

**COMMENTS ON INDUSTRY CANADA'S
TELECOMMUNICATIONS FOREIGN OWNERSHIP
CONSULTATION PAPER**



SUBMISSION OF ROGERS COMMUNICATIONS INC.

July 30, 2010

1. Introduction

These comments are submitted by Rogers Communications Inc. (Rogers) in response to Industry Canada's June, 2010 consultation paper entitled "*Opening Canada's Doors to Foreign Investment in Telecommunications: Options for Reform*" (the *Consultation Paper*).

In the *Consultation Paper* Industry Canada has provided some background to the current restrictions on foreign ownership applicable to Canadian telecommunications carriers and broadcasting distribution undertakings (BDUs) in this country and various recommendations for reform that have been made over the past few years. It has then proposed three options for reform and has sought public input on each of them.

In addition to seeking comments on the three options Industry Canada has posed the following questions:

- What conditions are necessary to maximize the potential benefits of reform for consumers?
- Are there currently barriers to investment that constrain access to capital in the telecommunications industry, affecting innovation and competition:
- How will changes to foreign investment restrictions in telecommunication affect incumbents and new entrants?
- Are there potential unintended effects of increased foreign direct investment in the Canadian telecommunications sector? What are the potential benefits and risks of having more global players in the market?

Rogers welcomes this opportunity to offer its views on what is a very important public policy issue for the Canadian communications industry and for Canada. In light of the importance of this issue, as well as the complexity of the questions posed by Industry Canada, Rogers has retained Dr. Jeffrey Church, a noted Canadian economist, Professor of Economics at the University of Calgary and member of the Berkeley Research Group (BR Group) to provide an economic analysis of Industry Canada's proposal to relax current Canadian restrictions on foreign ownership in the communications sector and the degree to which benefits are likely to be achieved under

the options proposed. A copy of Dr. Church's curriculum vitae and the BR Group Report is appended to this submission.

In its submission, Rogers has drawn on the economic analysis provided by the BR Group Report to discuss the issues raised by the Department and has then provided detailed comments on the three options.

2. The Reality of Converged Networks

It is impossible to assess the pros and cons of the three options for ownership reform presented by Industry Canada in a technological vacuum or a policy vacuum. Any change in Canada's foreign ownership restrictions must be assessed in the context of modern broadband networks and must be consistent with other policies, particularly Canada's strategy for a digital economy.

There was a time when local telephone networks, wireless networks, cable distribution networks and Internet access networks all performed different functions. That time has passed.

With the transition of each of these traditional networks to broadband-based networks, each is capable of delivering the same services and each is now being used for multiple purposes (voice, data, Internet access, content distribution).

Telephone networks are now delivering voice, data, high-speed Internet and IPTV. Fixed wireless networks are delivering the same services and new high throughput satellites coming on stream in 2011 are poised to do the same thing. Canada's cable television companies were early adopters of broadband services and have been delivering voice, data and high-speed Internet services for a number of years in addition to their broadcasting services.

With this convergence of functionality and technology, these networks now compete in the same markets and offer similar services. Consumers of these services increasingly treat providers of broadband services as substitutes for each other. Competing

networks with competing technologies compete for customers based on price, coverage, service innovations and service.

In this environment it makes no sense to liberalize the foreign ownership rules for some, but not all, of these networks. To do so would be to give more favourable treatment to some – but not all, to pick winners and losers, and to seriously restrict any benefits for consumers associated with a liberalized foreign ownership regime.

There are other serious consequences that flow from the asymmetrical application of the foreign ownership restrictions to different categories of broadband networks. At a time when other economically advanced countries have been amending their communications statutes to recognize the convergence of networks, Canada would be cementing the traditional distinctions. The European Union, for example, has moved to the regulation of “electronic communications” which encompass all manner of communications technologies providing all manner of communications services in recognition of the convergence of networks. Other countries have done the same and the Chair of the CRTC has called for a similar approach in Canada.¹

At the same time as Industry Canada is seeking comments on its proposals for reform, the Government of Canada has sought public comment on its digital economy strategy and what needs to be done to regain Canada's leadership in this increasingly important sector of the economy. These are not unrelated topics and should not be treated as such. Any reforms to the foreign ownership restrictions should be designed to support the objectives of Canada's digital economy and should recognize the fact that traditional stand-alone telecom, cable TV, wireless and Internet networks are a thing of the past.

In a communications market where all of the major players are providing broadcasting distribution services over the same networks as “pure” telecommunications services, be it a wireline telephone network providing IPTV; a cable TV network providing telephony and high-speed Internet services; or a wireless or satellite network providing a

¹ Chairman of the CRTC, Testimony before the Standing Committee on Industry, Science and Technology, April, 2010.

combination of services, there will be very few “pure telecommunications providers left. With an industry that is trying to maximize revenues on broadband networks by offering a suite of telecom and broadcasting services, a policy that applies only to pure telecommunications carriers or some subset of such carriers will have little relevance and very little positive impact on the market. A simple review of the activities of national and regional communications companies makes this point. Bell, Rogers, TELUS, SaskTel, MTS, Shaw, Quebecor, Cogeco, Eastlink and others already provide telephone, Internet and broadcasting distribution services over a common network. Others will soon follow suit. Few, if any, network providers of size will be left to benefit from a liberalized regime if it only applies to an anachronistic “pure” telecom carrier.

