, “grey” and “white” areas in its territory. The key point of this history is the information asymmetry between the regulated providers/their investors and the Commission in relation to the LFCs’ expectations of the risks of future competition when embarking on the fibre rollout. However, we have been asked to keep this aspect conceptual and only consider the effect of the extremes (meaning where investors did or did not anticipate future competition *in* the market). This is, in our view, a regulatory commitment issue.

Had anticipation of future competition already been included in the considerations underpinning the UFB initiative there would be no regulatory commitment to keep competition at bay and probably no regulatory commitment not to promote competition. Together with s166(2)(b) allowing the Commission to consider promoting competition to be “relevant” would, in our view, in this case mean that promoting competition would be unlikely to violate regulatory commitment.

These conclusions could be different for the case where investors did not anticipate future competition *in* the market. We still believe that allowing competition, for example, by cable TV firms or 4G/5G would not breach regulatory commitment, because these developments were totally exogenous to the fibre rollout and/or were associated with technical and market developments that the regulator also could not foresee. Although these specific developments might not have been foreseen, the potential emergence of new superior technologies and of a permissive response by regulators were clearly foreseeable around 2010. It could, however, mean that Chorus and the other LFCs should be allowed to competitively respond to such rivals. Specifically and actively promoting such competition by the regulator, however, would in this case likely be a breach of regulatory commitment. This does not mean, however, that promoting competition in this case would be totally inadmissible. Regulatory commitment is one of many

standards for Commission behavior. If it clashes with other standards, such as the LTBEU standard, a tradeoff analysis has to be undertaken, where a regulatory commitment sets a high hurdle for its breach.

2.3. The set of markets to be addressed

In order to promote competition one needs to find the economic locus where such competition takes place. This economic locus is in competition analysis usually called the “relevant market”. The EU in particular has a history of using a relevant market concept for determining if there is sufficient competition to deregulate or not enough competition so that regulation should continue. This aspect is treated more extensively in Section 3 of this report. We therefore suggest that, as a first step, the Commission should consider potential markets in which competition might or might not be worth promoting or which might be subject to deregulation. The starting point could be conventional hypothetical monopoly tests.

Since dynamic considerations of market development are deemed relevant for the proposed framework, it will also be important to look at related markets and their closeness to the markets determined. For example, mobile telecommunications may currently not be in the same market as wholesale fibre access but with the advent of 5G this may change.

The most relevant markets could therefore be residential and business end user markets, which currently may be separated into fixed and mobile, and at least three intermediate input markets. The latter are L1 and L2 markets and direct fibre access services (DFAS) and backhaul markets. When analyzing a particular market, its relationship with other markets has to be taken into consideration. In particular, end-user markets have to be related to input markets and input markets at one level have to be related to input markets at a higher or lower level.

When considering the relationship between the potential markets for a competition analysis one has to look at the services offered by the regulated fibre providers and how they are used. Currently, there is aggressive competition in a variety of downstream retail markets which wholesale fibre access enables. Specifically, some existing L1 products, such as DFAS, are vital inputs to many downstream competitive services, while others are inputs to all L2 potentially competitive services.

More systematically, we are here concerned with three types of relations between a regulated provider’s various services and between these services and services offered by other providers.

The first type concerns vertical relationships between the different services offered by the regulated fibre providers. This would, for example, concern the relationship between L1 and L2 services, which could represent two vertically related markets. Here the unbundlers buying L1 services from a regulated provider compete with that regulated provider in selling L2 services and compete at the retail level with the buyers of L2 services. This first relationship creates a

potentially strong conflict of interest for a regulated provider between selling L1 services and competing with the buyers of those services in selling L2 services. There exists further indirect competition, because the buyers of L1 services compete with the buyers of L2 services at retail. The resulting overall conflict between the L1 access seekers and the LFCs could be enhanced by the fact that the LFCs have fully built out their networks to supply L2 services. This means that the LFCs' incremental costs between L1 and L2 are largely sunk so that even a small price differential between L2 and L1 will provide them with some profit and it will be hard to argue that a low mark-up of the L2 over the L1 price is anti-competitive even if rivals cannot duplicate it.

Second, there can be quasi-horizontal relationships, for example, between the LFCs' L1/L2 services and 4G/5G last mile backhaul (DFAS services). Both of these services supplied by the LFCs are inputs for end-user services that are substitutes for each other. If the end-user services are deemed to be in the same end-user market, these input services would be in a quasi-horizontal relationship to each other.⁷ Here the LFCs' incentives for anticompetitive behavior would depend on the relative profitability of the two services provided, and on the ability of potential buyers to self supply last mile backhaul. A regulated provider's strategies in this case could be highly complex, since they depend on growth prospects and on the closeness of substitutability between 4G/5G and fixed line fibre services. In the near future there may even be complementarity to 4G/5G.

The third type of relationship arises if the buyers of L1/L2 services compete at the retail level with services offered by cable TV companies that are provided over an independent infrastructure. Here the regulated providers have no conflict of interest but rather are likely to benefit from vigorous competition at the retail level. Such vigorous competition could be responsible for the LFCs' extremely dynamic demand profile (from 0% to 55% network utilization in 8 years, and still rising rapidly).

2.4. Tools/information necessary for assessing state and development of competition

Once the markets have been defined, the state and expected development of competition in each market needs to be assessed in order to determine if deregulation is justified or if competition should be promoted or not. If done thoroughly this requires a large amount of information and analysis.

In the UK Ofgem (2019) has recently proposed a number of indicators for evaluating the state and development of competition in the domestic UK retail energy markets. While Ofgem's aim is to aid a specific deregulation decision, the information necessary for such an assessment could

⁷ One can argue whether these are vertical relationships in disguise. However, they do differ from true vertical relationships, because the LFCs are not direct competitors downstream. If there arises any anti-competitive issue it is one of discrimination between the different buyers of the LFCs' services, in this case between the L1/L2 buyers and the DFAS buyers.

potentially be quite similar to that required for a decision to promote competition. Ofgem postulates three conditions for the development of effective competition that would jointly be deemed sufficient for eliminating price caps (Ofgem, 2019, p.6 and pp.16-18). The first condition is that what they call “structural” changes in the market facilitate or can be expected to facilitate effective competition. These structural changes refer to “structural reforms that Ofgem and government are putting in place to improve the competitive process in the domestic retail energy market. These structural reforms are a combination of demand-side changes, which are aimed at making it easier for consumers to engage with the market, and supply-side changes, which aim to incentivise the firms to innovate and invest in response to customer needs.” (Ofgem, p. 19) The demand-side changes include, for example, smart metering. The second condition is that the competitive process is expected to work well in the absence of regulation. This includes, in particular, ease of entry and exit, no evidence of collusion or abuse of market power, and the availability of sufficient market information. The third condition is that the competitive process delivers good outcomes for most consumers, in particular those less active in the market. Ofgem shows that such an assessment of all three conditions requires detailed market observations and information about buyers and sellers.

Under the framework developed, Ofgem proposes to monitor the progress of the above structural changes in the markets in question and how these changes affect, or can be expected to affect, indicators of competitive process and the outcomes generated. In terms of outcomes Ofgem proposes to consider consumer price, price differentials across comparable tariffs, quality of service and ease and reliability of switching suppliers (Ofgem, 2019, p. 7). Ofgem also sees the necessity and the difficulties that may be encountered to estimate a counterfactual without regulation for the same variables. The Ofgem framework is primarily directed at the service side of the market. To the extent that infrastructure competition is concerned, further information about the potential competitors’ technologies and costs may be needed.

The question is whether the Commerce Commission can avail itself of such information about potential competitors and has access to market share and price information in all telecommunications markets. With respect to fibre fixed line access services, the Part 6 regime includes information disclosure (ID) regulation which could produce very detailed costing and geographic information, and price-quality regulation (PQ) which in principle could force a regulated provider to demonstrate pricing principles for some or all products. The Commission can further gather information from any person under section 15(f) of the Act, which incorporates section 98 of the Commerce Act 1986. That is, provided the purpose of the information gathering relates to one of the Commission’s functions under the Act (including under Part 6).

The Commission also has specific information gathering powers for Part 6 under s221 of the Act, but it can only gather information from “specified persons”, so the use of these powers is more restricted. Such specified persons are current and former regulated fibre service providers, retail service providers and agencies associated with the supply of fibre fixed line access services.