Any proposals to reform Canada's foreign ownership rules must recognize that converged broadband networks are a fact of life and that these networks are currently, and will increasingly, carry all types of services.

3. There is no Valid Public Policy Rationale for Treating Cable TV Networks Differently from Other Telecommunications Networks

The treatment of cable TV networks as either telecommunications carriers or broadcasting distribution undertakings has long been debated in Canada. This is because it was recognized at a very early stage that they performed a hybrid function. Cable TV companies were early adopters of broadband technologies and early providers of services on a converged network. Their coaxial cable networks and later their fibre-coax networks placed them in a position to provide telecommunications and broadcasting services over the same network and caused them to be regulated under both the *Telecommunications Act* and the *Broadcasting Act* depending on the service provided. Since then, the traditional telephone companies have adapted their networks to provide broadcasting distribution services and they too have fallen subject to regulation under both statutes.

The question that arises in the context of this public consultation, as it has in others, is whether there is a valid public policy reason for retaining a different set of foreign

ownership restrictions on broadband carriers when they are performing a BDU function, than when they are performing a “pure” telecommunications function.

The argument that is usually presented in favour of treating BDU networks differently from telecom networks is that BDU's are integral to the broadcasting regime established under the *Broadcasting Act* and that regime is concerned with Canadian culture, which Canada is not willing to open up to foreign ownership.

However, this argument ignores the fact that BDUs' primary function under the *Broadcasting Act* is to deliver programming services to the public. Like Canadian telecommunications carriers, BDUs cannot interfere with the content of the programs they deliver without express CRTC consent.

There are very detailed regulations in place that govern what programming services cable TV companies must carry and which they are allowed to carry. There are also rules concerning packaging of these services. Indeed, cable television is more heavily regulated in Canada than in almost every other country. Similar rules apply to other broadcasting distribution networks that carry programming services including satellite services and IPTV providers.

These regulations will continue to apply regardless of the ownership structure of the distribution network. Failure to comply would result in revocation of their broadcasting distribution licenses by the CRTC.

Wireless carriers and local telephone companies must also comply with telecommunications regulations formulated by the CRTC and Industry Canada. These rules would also continue to apply regardless of their ownership structure – as was the case when BCTel and QuebecTel were controlled by American interests. This did not prevent the regulator from imposing regulations that had to be complied with.

Rogers used to provide cable TV services in a number of U.S. markets, where it had to comply with FCC regulations. This did not give rise to any compliance issues.

The premise that BDUs must be Canadian-owned and controlled in order to be regulated in a manner that promotes Canada's broadcasting policies is incorrect. Canadian ownership and control is not necessary for regulatory compliance.

In its report, BR Group commented on the adverse consequences of treating cable and telecom networks differently in a converged market:

In the medium-term, even "telecom" firms would be seriously constrained by the proposed asymmetric rules, to the extent that such rules made it impractical for such firms to integrate (or re-integrate) into the distribution of broadcasting content. Such integration is natural and the viability of pure-play competitors is doubtful.

Firms unable to provide broadcasting will be at a competitive disadvantage because they do not benefit from economies of scope from offering the same variety of services as competing networks that are BDU and because they cannot offer bundles that include broadcasting.

Not only is such a distinction between broadcasting and telecommunications entirely unjustified from an a priori theoretical economic perspective, but the practical implications of such restrictions are likely to be manifested in a set of foreign ownership rules where the best outcome one can hope for is that they are simply ineffective.²

The TPRP also recognized the need to treat telecom carriers and BDUs in a non-discriminatory manner.

Since telecommunications common carriers increasingly compete in the same markets as BDUs, **the Panel agrees that it would be competitively inequitable and financially damaging to the BDU industry to retain foreign ownership restrictions on them while removing them from telecommunications common carriers.** To the extent that removal of the restrictions would lead to greater- or lower-cost access to foreign capital markets, the regulatory framework for foreign ownership should treat both types of competitive players fairly.³

² BR Group Report, paras. 107-109.

³ TPRP Report, page 11-24, emphasis added.

The Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives also requires regulation to the greatest extent possible, to be implemented in a symmetrical and competitively neutral manner. As recommended by the TPRP in its report, this principle of Canadian telecom policy should apply to all sector regulation – not just CRTC decisions.⁴

4. Review of the Three Options

The *Consultation Paper* proposes three options for reform for which it is soliciting comments. These options are addressed in turn below.

Option 1

The first option would apply to both broadcasting undertakings and telecommunications carriers. It would decrease the required percentage of voting shares to be held by Canadians in operating companies from 80% to 51% under s. 16(3)(b) of the Act and would amend paragraph b) of the definition of “qualified corporation” in the *Direction to the CRTC (Ineligibility to Non-Canadians)* applicable to broadcasting undertakings to reduce minimum Canadian ownership from 80% of voting shares to 51%. “All other current provisions, including those related to control in fact, would remain unchanged.”

The telecommunications business is capital intensive requiring upfront investment in network facilities prior to commencing the provision of service, as well as on-going access to capital markets in order to extend network coverage and keep on the forefront of technology. Access to capital markets is therefore a critical requirement for the telecommunications industry and the cost of capital is an important component of the cost structure of network providers.

As discussed in the BR Group Report, there are two potential sources of benefit that might flow from the relaxation or removal of foreign ownership restrictions on telecommunications networks. The first is that the relaxation of the restrictions might

⁴ TPRP Report, Recommendation 2-5, page 2-14.

lower the cost of capital sufficiently that there is an increase in the number of facilities-based networks (either from new entry by a foreign firm or through investment in or a take-over of an existing firm); and the second is that the relaxation of the restrictions might enhance competition between existing carriers (either through a reduction in cost or through network integration with foreign carriers).⁵

As discussed in the BR Group Report, there is a significantly higher probability that a well-established American cableco or carrier will seek to extend its operations into Canada by purchasing an incumbent cable, telco or wireless operation. Benefits to be derived from this type of North American integration include a lower cost structure through economies of scale and synergies, possible more rapid introduction of new products and applications, a larger, more stable operation that may be perceived by capital markets to be lower risk and hence be able to secure debt financing at lower rates and attract additional equity capital, shared access to intellectual property and increased job creation.

Viewed in this light, there is significantly more upside for Canadian consumers and for the Canadian economy by relaxing the foreign ownership rules in a symmetrical way than by seeking to restrict the reforms to some subset of new entrants or to “pure” telecommunications carriers – of which there are relatively few in the Canadian market.

Option 1 has the important advantage of applying in a symmetrical way to both telecom carriers and BDUs. It would therefore be consistent with the convergence of services that has taken place in the broadband market and would not pose an impediment to achievement of Canada's objectives for a digital economy.

Option 1 would also have the advantage of applying to all network providers including incumbents and new entrants. This would ensure that to the extent that a liberalized regime results in benefits to consumers either through a lower cost structure, or from the benefits associated with integrated operations, access to technology and increased innovation, such benefits will be spread across the industry as a whole and not targeted

⁵ BR Group Report, para. 46.

to one segment or another. Option 1 is therefore more likely to result in benefits for more Canadians than an asymmetrical regime.

Option 1 would also be consistent with the *Policy Direction* which requires regulations that are not of an economic nature to be implemented in a symmetrical and competitively neutral manner to the greatest extent possible.

Option 1 would also have the advantage of increasing the number of voting shares that can be held by non-Canadians. According to the Consultation Paper, foreign investors would be allowed to significantly increase their holding of voting shares at the operating company level from 20% to 49%. Coupled with the existing provisions to hold 33% of voting shares at the holding company level under both the Telecommunications legislation and regulations and the *Direction to the CTRC (Ineligibility to Hold Broadcasting Licences)*, this would presumably raise the effective level of direct and indirect foreign ownership of voting shares to 65.83% from the current level of 46.4%, provided that the control in fact test was still satisfied.

Given the fact that non-Canadians can also hold non-voting equity in Canadian carriers and BDUs, as well as debt, and given the determinations made by the CRTC and the Governor in Council in the Globalive and other new entrant decisions concerning the extent of non-voting control non-Canadians are permitted to exercise through technology and management agreements, intellectual property licensing agreements and shareholder arrangements, Rogers believes that Option 1 will provide increased scope for foreign investment in Canadian carriers and BDUs than the current restrictions and will enable the benefits flowing from a more liberalized regime to be spread across the whole industry and hence to significantly more consumers.

Option 2

In the second option, start-up telecommunications companies and small industry players with less than 10% of total telecommunications market revenues would be exempt from the current restrictions. Companies successful in growing their

market revenue beyond 10% would continue to be exempt from foreign investment restrictions.

Option 2 appears to be based on the premise that start-up companies and small industry players will benefit more from a liberalized foreign ownership regime than larger incumbent carriers that are assumed to have adequate access to capital at competitive rates. While Rogers concedes that start-up companies and small companies may have less access to capital markets than incumbents, it questions the criteria used by the Commission to establish what constitutes "small" (up to \$4 billion in telecom revenues) and it questions the extent to which liberalization of the foreign ownership rules will actually result in more ready access to foreign capital at competitive rates.

It would be a mistake to think that unrestricted access to foreign capital markets would be a panacea for lowering the cost of capital to new entrants that are unaffiliated with foreign carriers. The cost of capital to new entrants will always be higher than for well-established networks because of their lack of cash flow and the higher risk that they represent. This affects their ability to attract equity, which in turn affects their ability to obtain debt financing. Eliminating restrictions on foreign investment will not alter this fundamental fact unless the foreign entity buys 100% of the new entrant and includes it in its own capital structure. The question then arises whether a 100% buyout of a Canadian start-up should be the goal of the new policy, as opposed to increasing access to foreign capital by a Canadian start-up. The existing foreign ownership rules are designed to permit a certain level of foreign ownership and Option 1 proposed in the current public process is designed to increase that level, stopping short of a total buyout. Coupled with the application of the control in fact test in the Governor in Council's variation of the CRTC's decision in the Globalive case, Option 1 provides for a further increase in the degree of foreign ownership in a Canadian start-up – stopping just short of control – while option 2 would appear to encourage a total buyout of the Canadian operation. This is not sound public policy if the objective is to give Canadian companies the chance to grow their operations.