We are confident that, equipped with all these powers, the Commission has the tools to do full-fledged competitive analyses of the relevant markets if needed. However, the Commission will need systematically to assess the potential of each tool and of combinations in providing the information necessary for a competition analysis. Also, doing this for all markets may require an excessive amount of resources. In that sense the Ofgem (2019) framework presented above is overly complicated and restricted to retail markets. It is, in our view, not a generally desirable yardstick. For decisions to promote competition or to deregulate the Commission will have to concentrate on wholesale markets and only address retail markets to the extent that they are influenced by wholesale market policies. A full-fledged analysis should therefore only be done for markets where either deregulation or promotion of competition might be warranted. A more cursory analysis should indicate which these markets are and which markets can be left out. It is beyond the scope of this report to recommend details of such an analysis, but they should definitely include market structure variables, such as the levels and development of market shares, HHI-index, and coverage by competitors, information on barriers to entry, direct and cross price elasticities, as well as conduct variables, such as evidence of price squeeze and performance variables, such as price and quality developments.

2.5. Barriers to competition

The result of the competition analysis of a market is that the market is found to be either workably competitive or in some lesser stage of competition, plus some prediction of its likely future competitive development. If the market is not found to be competitive enough the question to be answered by the Commission is what prevents it from being so.

Lack of competition is characterized by the absence or weakness of rivals to constrain the behavior of a dominant incumbent. The reasons for this are typically called market failures, which above all include barriers to entry that prevent rivals from entering the market or from expanding there. In Section 2.2 above we already characterized the nature of some of these barriers. In general, barriers can be (a) structural, such as the cost-based or demand-based barriers in the form of sunk costs and/or of scale and scope economies that were the subject of Section 2.2. Besides these, there can be (b) legal barriers, such as license requirements, or (c) behavioral barriers, such as price squeezes or predatory pricing. Behavioral barriers are usually effective only if they go along with other barriers, in particular with structural ones. As noted above in Section 2.2 the structural barriers are usually associated with efficiencies that have to be weighed against the advantages of competition. Unless these structural barriers simply go away through market growth or through technical or demand changes, they are typically hard to address via regulatory policies. This is potentially different for legal and behavioral barriers. We will therefore in Section 4 develop an approach to promoting competition that provides a “ladder of remedies” that is closely related to the types of barriers to competition.

2.6. Tools for promoting competition and for deregulation available to the Commerce Commission

The set of tools available for promoting competition is large but in some cases severely limits the Commission's discretion. It currently consists of the following (with relevant section in the Act):

- Information Disclosure requirements (Subpart 4): This is a soft form of regulation initially expected to apply to all LFCs that will go some way to allow the Commission to gain information needed (a) to assess the competitiveness of the markets where LFCs operate and (b) to assess if a move toward PQ regulation may be warranted. The presence of ID regulation together with the threat of the Commission switching to PQ regulation may prevent LFCs from pursuing anti-competitive acts.
- Price-quality regulation (Subpart 5): This is a much stricter form of regulation that is somewhat softened by revenue caps. As explained below we do not see many possibilities to use this kind of regulation to promote competition except for cases where it is used to prevent anti-competitive behavior. Under Part 6, PQ regulation comprises:
 - o Revenue cap for all FFLAS
 - o Price caps for
 - Anchor services
 - DFAS
 - o There will be combined price and revenue caps imposed for the first regulatory period (with price caps being subsumed under the revenue cap and quality standards to complement prices/revenue cap). There is no requirement in the Act that the prices for anchor services and DFAS in the first regulatory period should be cost based, so these services will almost certainly not be priced at cost (or reflect pricing under any other economic principle) to begin with. Thus, we cannot expect those prices to reflect competitive conditions, but LFCs (particularly those subject to ID regulation only) would have flexibility for price response in other FFLAS products.
 - o Quality regulation (which might involve disclosure, standards, incentives)
- Ability to recommend upgrading ID-only suppliers to PQ: As mentioned above this possibility may prevent anti-competitive behavior by LFCs.
- Requirement for geographic consistency of pricing for PQ-regulated suppliers (s 201).
- Deregulation (s 210): This section of the Act is quite nuanced and versatile. It is more extensively described below in Section 3.2.

- Prohibition on vertical integration (above L2) for all regulated fibre suppliers (but ability for the Commission to approve exemptions on case-by-case basis): While this prohibition may interfere with potential synergies/economies of scope, it is in itself pro-competitive, because for the vertical markets that it covers it prevents anti-competitive foreclosure behavior. On the other hand, LFC entry in such markets may be to the LTBEU if no one else enters.
- The Commission has the opportunity to recommend changes to the initial regulatory settings from the second regulatory period onward, presumably based on evidence and estimates that the Commission staff would prepare. This opportunity could potentially be used for concrete applications of s166(2)(b).
- Tools concerning L1 and L2 services:
 - o Mandatory requirement to provide an entry-level L2 service, and a mobile input service, at current prices (but can move to a cost-based price).
 - o Requirement under Government contracts for suppliers to fully build out at L2 level ahead of demand.
 - o Possibility for requiring cost-based L1 unbundled fibre access (from 2026).
 - o There is some tension between these three tools caused in particular by their different timing. This can potentially lead to difficulties with promoting competition.
- Withdrawal of Chorus copper services allowed from 2020 (subject to minimum conditions designed to safeguard copper end-users). It appears that this tool cannot be actively used to promote competition by an independent copper provider.
- The fibre input methodologies (IMs)
 - o The capex approvals IM will set rules for approving capex forecasts for expenditure that will be added to the RAB once eventualised. Such approvals or denials definitely can affect competition. For example, some capex may overbuild or pre-empt build into new areas, other capex may enhance downstream competition. Although the impact of capex on competition should, in our view, be considered in the Commission's capex decisions, we believe that this would be a problematic tool to be used proactively. It is asymmetric, because its use depends on capex proposals by the regulated firms but not by the regulator. Second, conditioning capex approvals on promoting competition can induce stakeholders procedurally to hold up investments that would be in the LTBEU but not enhance competition.

- The cost allocation IM will set rules for how common costs should be allocated (between regulated and unregulated services, and potentially between different regulated services), and subsequently disclosed through ID. Cost allocation was already prominently mentioned as a potentially pro-competitive tool in our pricing report (Vogelsang and Cave, 2019). It is definitely important (a) for PQ regulation of the relevant services and (b) for discovering anti-competitive behaviour. A major question here is that of granularity. Given that the LFCs deliver various services that share many common input components, directly attributable costs for a service are likely to cover only a small fraction of total costs. This share can be increased for groups of services that use common inputs but do not share those inputs with other groups of services. One can then have a hierarchy of levels of sharing. Such hierarchies, however will not be practicable for everyday reporting. For reporting purposes we therefore suggest differentiating only between two levels, the individual service and the sharing by all services. A third level could be common overhead costs. Under ID this kind of cost allocation would allow assessing profitability or price cost margins for individual services and groups of services based on directly attributable costs. A question is if further differentiations could be necessary for specific controversial cases.
- In our pricing report (Vogelsang & Cave, 2019) we recommended that at this time the Commission not introduce additional pricing principles/methods besides those already available via the current tool set. We did this, because we felt that the LFCs already face a bewildering set of pricing constraints and that such principles would only address those services not already fully covered by currently available constraints. Furthermore we felt that such principles can be largely addressed via the cost allocation IM.

Looking at the set of all these tools provided by the Act, with the exception of s210 (deregulation) they are the same tools the Commission would use for giving effect to the s162 purpose alone without the additional aim of promoting actual workable competition introduced by s166(2)(b). So, the main question is how would the application of those tools differ when it comes to promoting actual competition rather than only achieving an outcome that is compatible with the outcome of workable competition?

As a very stylized case, consider a simple homogeneous monopoly that is PQ-regulated with the s162 purpose in mind. With the s162 objectives innovation and investment and rent extraction being major concerns this would lead to a balanced price that would be high enough to cover risks and incentives for innovative investments and low enough to keep customers happy. Would it, however, encourage competition? We have stipulated that the regulated price is just high enough for a monopolist to invest and innovate. In the presence of economies of scale such a price would not be just high enough to accommodate a second investing and innovating rival. Rather, in order to promote infrastructure competition the regulated price has to be higher in the

hope that competition will materialize and lead to a price below the regulated price. Such a regulatory competition promotion strategy would be inherently risky, because competition may not materialize and even if it does, the resulting price may be higher than under pure monopoly regulation. Furthermore, if prices are set high enough to encourage (infrastructure) entry, there is a trade-off with consumer take-up, which might mean an inability of the LFC to recover costs overall (under the rules of the Act leading to wash-ups, leading to an (ever-)increasing RAB in subsequent periods – particularly if entry occurs). This is of course assuming that regulation is maintained after entry occurs.