This is one of the reasons why Option 1 is more consistent with the objective in section 7 (c) of the *Telecommunications Act* than Option 2. That statutory provision states that it is an objective of Canadian telecommunications policy “to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications”.

There are features of the Canadian telecommunications market that make the cost of capital higher in this country than in some other countries, such as the United States. These include the size of the domestic market and the size of Canadian telecommunications carriers, which the BR Report characterize as almost “minnows” compared to their international rivals. Even Canada’s three largest communications companies, Bell, TELUS and Rogers, have higher equity betas than the four largest American communications companies, AT&T, Verizon, Qwest and Comcast.⁶

In addition, given that the Canadian market is a mature telecommunications market characterized by the presence of three national incumbent wireless carriers, one and potentially three new national carriers (one of which is already significantly allied with a foreign wireless carrier) and a number of potentially strong regional competitors, means that the risk associated with wireless start-up ventures in this country are higher than they would be in green field markets and the appetite for additional de novo entry by foreign carriers may be limited. All of these factors point to a less dramatic impact on the cost of capital than might be expected to result from the elimination or relaxation of the foreign ownership restrictions. The BR Group Report warns about being overly optimistic in this regard.⁷

For these reasons, Option 2 may not have the type of positive impact on the ability of Canadian start-ups to access the capital they require to grow that it might be hoped to have. It is more likely to result in foreign buyouts of Canadian start-ups and is unlikely

⁶ BR Group Report, para. 19 and Table 2. Telus’ equity beta is marginally lower than Comcast’s – but significantly higher than the other three American companies.

⁷ BR Group Report, paras. 3 and 4

to result in reduction in the cost of capital for Canadian start-ups that wish to retain some level of Canadian ownership.

Option 2 also fails to satisfy the rationale for liberalizing the foreign ownership restrictions discussed above and could have a substantial negative impact on the Canadian communications sector.

First, Option 2 would only apply only to Telecommunications common carriers – not broadcasting undertakings. This ignores the convergence that has taken place in the communications market over the past decade. This has the effect of doing one of two things – both of which represent bad public policy. It might push diversified communications companies into splitting their operations in a manner that is inefficient and inconsistent with market conditions in order to obtain the advantages of a liberalized ownership regime for their telecom services – or it might discourage smaller telecommunications companies from diversifying into the broadcasting distribution market in order to avoid “tainting their telecom operations” and becoming subject to the more restrictive regime applicable to BDUs. For companies that start out in telecom services and then want to add broadcasting distribution services, this may prove to be a huge impediment to future expansion.

So in addition to handicapping companies that provide both kinds of services in what is clearly a converged market, this discriminatory treatment would preclude telecommunications carriers that do benefit from a liberalized regime from offering an important service element of the digital economy. Obviously, this makes no sense and would severely undermine Canada's chances of developing its communications infrastructure and services in the manner envisaged in the Digital Economy consultation paper.

These kinds of distinctions are no longer possible to maintain from a technological point of view. Since BDU services can now be delivered over high-speed Internet services, that are considered to be a telecom service, how does that differ from direct use of a fiber-coax network to deliver similar BDU services? Since the high-speed Internet

service that carries the BDU service could be provided over any broadband network, including a cable TV network, this leads to the ridiculous result that a cable TV company can deliver a third party's BDU service over an Internet service carried on its cable network – but it can't deliver its own BDU service over that same network, except under a separate set of foreign ownership rules. This type of environment is precisely the opposite of what current market conditions demand and modern networks can deliver.

As discussed above, modern broadband networks are capable of delivering voice, data, video and Internet services. This is true of wireline fibre-copper and fibre-coax, wireless and satellite-based networks. Increasingly, all of these services are being provided over the same networks. By opening up the door to increased foreign investment in only the “telecom” sector, the policy would ignore the reality of modern technology, as well as what consumers and businesses are demanding. The policy would encourage new entrants to access foreign capital markets to get started in the telecom business – but then deny them the opportunity to increase their revenue stream by offering the same kind of competitive bundles that their BDU competitors are offering. This unintended consequence of the policy might end up being a bigger obstacle to investment by foreign investors than is the case under the current ownership restrictions.

This scenario produces the worst of all worlds. The benefits to consumers of opening the door to foreign capital are largely lost because larger players that serve currently most of the market will be excluded from the liberalized regime. At the same time, the benefits of bundled services delivered over a single pipe will be denied to customers of new entrants who are constrained in offering only telecom services in order to fall under the liberalized ownership regime.

As pointed out in the BR Group Report, this shortcoming of the policy will not be lost on foreign investors. The unintended consequence of the policy may be to discourage investment in pure telecommunications plays – rather than encourage it.