In this stylized example we have assumed the presence of economies of scale at the market output level. This would characterize a natural monopoly so that competition may not be advisable in this case. However, if economies of scale are weak competition may be preferable to regulated monopoly. This could hold, for example, because competition forces firms to become more efficient or because competitors introduce product differentiation.

In the stylized example we have furthermore not considered wholesale access, which allows for downstream competition if economies of scale are only strong upstream. This is the option chosen by New Zealand. It has led to vigorous downstream competition. This positive result, however, can create tradeoffs with infrastructure competition. Thus, the tools provided by the Act appear to be strong for service competition but weak or contrary to infrastructure competition.

2.7. Interim conclusions

This section has been a tour de force through various issues that need to be addressed before making decisions on the promotion of competition and on deregulation.

We first established the main tradeoffs involved in decisions whether and when to promote competition. These tradeoffs in particular concern the loss of efficiencies in the form of duplication costs or lost synergies that are associated with the promotion of competition and have to be traded off against the advantages of competition in terms of pricing, innovation, or product differentiation. These tradeoffs depend, among others, on the type of market and on geographic and demand factors. Promoting competition can also interfere with regulatory commitment, depending on promises made, if any, at some time.

We then considered the set of markets to be addressed by the policies for our tasks. They in principle include all markets in which the LFCs are active or which depend on them. In this context we distinguished three crucial market relationships, (1) vertical relationships with the LFCs' direct customers, with which the LFCs compete at a downstream level, (2) quasi-horizontal relationships between different types of buyers of the LFCs' services, and (3) relationships between LFCs and independent (intermodal) infrastructure competitors.

Next we addressed the information requirements for the competition analysis in each market. We emphasized that those requirements can be heavy. The Commission should therefore restrict itself to markets that by a cursory analysis are deemed ready for policy action.

The following section took up the nature of barriers to competition that would need to be overcome in order to promote competition. For practical reasons we distinguished between structural, legal and behavioral barriers.

Last, we presented the large set of tools available to the Commission for promoting competition and for deregulation decisions. These tools were largely established for the current framework of dominant UFB infrastructure providers with wholesale access and unbundling obligations. They contain specific restrictions, such as “geographic consistency” that may stand in the way of certain policies for promoting competition or for deregulation.

3. The framework for deregulation decisions

In the following Section 3.1 we first raise some general deregulation issues followed in Section 3.2 by the New Zealand legal framework of s210. We then in Section 3.3 develop evaluation standards for the deregulation decision, consisting of the s210 standard, the essential facility approach, and, in particular, a modified EU standard. In Section 3.4 we then describe the required market analysis followed in Section 3.5 by the counterfactual market analysis and in Section 3.6 conclude with the decision stage.

3.1. Would deregulation promote competition and benefit end-users?

The first issue we raise in this section is: what is the effect of deregulation - in this instance of services provided by Chorus and other LFCs - on the level of competition in the relevant markets, and on the welfare of end users. Here the level of competition can be assessed using several metrics, like those discussed in Section 2.4 above and including the structure of the market (e.g. the number of competitors and the distribution of market shares), the closeness of price to marginal cost, and the speed at which innovation is occurring - compared with other countries, for example. It will be important in practice to take account of competition which falls outside the confines of the market – in the case of fixed broadband, for example, from alternative products such as 5G.

The second issue concerns the impact of deregulation, not on market structure but on the welfare of end users of the relevant services. This question intersects with a large number of widely discussed and fundamental issues in industrial organization. These include the questions of 'excessive competition,' especially in industries with sunk costs, and what impact market structure has on innovation.

Here we will limit ourselves to addressing narrower questions concerning the possible outcomes of deregulation in previously regulated markets.

By deregulation in this context, we mean the removal of some or all of the sector-specific rules affecting wholesale products offered by Chorus and the other LFCs, in particular the price-quality paths or ID requirements. One of the questions we ask is thus: how would these companies choose to price their products when freed from these constraints, subject only to New Zealand competition law? This is what we call the “counterfactual” analysis, which we come back to in Section 3.5.

A number of different outcomes might eventuate, depending on the presence of actual or potential competition. An actual competitor with costs already sunk and with excess capacity would represent an immediate constraint, the scale of which would depend on the degree of horizontal or vertical product differentiation. In a case where the competitor would first be required to make major sunk investments before offering services, the hypothetical deregulated firm would be able to raise its prices in the interim. But the competitor would clearly base its investment decision on its conjecture of the post-entry price, and entry might be permanently delayed if the deregulated firm could signal an intention to lower its price if entry occurred.

Alternatively, the deregulated firm could accommodate the entry, and collude with the entrant, tacitly or otherwise. It is notable that in 2018, the Consumer and Market Authority (ACM) in the Netherlands, which regulates telecommunications, concluded that the two firms in the country's wholesale fixed access market (KPN and VodafoneZiggo) exercised joint or collective significant market power, and thus could be expected to collude tacitly in that market. On foot of that decision, and after scrutiny of it by the European Commission, the regulator imposed access obligations on both firms.⁸

This short analysis underlines the high degree of case-dependence of any analysis of the likely effect of deregulation. This is borne out by the most prominent and widespread example of a systematic approach to the deregulation of individual markets in a specified geographic market provided by the regime introduced in 2003 for the regulation of electronic communications services in the European Union.⁹ In Section 3.3.2. we describe this in some detail, as a precursor to speculating about what sort of regime for taking deregulation decisions might be considered appropriate in NZ.

3.2. The New Zealand legal provisions for deregulation

Before addressing alternative ways of dealing with deregulation we need to present the New Zealand legal standard of s210. It states:

(1) The Commission may, at any time after the implementation date, review how 1 or more fibre fixed line access services [that] are regulated under this Part if the Commission has reasonable grounds to consider that those services—

⁸ See <https://ec.europa.eu/digital-single-market/en/news/commission-issues-comments-proposed-regulation-wholesale-internet-access-market-netherlands>

⁹ See <https://ec.europa.eu/digital-single-market/en/telecoms>

- (a) *should no longer be regulated under this Part; or*
- (b) *should no longer be subject to price-quality regulation under this Part.*

(2) *For the purposes of subsection (1), the Commission may, without limitation, describe a service under review with reference to any 1 or more of the following:*

- (a) *the geographic area in which the service is supplied;*
- (b) *the service's end-users;*
- (c) *the service providers who seek access to the service;*
- (d) *the technical specifications of the service;*
- (e) *any other circumstances in which the service is supplied.*

(3) *The Commission must, before the start of each regulatory period (except the first regulatory period), consider whether there are reasonable grounds to start a review.*

(4) *A review may consider the following:*

- (a) *whether competition to 1 or more fibre fixed line access services has increased or decreased in a relevant market;*
- (b) *the impact of any increase or decrease on the ability of regulated fibre service providers to exercise substantial market power;*
- (c) *whether the purpose of this Part would be better met if 1 or more fibre fixed line access services—*
 - (i) *were no longer regulated under this Part; or*
 - (ii) *were no longer subject to price-quality regulation under this Part.*

(5) *The Commission must give interested persons a reasonable opportunity to give their views on the matters subject to review and the Commission must have regard to any views received.*

(6) *The Commission must make a recommendation to the Minister after a review.*

s210(1) allows for differentiated deregulation by type of regulation, while s210(2) allows for differentiation by service. Both these sub-sections could open up possibilities for the Commission to deregulate in small steps, thus acquiring information about the success of previous steps.

As we will see below s210(3) has similarities with the EU approach of addressing the deregulation question at each regulatory period.

s210(4) provides evaluation standards for the deregulation decisions. The standards suggested by us below in Section 3.3.3 of this report are compatible with these standards. Again, as described below in Section 3.3.2 these standards have similarity with the EU's three criteria test plus the presence of substantial market power.

s210(5) and s210(6) are procedural provisions that do not concern this report.

3.3. Evaluation standards for deregulation

Since our focus is on the regulated fibre providers' business, we here restrict ourselves to wholesale markets. The evaluation standard for deregulation, which we propose and which in our view is compatible with s210(4) is that the state and expected development of competition are such that competition policy can deal with the problems arising in such markets in a better way than regulation can. In a market economy industry-specific regulation is the exception, and markets only subject to competition policy are the rule. In wholesale markets competition policy can deal with most problems of non-competitive market structures and behaviors. As explained below in Section 3.3.3 it cannot deal with some particularly pervasive problems of network industries, such as persistent monopoly, however.

3.3.1. The essential facility approach

The essential facility approach has its origin in US antitrust, going back to the Terminal Railroads case tried before the US Supreme Court (*United States v. Terminal R.R. Ass'n*, 224 U.S. 383 (1912)). It did not have a very successful antitrust history but formed the theoretical basis for wholesale access regulation in electricity and telecommunications. An essential facility is characterized by the following properties:

- Owned by a single party
- Very difficult/impossible to duplicate (natural monopoly property)
- Essential for competitors to compete (fixed input proportions)
- Incumbent does not allow access to competitors
- Incumbent could provide access without excessive difficulty.

The failure of the essential facilities doctrine in antitrust clearly shows that for essential facilities competition policy does not work (Areeda, 1989) and that therefore access regulation is warranted. The essential facilities approach to deregulation turns this argument around to call for deregulation if a facility no longer has the properties of an essential facility. This is a very sharp criterion that sets a high standard for regulation and a lenient standard for deregulation, since it would prescribe deregulation already if a facility is duplicated or if there exists another type of facility that allows for duopoly competition downstream.¹⁰ Even if this is too soft a standard for

¹⁰ European jurisprudence has established a different but similarly high standard for mandating access to facilities under competition law. See Dunne (2015).

full-fledged deregulation it may be sufficient for partial deregulation, such as a move from PQ to ID.

3.3.2. Criteria for deregulation used in the EU and their attainment

The most prominent example of application of a general approach to the deregulation of individual markets in a specified geographic area is provided by the regime introduced in 2003 for the regulation of electronic communication services in the European Union. It has operated with relatively small changes since then.

The process is complicated by the fact that, within the federal EU system, responsibilities are divided between the European Commission (EC) and the national regulatory authority (NRA) of each of the 28 member states - and each side has tried over time to expand or retain its own powers. But the underlying idea could be applied more simply in a unified governance regime, such as New Zealand.

The European framework for regulation of electronic communication services (ECS) came into force in 2003. Its main objectives were to simplify the previous regimes, to apply them in a technologically neutral manner, and to encourage competition while guaranteeing user rights. The new regime was perceived as a major step down the transition path between regulated monopoly and normal competition, governed exclusively by generic competition law. The regulations that may be imposed under the regime are heavily circumscribed, and many require a demonstration that an operator has significant market power (SMP). Its provisions are applied across a range of ‘electronic communications services’, ignoring pre-convergence distinctions. It thus represented from the outset an attempt to corral the NRAs down the path of deregulation – but allowing them, however, to proceed at their own pace (but within the uniform framework necessary for the EU internal market).

Under so-called “Directives”, the European Commission first establishes and then from time to time revisits a list of markets where *ex ante* regulation is permissible, the markets being defined according to normal competition law principles.¹¹ These markets are then adapted and analyzed by NRAs with the aim of identifying SMP (on a forward-looking basis). The SMP can be exercised by a single firm, by two or more firms jointly ('collective dominance') or it can be transmitted from one market into a vertically related one. Where no dominance is found, *ex ante* obligations may not be imposed on any undertaking in the relevant market, but *ex post* competition law would still apply. Where dominance is found, the choice of an appropriate remedy must be made from a specified list.

Thus the effect of the regime is to create a series of market-by-market ‘sunset clauses’ which reduce the level of *ex ante* regulation as the scope of effective competition expands.

¹¹ The European experience shows that it may be hard or impossible to use a cleanly defined market concept for this purpose (Hellwig, 2008). However, the search for such market and the policy based determination of it have proven to be valuable.

Successive versions of a Recommendation on relevant markets in 2003, 2007 and 2014 identify those markets which, in the European Commission's view, may warrant *ex ante* regulation. Markets must here be defined in accordance with the principles of competition law. NRAs may vary the markets subject to objection by the European Commission. Member States can also analyse additional markets, using specified (and quite exacting) procedures.

In particular, the Recommendation operates by applying three cumulative criteria for identifying those markets which are deemed suitable for *ex ante* regulation:

- 1) High and non-transitory barriers to entry over the period of application of remedies,
- 2) The expected persistence of such barriers to entry beyond that period (making the prospect of effective competition unlikely), and
- 3) The inability of competition law adequately to address the particular issue.

The second of these is simply a projection into the more distant future of the first (albeit difficult to apply in practice). The third, cumulative, criterion is whether competition law is sufficient to address the particular market failures of criteria 1 and 2. Most recently this has proved particularly contentious when the form of SMP in question has been of the joint or collective dominance, rather than single-firm type. Other than that the third criterion has, to the best of our knowledge, never been seriously analyzed in terms of the tradeoffs between using competition policy and *ex ante* industry-specific regulation. This is of obvious importance because, in a particular country, regulation policy can be strong and competition policy weak or, vice versa, competition policy can be strong and regulation can be weak. Thus, below in the next section we address this issue in more detail, because it is crucial for any deregulation decision.

Pursuant to Article 16 of the Framework Directive, the regulatory framework only permitted the imposition of *ex ante* regulation where one or more undertakings are found to have significant market power in a market fulfilling all three of the above criteria. The definition of SMP is identical to the standard definition of dominance determined and repeated by the European Court of Justice, but with the major difference that it is applied on a forward-looking basis. This is a major step forward towards the convergence of approaches under regulation and competition law.

The European Commission's Guidelines on Market Analysis¹² contain the principles to be used by NRAs in determining whether an undertaking has SMP. Essentially, to determine whether one or more undertakings have SMP (i.e. whether effective competition is absent), NRAs must evaluate current conditions on the relevant market. Where the analysis indicates an absence of

¹² European Commission, Guidelines on market analysis and assessment of market power, (2002/c 165/03). A revised version was published in 2018 - Guidelines on market analysis and the assessment of significant market power (C(2018) 2374 final). Amongst other things, the latter attached greater importance to market power exercised on a joint or collective basis.

effective competition, the NRA must then examine whether the market may be “prospectively competitive”.

Since cumulative presence of the three above conditions plus a firm with SMP are the conditions for regulation, the EU framework recommends deregulation if at least one of the criteria is not fulfilled (or if there is no firm with SMP).

Under the Directives, NRAs have the power to impose obligations on firms found to enjoy SMP in a relevant market. Essentially, for wholesale markets the remedies were contained in Articles 9-13 of the Access Directive, while for retail markets the remedies are contained in Articles 17-19 of the Universal Service Obligations Directive. The wholesale remedies are, in ascending order of rigor: transparency, non-discrimination, separate accounting, mandatory access, and cost-oriented pricing. NRAs must act within a framework of duties set out in Article 8 of the Framework Directive and the measures they take must be proportionate to the policy objectives identified. This can be construed as meaning that the intervention is appropriate, no more than is necessary, and, by implication, satisfies a cost-benefit test.

This list of regulatory interventions shows that, in principle, the EU framework would allow for different steps of deregulation by imposing less rigorous remedies in cases, where full deregulation is not (yet) called for. To the best of our knowledge this possibility has never been applied in practice.

The substantial deregulation of telecommunications markets accomplished by the 2003 European Framework is graphically illustrated in a somewhat complex figure, shown as Figure 1, prepared by European Commission,¹³ in which the sea of red boxes on the left show where SMP is currently found in the shrinking number of markets subject to mandatory inspection in the latest (2014) Recommendation, while the sea of green boxes on the right show the markets included in the original (2003) Recommendation which have been found to be free from *ex ante* significant market power and deregulated.

Comparing the EU approach to s210(4) we note that s210(4)(a) and (b) correspond quite well to criteria 1 and 2. There does not seem to exist an explicit criterion 1 in s210(4), but it can be read into it by noting that an analysis of trends presupposes the analysis of the starting level. s210(4)(b) also makes the lack of ability to exercise SMP an important criterion for deregulation. Last, 210(4)(c) can be interpreted in the way of EU’s criterion 3 or, as we explain next, as requiring a comparison between staying under regulation and moving to general competition policy.