Ultimately, this is a lose - lose scenario for consumers and for Canada. It is out of step with converged markets, it goes against everything Canada is trying to achieve in the

digital economy and it is inconsistent with the movement of the developed world towards a single regulatory structure for broadband networks.

The second fundamental flaw with Option 2 is that it is discriminatory and would place carriers with more than a 10% share of the national telecom market at a competitive disadvantage. It would force them to operate pursuant to more restrictive foreign ownership restrictions than their existing competitors, or new entrants, including foreign carriers from around the world, which would now be free to enter the market with no Canadian ownership interest.

What this means in economic terms is that AT&T, Orange, or Vodafone could enter the Canadian market confident of having a lower cost base than incumbent Canadian carriers plus all of the other advantages that their much larger size provides them with including more R&D to support innovative services, increased purchasing power etc.

It also means that there would no longer be any need for these much larger foreign communications giants to have a Canadian partner. The perverse result would be that the incumbent Canadian carriers would be forced to compete with foreign carriers on an unequal basis, thereby turning Canadian telecommunications policy on its head.

Again, it is difficult to understand the policy rationale for this strangely "Canadian" approach that would have the effect of using the foreign ownership rules to assist foreign companies to enter the Canadian market, while restricting successful Canadian companies from competing with them on an equal footing. Rogers has a difficult time understanding what the intent of this policy would be. What public policy goal is served by tying the hands of larger Canadian companies behind their back, while letting much larger foreign companies into the market without restriction?

As pointed out by Dr. Church in the BR Group Report, the only conceivable rationale for doing this would be if the Government thought there was not enough competition in the Canadian market and we had to turn to foreign markets to attract competitors.

However, as explained by Dr. Church, the Canadian market is already characterized by better financed competitors than most foreign markets its size. Furthermore, recent steps to remove the barriers to entry in the cellular market through spectrum set-asides,

mandatory tower sharing and roaming have doubled the number of competitors in the wireless market in the past two years.

As noted in the BR Group Report, the foreign competitors that are likely to be interested in the Canadian market are in fact a lot bigger than the largest Canadian carriers and BDUs. They already enjoy economies of scale and greater purchasing power than their Canadian rivals. If the goal is to make it easy for them to enter the Canadian market, why would the ownership restrictions not be removed for all players? Why would the policy seek to penalize Canadian companies by denying them access to the liberalized regime and thereby penalize their customers by denying them the benefits that might otherwise flow from a less restrictive ownership regime? It makes no sense to force Canadian companies to compete on an unlevel playing field with their much larger international rivals?

Option 2 is clearly ill-conceived from a policy perspective.

Since the benefits of liberalized ownership rules delineated by the TPRP and the Government of Canada are recognized to be industry-wide, this proposal would greatly diminish those benefits to subscribers of Canadian incumbent carriers, thereby either denying them those benefits, or encouraging them to turn to a foreign-controlled supplier.

Option 2 would therefore turn larger Canadian incumbent Carriers and BDUs into second class citizens in their own country. This would also affect Canadian shareholders of these companies who would have restrictions placed on the transfer of their shares - restrictions that shareholders of foreign-controlled carriers would not have. This would serve to devalue their investment and potentially cause capital costs to then become higher for incumbents. Incumbents would no longer be able to compete on a level playing field and to make matters worse – their ability to access the capital markets could as a result be impacted.

Finally, the concept of treating carriers with less than 10% of the total Canadian telecom market as "small players" not subject to the foreign ownership rules is not based on any sort of economic or competition law principle. Some of the companies that would fall

into this category are dominant in the regions of Canada in which they operate. MTS and SaskTel are examples of such companies. Their market share in their home territory outstrips that of all of their competitors.

Perhaps most egregious is the fact that Option 2 would allow the much larger foreign controlled carriers like Orange, Vodaphone or AT&T to be treated as small players (starting with no market share) and allow them to grow above the 10% threshold exempt from the ownership restrictions.

Furthermore, as presented in the *Consultation Paper*, Option 2 would enable a foreign-controlled company such as Orange, Vodaphone or AT&T to enter the Canadian market as a new entrant and then do an asset purchase agreement with an incumbent Canadian company such as Rogers, Bell Canada or TELUS to purchase their wireline or wireless networks and subscribers. This Option would therefore enable foreign-controlled companies to grow without restriction in Canada, while forcing Canadian companies to operate under a more restrictive regime.

In short, Option 2 is a recipe for undermining strong Canadian communications companies to the advantage of their larger international competitors. It would produce very few of the anticipated benefits of liberalized ownership rules because it would not apply to the carriers and BDUs that currently serve the vast majority of Canadians and it might actually undermine the economic viability of new entrants by preventing them from offering BDU services if they take advantage of the liberalized ownership rules. The only benefactors of this policy would be larger foreign telecom carriers who would now be at liberty to enter the Canadian market with a lower cost structure than their Canadian controlled rivals.

Industry Canada has already fostered new entry in the wireless sector by imposing mandatory roaming and tower sharing. This has relieved new entrants of capital requirements in the short term to some extent at the expense of the incumbents. Industry Canada should not further weaken the incumbents by lifting foreign ownership restrictions on an asymmetrical basis. Not only might the foreign entity have easier access to capital but it would have the benefit of lower short term capital requirements

due to the mandatory roaming and tower sharing. This would be doubly unfair to the incumbents.