¹³

See https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=48685

Article 7 cases as at 30/06/2019



 Effective competition - no ex ante regulation
 No effective competition - ex ante regulation
 Partial competition - partial ex ante regulation

		2003 RECOMMENDATION															
		2007 REC.						2014 RECOMMENDATION									
		Call term. on fixed network	Voice call term. on mobile networks	Wholesale local access	Wholesale central access	Wholesale high-quality access	Access to PTT for res. & non-res.	Call orig. on fixed network	Locality. Call for res.	Locality. call for non-res.	Internal. call for non-res.	Internal. call for non-res.	Local/LL transit	Trunk segments LL	Transit on fixed network	Access & call cong. on mobile network	Broadcast Transm.
Austria	2	4	3	5	5	5	4	4	3	2	4	3	4	2	1	4	
Belgium	2	3	3	3	3	3	3	3	3	1	3	1	1	1	1	1	
Bulgaria	3	3	2	2	2	2	3	2	2	2	2	1	1	1	1	1	
Croatia	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	
Cyprus	2	3	4	4	3	3	3	3	2	2	3	2	2	1	1	2	
Czech Republic	4	4	4	4	3	2	4	4	2	2	2	1	1	1	1	2	
Denmark	4	4	4	4	4	4	4	4	2	2	1	1	1	1	1	1	
Estonia	4	4	4	4	4	4	4	4	1	1	1	1	1	1	1	1	
Iceland	3	1	4	4	1	2	3	2	1	1	2	1	1	1	1	1	
France	5	5	5	5	5	5	5	5	1	1	1	1	1	1	1	4	
Germany	5	5	3	3	2	2	3	3	2	1	2	1	1	1	1	4	
Greece	3	4	4	4	4	2	3	2	3	1	2	2	1	1	1	2	
Hungary	4	6	4	4	4	4	6	4	3	3	2	2	2	2	2	2	
Ireland	4	5	3	3	3	2	3	2	2	2	2	2	2	2	2	2	
Italy	3	5	3	3	2	2	3	2	2	2	2	2	2	2	2	2	
Latvia	6	5	4	4	3	3	3	2	3	4	3	2	2	2	2	2	
Lithuania	6	3	3	3	2	2	1	3	2	2	2	1	1	1	1	2	
Luxembourg	3	4	3	3	2	3	3	2	2	2	2	2	2	1	1	2	
Malta	4	4	2	2	3	3	3	2	2	2	2	2	2	2	2	2	
Netherlands	6	6	6	4	4	3	4	3	2	2	2	2	2	2	2	2	
Poland	3	5	3	3	4	1	3	3	2	2	2	2	2	1	1	3	
Portugal	3	3	3	3	3	3	3	3	2	2	2	2	1	1	1	2	
Romania	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	
Slovakia	4	5	3	3	3	2	4	4	4	2	2	2	2	2	2	2	
Slovenia	2	6	4	4	4	4	4	4	3	2	1	1	1	1	1	2	
Spain	3	4	3	3	3	3	3	3	2	2	2	2	2	2	2	2	
Sweden	4	4	3	3	3	3	3	3	1	1	1	1	1	1	1	2	
United Kingdom	3	6	3	3	3	3	3	3	2	2	2	2	2	2	2	2	

3.3.3. The suggested evaluation framework

The EU deregulation framework is conceptually elegant and clear. We therefore suggest that the New Zealand approach to deregulation follows the same logic of using the 3-criteria test along with a dominant firm test. However, we found that criterion 3 of the 3-criteria test is excessively vague and needs to be replaced by a more involved test that compares regulation and competition policy, resulting in an “augmented” criterion 3. In particular criterion 3 as is never spelled out why competition policy cannot deal with the problems caused by criteria 1 and 2, while regulation can. It also deals with this as a “can” or “cannot” question, while both policies are sufficiently imperfect so that their abilities only differ by degree.

Table 1: Properties of regulation and competition policy

Properties of regulation in contrast to competition policy	Advantages	Drawbacks
• Ex ante remedies	<ul style="list-style-type: none"> Potential immediacy Dependability, precision, prevention of harm 	<ul style="list-style-type: none"> Often drawn out decisions, slow to let go of status quo Reduction of freedom to compete and innovate Unjustified interventions
• Specialized industry-specific agency	<ul style="list-style-type: none"> Specialized knowledge, speed of intervention 	<ul style="list-style-type: none"> Influence of interest groups; concern with distributional issues Too specialized Too much (or too little) regulation
<ul style="list-style-type: none"> Prescriptive intervention (affirmative duties) Pricing Quality setting 	<ul style="list-style-type: none"> Strong influence on desired behavior, precision Dependability Can treat externalities 	<ul style="list-style-type: none"> Reduction of freedom to compete and innovate Inefficiencies from asymmetric information Too much intervention

We here take a generic approach toward deregulation of wholesale markets as the starting point.¹⁴ The measuring rod for deregulation is the answer to the question, can competition policy better achieve the policy goals of s162 and s166(2)(b) than regulation? Given that competition policy is supposed to maintain and spur competition, how does it differ from regulation? Table 1 contrasts features of regulation with those of competition policy, where in column 1 the properties of regulation are emphasized, while competition policy is viewed as possessing the opposite properties, meaning that competition policy imposes ex post remedies, is handled by a

¹⁴ The following draws on Vogelsang (2017).

generalist agency and is unable to impose prescriptive interventions on pricing and quality. In contrast to regulation, competition policy being very general implies great adaptability to new industries and situations, but it has a limited set of industry-specific policy tools.

The differentiation brought out in Table 1 is not always sharp but in our view it mostly holds for the relevant issues raised here. Table 1 brings out the tension between the potential of industry-specific regulation to be effective in having strong influence and in preventing harm and its restriction of the freedom of regulated firms to compete and to appropriate the benefits of innovations. In addition there are examples of fast regulatory decisions, such as access to unbundled local loops (ULL) in Germany, and drawn-out decisions, such as the delayed introduction of bitstream access in Germany and of ULL in the UK, which show that policy instruments can be played well or badly.

Table 2: Inappropriateness of general competition law

Property of competition law	Competition law inappropriate if....	→ Competition law is inappropriate for...
<ul style="list-style-type: none"> Requirement to prove violation can take long time, lowering deterrence 	<ul style="list-style-type: none"> Large, irreparable damages (<i>compensated by large penalties = deterrence?</i>) Difficult and lengthy to prove abuses in changing environment Frequent and repeated abuses 	<ul style="list-style-type: none"> Access to monopolistic bottlenecks Predation against and foreclosure of competitors Abuses in fast-changing markets
<ul style="list-style-type: none"> Inability to set prices 	<ul style="list-style-type: none"> Lack of comparable markets Economies of scale and scope Long duration of intervention in a changing environment 	<ul style="list-style-type: none"> Access to monopolistic bottlenecks Market dominance in access market Monopoly in end-user market
<ul style="list-style-type: none"> Inability of supervision 	<ul style="list-style-type: none"> High information requirements Continuous supervision requirements 	<ul style="list-style-type: none"> Access obligations Price regulation
<ul style="list-style-type: none"> Inability to deal with externalities 	<ul style="list-style-type: none"> Externalities unrelated to competition/market power 	<ul style="list-style-type: none"> Interconnection Environmental issues

Do the drawbacks of regulation alluded to in Table 1 mean that competition policy is better for telecommunications markets than regulation? The answer both varies by individual market and depends on the corresponding properties of competition policy. For present purposes we confine the discussion to wholesale markets. Table 2 therefore points out the limitations for a move towards general competition law. In particular if under deregulation systemic abuses by dominant firms with large, irreparable damages can be expected and if they cannot be deterred

by competition policy penalties then regulation remains preferable. This holds, in particular, for genuine essential facilities or bottlenecks, which competition policy cannot deal with adequately (Areeda, 1989). Competition policy also cannot address external effects that do not affect competition. Furthermore, while regulation tends to delay activities by regulated firms that require regulation, competition policy will not necessarily be faster than regulation, although the effects of competition policy delays will be different. They will delay remedies, meaning that competition policy can be subject to substantial uncertainties, but will in most cases be less constraining on the behavior of dominant firms.