Option 2 also raises potential investor trade concerns, notably, in relation to “national treatment” and “most-favoured nation” requirements in Articles 1102 and 1103 of Chapter 11 of the North American Free Trade Agreement (“NAFTA”)⁸. The concern is that Option 2 will discriminate against U.S. investors in Rogers compared to Canadian or non-U.S. investors in the new entrant carriers. Whereas foreign investors in Rogers will be capped at the existing limit of 20% percent at the operating company level, investors in a new entrant will not face this cap – even if they eventually come to rival or even exceed the size of incumbents. This would run counter to fundamental NAFTA objectives, which include “the promotion of conditions of fair competition in the free trade area”⁹.

It should be noted that protectionist intent is not a prerequisite to a Chapter 11 claim, if, as a practical matter, the measure produces an adverse effect against non-nationals¹⁰. Treatment is less favourable when a foreign investor demonstrates that a comparable enterprise, operating in like circumstances, has gained competitive advantage over certain other investors or investments. Note also that Canada's obligation is to provide foreign investors with the best treatment it accords to *any* investment in Canada, not just the best treatment it accords to investments of *Canadian* investors¹¹.

⁸ Briefly, Article 1102 requires Canada to accord to investors of another NAFTA party, or investments of investors of another party, treatment no less favourable than Canada accords to Canadian investors or Canadian investments of investors with respect to the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments. Article 1103 requires Canada to accord to investors of another NAFTA party, or investments of investors of another party, treatment no less favourable than Canada accords to investors of any other NAFTA party or non-party, or to investments of investors of any other NAFTA party or non-party, with respect to the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments. Although existing investment restrictions are subject to the exception in NAFTA Article 1108, amendments to that restriction, such as the government is proposing, must not decrease the NAFTA conformity of such measures.

⁹ NAFTA, Article 102(1).

¹⁰ *S.D. Myers Inc. v. Canada*, NAFTA Tribunal, First Partial Award (13 November 2000) at para 254.

¹¹ *Pope & Talbot v. Canada*, Award on the Merits, Phase 2 (10 April 2001), para 41.

Differential treatment will generally not give rise to a breach of national treatment if it accords with the reasonable and proportionate outcome of a legitimate governmental policy¹². It would not, however, be reasonable or proportionate to legitimate policy objectives to completely lift the foreign investment requirements for new entrants carriers, irrespective of their eventual size or market power while retaining all investment restrictions for incumbents (UPS).

Rogers recognizes that Option 2 is loosely based on the recommendations of the Telecommunications Policy Review Panel (TPRP) contained in its 2006 report, which were also supported by the Competition Policy Review Panel (CPRP) in its 2008 report. However, the TPRP proposed this structure as an interim measure for a five year period, following which the restrictions on larger Canadian BDUs and Carriers would be reviewed and possibly lifted. Had the TPRP recommendation been acted on, that five year period would be expiring next year.

Five years is a long time in the current technological environment. Recognizing this, the TPRP recommended that Canada review its telecommunications policy every five years. That time is almost upon us and we have yet to implement even the first phase of the TPRP's proposal. In that time, the market has further converged to a point where it makes no sense for broadband network providers to limit themselves to either telecom or broadcasting services. If Canada is serious about wanting to excel in the digital economy it cannot continue to compartmentalize different types of broadband services and it cannot handicap larger Canadian companies against their larger international rivals. The goal should be to make Canadian companies stronger – not to place them at a competitive disadvantage. It is too late for the TPRP's five year experiment.

For all of these reasons, Option 2 would undermine strong Canadian companies and give carte blanche to foreign companies to take over the Canadian telecommunications market. It represents bad public policy and should not be given serious consideration.

¹² *Feldman v. United Mexican States*, Award (16 December 2002) at 177.

Option 3

The third option would remove all ownership and control restrictions from telecommunications common carriers by repealing s. 16 of the *Telecommunications Act*.

This Option would give rise to all the same problems associated with allowing new entrants and carriers with less than a 10% share of the national telecom market to be exempt from the foreign ownership rules.

Contrary to the TPRP's recommendation, Option 3 does not treat telecom carriers and BDUs on a non-discriminatory basis. It therefore ignores the convergence that has taken place in the market over the past decade. As discussed in the preceding sections of these comments, it makes no sense to ignore this technological convergence in what should be a forward-looking communications policy.

Option 3 would have the effect of picking winners and losers in the broadband market, contrary to the Government's avowed policies, as well as the *Policy Direction*. This would be particularly unfortunate as Canada is one of the lucky few countries that have virtually ubiquitous "platform" competition between cable and telecom networks. Several studies have demonstrated the benefits of platform competition in terms of increasing broadband penetration in the early years of broadband.¹³ Further, the higher levels of network investment in new broadband facilities in North America relative to Europe also suggest that in a dynamic industry, inter-platform competition is likely to deliver greater consumer welfare gains comparative to regulated intra-platform competition.