In the case of infrequent and ambiguous abuses competition policy would normally resort to a rule of reason approach. In that case ex ante regulation is unlikely to be better, because the behavior to be sanctioned can be good or bad, depending on the circumstances. In contrast, in cases of frequent abuses with clearly inefficient consequences competition policy suggests a *per se* rule. In such cases ex ante regulation may or may not be better than competition policy. It may be better because it prevents abuses directly and can be applied on a continuous basis. However, competition policy in such cases may be very predictable and could therefore effectively use penalties to deter bad behavior.

Tables 1 and 2 suggest that the application of criterion 3 of the EU framework depends on the strength of the regulatory agency and the competition policy of the particular country. New Zealand differs in particular in two respects from the generic approach shown in the two tables. First, regulation policy and competition policy are done by the same agency, although by different people. This should weaken the differences between the two and therefore facilitate deregulation. Second, competition policy vis-à-vis dominant firms is softer in New Zealand than in the EU, US and other countries. In particular, s36 of the New Zealand Commerce Act 1986 has been interpreted to rely on a “counterfactual” test for the detection of abusive unilateral acts by firms with substantial market power. Under this test courts have been directed “to ask whether a firm lacking substantial market power would have engaged in the same conduct, and from the answer to that question to infer the likely effects of the conduct by the firm with market power.” (Gavil, 2015). Rather than considering the dominant firm’s abusive behavior the test concentrates on the behavior of an imagined competitive firm. In particular, Gavil (2015) argues that this counterfactual test will likely result in systematic under-deterrence of such conduct. This feature goes against deregulation and, in our view, deserves more weight than the first New Zealand feature. As a result, while one of us has suggested an essential facilities yardstick for fibre deregulation in the EU (Vogelsang, 2019), we lean towards a dominant firm yardstick as our recommendation for New Zealand.

Thus, our general deregulation proposal for New Zealand is to continue regulation of a firm or service only if all the following continue to be satisfied for the wholesale market in question:

- A. The regulated firm has SMP in this market.
- B. The following three criteria hold
 - 1) There are high and non-transitory barriers to entry over the period considered,
 - 2) Such barriers to entry are expected to persist beyond that period (making the prospect of effective competition unlikely), and
 - 3) Regulation can more effectively yield better results for the LTBEU in this market than the application of general competition law. This can be interpreted as applying an implicit cost-benefit test.¹⁵

Thus, if one of these conditions is not fulfilled deregulation is indicated.

The European experience has indicated that fulfillment of the criteria and the presence of SMP are not always measurable without some doubt. In such more doubtful or borderline cases different levels of deregulation may be appropriate. Clearly, different yardsticks will be appropriate for different levels of deregulation (for example, from PQ to ID or PQ to complete deregulation) or for deregulation of specific products and/or single geographic areas vs deregulation of all products (and/or across all geographies). Particularly important for New Zealand will be the side effects of partial deregulation on “neighboring” markets. As mentioned above, deregulation of a geographic market affects the regulatory tools for the other geographic markets that continue to be under regulation. Such effects can be detrimental and therefore should be taken into consideration when deregulating a particular market or service.

3.4. Market analysis

The market analysis done for the purpose of making deregulation decisions is looking for actual competition in the particular market given the current regulatory constellation. If a market is found to be competitive there cannot be “high and non-transitory barriers to entry” and no SMP. In contrast, if a particular market is not shown to be sufficiently competitive with regulation it is very unlikely to be competitive without the regulation. Such unlikely case could arise if regulation is distortive and therefore prevents competition. Unless such distortions are found, a non-competitive market would not be a candidate for deregulation. The analysis should also look forward towards prospective competition, although we believe that a mere expectation of competition would not generally justify deregulation decisions, unless it is based on sound evidence that the underlying entry barrier will vanish. A particularly important form of prospective competition could come from a merger of previously separate markets, such as the markets for mobile and fixed line services. If a market is currently viewed as sufficiently

¹⁵ A subtlety here may come into play if regulation is well established for the sector, while competition law still has to “learn”. However, this can cut both ways if stakeholders have more influence on regulation than on the application of competition law.

competitive the question should be asked if competition would persist if the regulation were abolished. We thus have to move to the counterfactual assessment stage.

3.5. Counterfactual assessment under deregulation

The question to be answered for the counterfactual under deregulation is quite clear. The starting point is the assessment of the actual: is there evidence of enough competition? Although the questions to be answered by the counterfactual are clear, finding the answer may be empirically difficult. Would deregulation i) promote (further) competition and ii) benefit end users? Regulation could keep prices artificially low and thereby make entry by others unattractive. A duopoly, for example, may lead to higher prices under deregulation than if the dominant firm were regulated. This could lead to collective dominance. Conversely, under deregulation the incumbent could be an aggressive competitor, using foreclosure or predation or being simply in a highly competitive situation because of sunk costs etc. In these circumstances, is continuing regulation or deregulation justified? Under s166(2)(b) we believe that the burden of proof should be on justifying deregulation. The remaining question then is if there would be enough competition if regulation would cease.

In the absence of full infrastructure competition the counterfactual is different from the above for the case of deregulation of a particular end-user market, when there is wholesale access. In this case end-user deregulation is recommended – absent other reasons - if the wholesale access delivers sufficient and stable downstream competition. This is the situation in telecommunications markets in many countries throughout the world. More difficult is the question of deregulation of one type of wholesale access, when there are other regulated wholesale access products which are not subject to competition. In that case, if the upstream wholesale access regulation alone delivers stable downstream competition then the downstream access regulation may be abolished. This could, for example, happen if L1 access were regulated successfully so that L1 access seekers (a) compete vigorously for end-users and (b) competitively sell L2 wholesale access to L2 access seekers. In that case L2 wholesale access could be deregulated, provided the counterfactual analysis suggests that price squeeze by the now deregulated LFC will not be a problem or that it can be addressed by general competition policy.

3.6. Decision

For regulation to cease at almost every level the presence of several competing infrastructures with wide coverage would be both necessary and sufficient. Whether two infrastructures with substantial coverage would be sufficient is heavily debated, but partial deregulation, such as a move from PQ to ID regulation, may be uncontroversial. The deregulation decision under s210 can be nuanced in several ways. There can be full deregulation, but there can also be partial deregulation restricted to a particular service or to a particular type of regulation. Thus, a particular service could be deregulated if it represents an identifiable market with sufficient

competition, as evidenced by a sufficiently low HHI and by observed removal of entry barriers. A particular tougher form of regulation could be abandoned and replaced by a weaker form rather than move to full deregulation if competition is not (yet) viewed as being sufficient, for example, because competitors have an overall small market share or limited coverage.

4. The framework for promoting competition

This section starts out with the EU approach to promoting competition followed in Section 4.2 by our proposed framework. Section 4.3 then deals with the required market analysis of current and expected competition, while Section 4.4 concerns the corresponding counterfactuals based on our framework.

4.1. The EU approach to promoting competition

EU Member States have adopted diverse policies, with some of them promoting infrastructure competition strongly, and others adopting fibre policies which have strengthened the dominant position of the historic monopolist.

The deregulatory outcome under the EU framework described in Section 3 above has been accomplished by a regime which had an express goal of promoting competition. In this connection Article 8 of the EU Access Directive specifies policy objectives, but does not go so far as to determine the weights appropriate for use in a cost-benefit analysis. For example, Article 8(2) requires NRAs to promote competition for electronic communications networks and services by maximizing users' choice and value for money, eliminating distortions or restrictions to competition and encouraging efficient investment in infrastructure. Further, Article 7(4) of the Framework Directive required NRAs to promote the interest of EU citizens by, *inter alia*, providing consumers with protection in their dealings with suppliers, and requiring transparency of tariffs and conditions for the use of publicly available electronic communications services.

In the period up to 2010, the framework was particularly successful in encouraging access-based entry in copper broadband using ADSL technology and relying largely on passive local loop unbundling, rather than an active bitstream type product. This was accomplished by NRAs setting access prices for the (sunk) copper local access assets which encouraged competitors to extend their own infrastructure investments.

When next generation networks began to be introduced, in some Member States a new active access product – i.e. one which like bitstream incorporates electronic components - was created which continued to rely on copper for the connection to the customer premises (FTTN or fibre to the node). This permitted a quick roll-out of fibre but increased the role of the former monopolist.

In other Member States, only access to civil works (ducts and poles) was mandated. This generated an investment race to install fibre to the home or FTTH. In Portugal and Spain, this has led to the emergence of high levels of FTTH penetration, offered on a head-to-head basis by multiple telecommunications providers – augmented in many areas by cable operators. This transition to an oligopolistic market structure has, in the eyes of some regulators, raised the spectre of tacit collusion or collective dominance (Cave et al., 2018).

The latest version of the EU rules, known as the European Electronic Communications Code¹⁶ (EECC) refocuses attention on investment in very high speed connectivity. This involves some rethinking or rebalancing of the infrastructure competition objective, manifested for example in a complex arrangement for incentivizing co-investment by several firms in a shared fixed local access infrastructure (Vogelsang, 2019).

The perhaps most important factor relevant to fix the preconditions for deregulation in broadband markets has been that both the access products successively made available to competitors – notably access to copper loops in the last decade and access to ducts and poles in the current decade - and the terms on which they were made available, were in fact found to be useful to and used by infrastructure-based competitors in their progress in gaining a substantial foothold in the fixed broadband market place.

The natural question to ask about the EU case is: has the game been worth the candle, in the sense that end users in the EU have received a long term benefit from the EU's explicit goal of promoting competition and deregulating markets?

More generally, can the EU experience shed any light on how the promotion of workable competition impacts on the long term benefits of end-users? Clearly answering this question requires the specification of a counterfactual, which seems to be the absence of the promotion of competition, which may – but not as a logical necessity – lead to the continuation of regulation.

Consistent data over many years are available on the development of broadband markets in the 28 member states of the EU and have been subject to extensive econometric analysis.¹⁷ This has largely been directed at establishing the effects of different forms of access regulation, in both the copper and the fibre eras. In crude summary, this literature has established that customers may benefit more from head-to-head than from access-based competition, and that harsh regulation of access to fibre can deter fibre investment and take-up.

But because competition is a primary goal of the European regime, the results are generally silent on the impact of continued regulation of a statutory monopoly. Despite this the EU experience may be helpful as a deregulatory observation which may help in identifying alternative possible approaches to promoting the development of competition.

¹⁶ European Parliament and Council. Directive (EU) of the European Parliament and Council establishing the European electronic communications code, 21 November 2018.

¹⁷ See in particular the survey by Abrardi and Cambini (2019).

4.2. A framework for promoting workable competition

For deregulation decisions the EU has created a systematic framework that we have built upon. In contrast, the EU and other jurisdictions in the past have seen the promotion of competition as self-evident, although limiting principles were implicitly used (such as the impossibility to generate workable competition). Lately, under the new European Electronic Communications Code (EECC) the EU has set investment in high-speed infrastructure as an additional goal that partially competes with the goal of promoting competition.¹⁸ In New Zealand this tradeoff between competition and innovative and risky investment has been clearer at least since the vertical separation of Telecom New Zealand and the creation of the UFB initiative. Thus, the promotion of workable competition is advisable only if it either does not conflict with the goals set out in s162 or if conflicts between the single goals are balanced.

Markets with workable competition should be deregulated, as has happened in end-user markets all over the world. Thus, candidate markets for deregulation are deemed more competitive than candidate markets for promotion of competition by the Commission. This means that in candidate markets for promotion of competition the augmented three EU criteria must be fulfilled and there must be a dominant firm. Promoting competition then means that (a) there would exist net benefits from directly addressing the market failures represented by the three criteria and/or dominance and (b) the Commission has the tools to achieve these benefits.

As shown above, one can develop a conceptually easy-to-follow framework for deregulation decisions. So far we could not find any equivalent framework for decisions about whether, when and how to promote competition. The reason is that lack of competition in a market is usually not due to some malevolent entrepreneurial acts, such as the predation that was attributed to Rockefeller's Standard Oil Trust. Rather, lack of competition usually or at least often results from features of a market that have to do with technology and customer preferences so that the lack of competition can well be an efficient state of the market; the "natural monopoly" case comes to mind. There are then two ways to improve upon situations with such entrenched market power. One is through monopoly regulation that mimics workable competition outcomes and leaves the monopoly position untouched. While this is represented by s162, the existing New Zealand telecommunications framework already goes a step further. It has found ways to enhance competition through regulatory acts that reduce the monopoly sphere by vertically separating the LFCs and offering regulated wholesale access to downstream competitors. In contrast, s166(2)(b) offers the opportunity to find further ways to enhance competition. After the low-hanging fruits in the form of wholesale access have already been harvested by the policy makers, enhancing competition essentially requires innovative acts to find so far undetected or just overlooked possibilities which do not jeopardize the current benefits of the non-competitive but regulated situation. We therefore suggest building a framework for promoting competition

¹⁸ The EU does not explicitly acknowledge that conflict; see Vogelsang (2019).

around the potential tools for doing it, concentrating on their potential side effects in terms of inducing inefficient competition and creating high transaction costs.

Ideally, the framework should link the desirability of (infrastructure) competition with the degree and type of promoting it. In what can be called a “ladder of remedies” one can distinguish four rungs of tools for promoting competition.¹⁹ We here concentrate on tools addressing the market failures expressed by the EU’s criterion 1, the existence of entry barriers, and criterion 2, the persistence of a non-competitive market structure. We therefore link the various market failures to a ladder of remedies.

Rung 1: Allowing competition and removing legal entry barriers: In our view, there should be a presumption that competition should be allowed in all telecommunications markets. It is a presumption, because there could be cases of predatory competition that violate competition laws or there could be inefficient entry. In particular, competition could be feasible but inefficient under natural monopoly conditions. This could, for example, happen if firms collude after entry.²⁰ Broadening this presumption could involve a removal of all legal barriers to entry. We do not know, however, if there exist any such barriers in New Zealand that could or could not be removed. Allowing competition should not cause major transaction costs.

Rung 2: Addressing behavioral barriers to competition (anti-competitive behavior): Rung 2 concerns behavioral barriers to entry. In particular, the incumbent may have an incentive and ability to act anti-competitively in order to deter competition. The second rung is therefore the use of existing tools in order to prevent or interfere with anti-competitive behavior by the regulated LFC. This should be quite uncontroversial, once competition is allowed, and should therefore be subject to the same mild conditions. In our view, these two first rungs require no sophisticated market analyses to be used. However, it may be controversial to determine what one means by anti-competitive behavior. The most common forms of anti-competitive behavior by regulated dominant firms are predation, vertical foreclosure (price squeeze) and sabotage (quality deterioration for rivals). They are all hard to define and to eliminate in practice. This is something the Commission may have to determine in the regulatory process. The tools mentioned in Section 2.6 above may, however, be quite suitable to avoid anti-competitive behavior by the regulated operator, such as price squeezes or predatory behavior.²¹ This includes, in particular, the cost allocation IM designed by the Commission and the non-discrimination obligation imposed by the Act. The Commission could also prevent the regulated LFCs from using quality deterioration to disadvantage potential rivals (called sabotage in the economics

¹⁹ Holznagel and Vogelsang (2009) have coined the “ladder of remedies” for relating types of policies to the degree of market power.

²⁰ For example, Knieps and Vogelsang (1982) show that natural monopoly with Cournot behavior may not be sustainable against entry competition.

²¹ In the context of regulated prices, price squeezes and predation only differ from each other if the upstream price is above cost. See Gaudin (2012).

literature) through the use of quality standards under PQ regulation or quality measures reporting under ID.

Rung 3: Using currently available tools to reduce structural barriers to entry: More deliberation should be required for the next two rungs which concern active promotion of competition. The third and fourth rung of the ladder of remedies are therefore quite different in character from the first two rungs. They are the use of already available (Rung 3) and of newly created (Rung 4) tools to actively reduce structural barriers to entry and improve market structure. These rungs require a tradeoff analysis that has to include the factors described in Section 2 above. For the third rung competition would be actively promoted using the tools currently available to the Commission under the Act. As indicated above in Section 2.6 most of these tools are likely to be of little effect for the current purpose. However, the tools may be applied conscientiously to avoid conflicts with promoting competition. In the absence of such conflicts to be corrected, active promotion of competition may actually require the use of tools which are not currently available. However, we see three fairly strong possibilities for using the currently available tools for actively promoting competition if viewed necessary.²² The first is that anchor services and DFAS are at least initially not cost based and may therefore distort competition. Using PQ regulation for adjusting these prices towards costs may be advisable. The second is that revenue caps may be used by the regulated fibre provider(s) in ways that distort or diminish competition without being directly anti-competitive. Replacing revenue caps with price caps may then be an option. The capex approvals IM and the cost allocation IM could be helpful in determining the level of such price caps. The third concerns only the providers that are subject to ID regulation only. Even though they are initially under an ID regime they may be able to exercise market power. This would not be so obviously detectable, because relative to Chorus the other LFCs tend to serve on average denser areas with lower costs. If they are found to abuse their market power a move to a PQ regime may be advisable. This is a hypothetical case, because the other LFCs face infrastructure competition from Chorus' VDSL network and cable TV.