Options 2 and 3 could therefore have the unintended consequence of throwing away an important competitive advantage enjoyed by Canada and the resultant benefits enjoyed by Canadians.

¹³ See, for example, Aron and Burnstein (2003), Wallsten (2006).

Option 3 would also reinforce the traditional distinction between telecom carriers and BDUs that no longer has any basis in fact in a converged market, thereby ignoring the trend towards non-discriminatory regulatory treatment of electronic communications networks in other advanced countries.

Like Option 2, Option 3 would have the unintended effect of precluding “pure” telecommunications carriers who take advantage of increased foreign investment under the Option 3 policy from offering their customers BDU type services. This would be inconsistent with the Government’s plans for Canada’s digital economy. It would deny consumers the full advantages of broadband services and it would deny the carriers in question an important additional revenue stream.

Option 3 therefore produces few benefits and would have some serious negative repercussions for the industry. Like Option 2, Option 3 is a totally ill-conceived policy.

5. Concluding Remarks

For all of the preceding reasons, Rogers favours Option 1. It is the only option that is competitively neutral, and that is in accord with the reality of broadband networks and the converged market for telecommunications and broadcasting distribution services. Option 1 is also consistent with Canada’s objectives for the digital economy. It would provide uniform opportunities for Canadian firms to attract foreign capital and spread the benefits of increased foreign investment across a broad spectrum of Canadians, rather than a very limited subset.

In contrast, Options 2 and 3 fail to recognize the converged market for communications services in Canada. The attempt made in Options 2 and 3 to limit the reforms to “pure telecommunications” networks is out of step with the reality of broadband markets and inconsistent with the government’s attempt to implement a digital economy strategy for Canada.

Limiting the liberalized regime to “new entrants” is unlikely to result in significant benefits to new entrants given the more serious risk-related factors that will continue to

discourage savvy investors from investing in new entrants in a mature, relatively small domestic market already served by at least four (and potentially six) national carriers and several strong regional carriers.

The only real beneficiaries of Option 2 will be large foreign carriers, who will be able to compete with Canadian incumbents under a much more favourable regime than applies to their Canadian rivals.

Option 3 suffers from the same failings as Option 2. It would have the effect of handicapping existing carriers that provide telecommunications and broadcasting services to most Canadians on integrated networks. As such it would benefit few consumers, while being entirely out of touch with modern broadband technology, modern regulatory regimes and consumer demand. In short, Options 2 and 3 would represent terrible public policy and would seriously undermine Canadian efforts to become leaders in the digital economy.



*Foreign Ownership
Restrictions of Canadian
Telecoms: An Analysis of
Industry Canada's Proposals*

JEFFREY CHURCH

With the assistance of Berkeley Research Group, LLC.

Contents

1. Section 1: Introduction and Summary	1
2. Economic Framework	5
2.1. Fundamental economics of modern telecommunications	5
2.1.1. Size and scope	5
2.1.2. Implications for Canadian firms	7
2.2. Implications of Size and Scope in Telecommunications	9
2.2.1. What does “market power” really mean?	9
2.2.2. A Natural Limit on the Number of Carriers	10
2.3. Convergence and complementarity: wireless and wireline, broadcasting and telecom, devices and networks	13
2.3.1. Implications of convergence for market structure and networks	14
2.4. Summary of economic framework	16
3. Foreign Investment Liberalization	17
3.1. Foreign Investment in the abstract	17
3.2. Benefits from foreign investment in the Canadian telecom case	18
3.2.1. Investment in new networks/smaller players	18
3.2.2. Benefits of integration of existing networks	19
3.2.3. Costs of liberalizing foreign ownership restrictions: Jobs, R&D and National Security	25
3.2.4. Broadcasting, convergence, and Canadian content issues	26

3.3. Conclusions on foreign investment	27
4. Asymmetric regulation: when, why and at what cost?	28
4.1. Market power, “affirmative action” and the scope for further profitable entry	30
4.1.1. Canada’s Telecommunications Performance	31
4.1.2. Not a Competition Policy Analysis	33
4.1.3. The likely ineffectiveness of asymmetric policies	34
4.2. Asymmetrical policies: The Costs	36
5. IC’s Treatment of Broadcasting	41
6. Conclusions	42