Rung 4: Rung 4 in the ladder concerns new tools that require careful evaluation, because they are untested in the New Zealand environment. Such tools could include access to civil infrastructure, such as duct sharing, or the promotion of co-investment.²³ These tools have in common that they try to get around the problem of cost increases resulting from having duplicate infrastructures but still allow for “somewhat” independent competitors. It is notable in this connection that infrastructure competition and unbundling have different geographic aspects with unbundling being less dependent on economies of density. Here again country examples can provide suggestive evidence. Differences from New Zealand have to be kept in mind, though. In

²² It is not fully clear if these examples belong to Rung 2 or Rung 3.

²³ We here treat duct sharing under Rung 4 because it is not obvious (and even unlikely) that the Commerce Commission could require regulated duct access under the existing legislation (although there is some debate on whether the Commission could do it under a relatively extreme interpretation of the quality provisions – i.e. s164(1) “... quality dimensions... responsiveness to access seekers and end-users”).

particular, unlike New Zealand many countries do not have virtually full UFB coverage and do not have vertically separated incumbents.

4.3. Market analysis and extrapolation under status quo policies

The competitive assessment of whether, where, when and how to promote competition has to be done market-by-market, based on the current regulatory tools available. While the analysis probably has to use the methods described in Section 2.4 above, there is no simple and general rule that allows one to move from numerical and qualitative variables like concentration measures or price-cost margins or product variety to a clear assessment of the level of competition. In an infrastructure-based market, for example, price-cost margins and concentration measures may be high because of economies of scale, yet there may exist fierce competition. Also, high and long-lasting required investments may call for high enough margins because of the relatively high levels of capital employed which needs to be remunerated in contrast to retail industries which have low levels of capital employed. In addition, because the capital is likely to be sunk and long-lived the margins (via an increased WACC) have to overcome the risk of stranding. In contrast, in a retail market price-cost margins and concentration measures may be low with only moderate levels of competition. Also, there may be low financing requirements in such a market. Thus, the analysis may have to get a picture from various sources of information.

A test to find out what form of competition in which market is most likely to benefit users in the long run has to deal with the same tradeoffs mentioned in Section 2 above. For example, infrastructure competition can provide potentially high benefits, because it allows for the greatest service differentiation and can be sustainable in the long run without industry-specific regulation. However, it may be associated with high duplication costs and plagued with market power issues. In contrast, pure resale may provide low benefits on service differentiation but can be associated with strong price competition and no duplication costs. Thus, we potentially face high benefit/high cost forms of competition and low benefit/low cost form of competition and in between cases. In this kind of situation it is almost impossible to establish any stable ranking simply based on easily available features, such as network density. Rather, any ranking has to be done for concrete cases. For example, for historical reasons the US has two broadband infrastructure providers covering about 90% of the population. They were built because of decades old policy decisions and market choices about separating telephone and cable TV networks. Because of large sunk costs the network duplication when moving to UFB is not nearly as costly in this case as it would have been if the companies had built duplicate UFB networks from scratch. Thus, the forward-looking tradeoff looks very different in the US than in countries without such cable TV networks.

While the “ladder of investment approach” has been controversial as a tool to generate full-fledged infrastructure competition, it has proven useful as a guide towards a dynamic escalation of remedies during the market development (Cave, 2014). Thus, the ladder may be used to move

from a particular wholesale access product to another that is more advanced and potentially provides better services. The move from L2 to L1 in New Zealand could present such a case.

4.4. Counterfactuals created by the various tools for promoting competition

In order to establish counterfactuals for the promotion of competition we suggest proceeding by the tools characterized by the rungs of the ladder of remedies described in Section 4.2 above.

4.4.1. Effects of applying Rung 1

Allowing competition where it was not allowed before eliminates a legal barrier to entry. Whether entry can be expected to occur and what form it will take and what effects it will have will strongly depend on remaining barriers to entry. Thus, the counterfactual analysis will have to assess these possibilities.

4.4.2. Effects of applying Rung 2

Rung 2 policies involve addressing anti-competitive behavior of the regulated firm. As indicated above in Section 2, such behavioral barriers to entry are only effective for the regulated firm if they are associated with other, in particular structural barriers to entry. It cannot be expected that eliminating anti-competitive behavior will also eliminate the associated structural barriers to entry. However, it is nevertheless likely to improve competitive outcomes. Such effects have to be estimated for the counterfactual analysis.

4.4.3. Effects of applying Rung 3

We currently have no good new examples for Rung 3 policies currently available to the Commission that would reduce or eliminate structural barriers to entry. The stylized example in Section 2.6 above suggested that PQ regulation may conflict with promoting competition to overcome structural barriers to entry. A more positive existing example would be the requirement to offer L1 services that allows entrants to bypass the regulated suppliers' facilities needed between L1 and L2.

4.4.4. Effects of applying Rung 4

Rung 4 policies are by definition new in the New Zealand context. They are meant to reduce or eliminate structural barriers to entry. Here the counterfactual analysis will usually have to be based on foreign experience which needs to be adapted to the New Zealand context.

5. The sequence of steps needed for promotion of competition and for deregulation decisions

We now summarize our approach as a unified framework with a set of steps that characterize a decision tree.

- 1) From time to time (probably once each regulatory period) define the set of “markets” for consideration of promoting competition and for deregulation decisions. We have above provided some preliminary suggestions, such as retail broadband access, divided into residential and business, and wholesale L1/L2 access and backhaul. An important question for the future would be the role of 4G/5G relative to fixed line broadband.
- 2) For each market subject to potential deregulation or promotion of competition determine (a) the current state of competition and (b) the likely future development of competition in the absence of “the promotion of workable competition” under s166(2)(b) and in the absence of deregulation. In order to do this the Commission staff needs access to tools necessary to evaluate the state and development of competition (like the tools discussed in Ofgem, 2019). Also, they need to assess the barriers to enhanced competition.
- 3) Evaluate the desirability of promoting competition and of deregulation for the markets analyzed. This would require different counterfactuals for promotion of competition and for deregulation. For deregulation decisions the counterfactual yardstick would be whether continued competition can be expected under deregulation or partial deregulation. For the decision to promote competition one could use the desirability criteria that we have suggested at the beginning of our report.
- 4)
 - a. If the evaluation under step 3 suggests potential desirability of deregulation then the Commission staff needs to consider the scope of deregulation or of softer forms of regulation, such as a move from PQ to ID.
 - b. If the evaluation under step 3 suggests no deregulation but rather the desirability of promoting competition in a particular market then the Commission staff needs to consider and evaluate the tools for doing that. Here we suggest considering a ladder of remedies consisting of 4 rungs, starting at rung 1 with simply allowing competition. Rungs 2 and 3 include currently available tools for reducing the regulated firms’ incentives and ability to interfere with competition as well as tools for reducing structural and legal barriers to competition. At rung 4 they may consider further potential tools not currently available to the Commission.
- 5) Make recommendations to the Minister.

6. Conclusions

Deregulation decisions can in two ways be crucial for the question of whether, where, when and how to promote competition. First, if competition is found to be sufficient and stable enough for deregulation there is no further need to promote competition through regulatory tools. The market can be deregulated. Second, if the conditions for deregulation are not fulfilled the promotion of competition may be in order. In that case the ultimate goal may be to create stable enough competition in order to be able to deregulate.

Our analysis suggests that a large part of the Commission's role in promoting competition would not require invoking s166(2)(b). This would be necessary, however, for Rung 4 and possibly also for Rung 3 of our ladder of remedies, where the Commission would actively create competition rather than just deal with legal and behavioral barriers to competition.

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