1. SECTION 1: INTRODUCTION AND SUMMARY

1. I am a Full Professor in the Department of Economics at the University of Calgary. I received a Ph.D. in economics from the University of California, Berkeley in 1989, and have been continuously employed in the Department of Economics at the University of Calgary thereafter, teaching courses in industrial organization, competition policy, regulatory economics, and microeconomics. My published research includes articles on network economics, intellectual property rights, and competition policy. I am the coauthor of a book on the regulation of natural gas pipelines in Canada, a text in industrial organization, and a recent monograph on the competitive implications of vertical and conglomerate mergers. A complete list of my publications is included in my curriculum vitae, which is marked and attached hereto as Exhibit 1. I have acted as an expert on a wide range of regulatory and competition policy matters. From 1995 to 1996, I held the T.D. MacDonald Chair in Industrial Economics at the Competition Bureau. As summarized in my curriculum vitae I have been involved with the development of telecommunications policy in Canada since 1995, providing expert advice and participating in drafting many of the telecommunications submissions of the Competition Bureau.
2. The following report, commissioned by Rogers Communications, addresses the major economic issues raised by Industry Canada's ("IC") recent proposal to relax Canada's current restrictions on foreign investment and ownership in the telecommunications sector. Our attention is focused on Options 2 and 3 as outlined in IC's consultation document of June 2010. These options are both asymmetrical options in that they create different rules for large and small players (Option 2) and different rules for "telecommunications common carriers" and "broadcasting distribution units" (Options 2 and 3). The two proposals differ only in the extent to which foreign ownership restrictions for telecom providers would be relaxed. Under Option 2 there are no restrictions for small players, while under Option 3 all restrictions on telecom-only providers are removed. This report reaches the following major conclusions:
 - Removal of foreign ownership restrictions in the telecom sector¹ can be a beneficial policy for Canadian consumers, for Canadian businesses, for the

¹ A subtext of Industry Canada's proposals is that they appear to be focused on the potential for new entry in the wireless market segment. Indeed, much of the Canadian debate on foreign investment

development of the sector itself, and for the wider Canadian economy. However, the benefits of removing foreign ownership restrictions are likely to be recognized if these restrictions are removed in a symmetrical fashion. This implies that large and small firms should be treated alike in terms of their ability to access foreign capital; further, no distinction should be made between telecommunications common carriers and broadcasting distribution units (BDUs).

- Removing restrictions on foreign ownership can help promote both competition and entry from new networks, but also deepen competition between existing networks. IC's policy proposals appear not to understand the value of the second type of benefit;
- Economies of scale and scope suggest that there are limits to how much additional market entry one can expect in Canada. Given recent developments, Canada appears to be at or near the upper limit for the number of participants its wireless market can sustain. At the same time, current Canadian operators are small by global standards. These two factors suggest that the room for efficient entry by additional networks is very limited, but that there are significant gains to be had in terms of product choice, innovation, investment and cost efficiency from permitting integration of existing networks with other networks, particularly those in North America. Theory, recent developments in the global telecom markets, and historical precedent all suggest that these benefits are potentially very significant;
- Asymmetrical policies that will effectively make it impossible for large integrated electronic communications providers who fall foul of Options 2 and 3 will likely be ineffective in promoting new entry, while denying Canada the substantial benefits of integrating existing networks. Such policies might be justifiable if a compelling narrative of market failure were available to justify them, but it is manifestly not;
- Further, such policies can cause other harms beside the opportunity cost of failing to integrate existing networks. Such policies could promote inefficient entry by players who instead of expanding the variety of options available for consumers, simply "steal" market share from incumbents. Such entry could easily be duplicative and not lead to market expansion. Thus, instead of resulting in a more "competitive" market structure, such policies might well instead produce a market structure where Canadian incumbents are displaced by a foreign firm. Such an outcome could easily

has focused on the potential for foreign-backed entry to "cure" Canada's supposed under-performance in the wireless space.

leave Canada worse off than under the *status quo* represented by current market structure and foreign ownership rules. Because this change could easily raise the average costs of incumbent firms, prices for Canadian consumers could rise. Further even if prices do not rise, the cost of the displacement is not zero to the extent foreign firms are effectively subsidized by accommodating entry policies. Accommodating entry policies, such as spectrum set aside may provide the foreign firm with access to scarce resources at a cost to the foreign firm below their opportunity cost;

- Lastly, telecommunications and broadcast content (both video and radio) are increasingly provided over the same distribution networks. Few firms will want to remain “pure play” telecommunications firms, providing another reason why IC’s proposals are unlikely to produce the entry it seeks, but deny the benefits of integration that we think are crucial. Public policy goals such as ensuring sufficient Canadian content in the broadcasting sector can probably be met by straightforward regulation and by providing subsidies to content producers. Meeting such public policy goals does not require distorting the market for ownership of telecom firms.
3. In particular, one must be appropriately sceptical of the notion that foreign investors would be particularly attracted to entering the Canadian telecom market. The Canadian wireless market is a mature one, Canada is a relatively high-cost nation, Canada has institutional similarities principally with the U.S. but not with Europe or Asian nations, and Canada already has a wireless entrant with substantial foreign backing. In particular, there are definite upper bounds to the number of entrants that might be sustained in a particular wireless market. In most wireless markets in developed nations, there are no more than four national wireless competitors. In the United States, however, there are several individual markets where there may be five or more competitors. Given the entry of Globalive/Wind in many markets across Canada, and the launch of wireless services by Videotron in Quebec and the prospective launch of similar services in British Columbia and Alberta by Shaw, the typical Canadian metropolitan area is likely to have as many competitors as a typical U.S. metropolitan area, even though the Canadian market as a whole is far smaller than the U.S. market.
 4. It is thus difficult to see how further entry can be sustained, or even whether all the existing players can survive, without some eventual industry rationalization. It seems unlikely that there is a large remaining pool of foreign firms seeking to enter the Canadian market by committing to a new “telecom-only” firm. Canada’s relative geographic isolation and its lack of “fit” with many other national telecom markets (excepting the U.S.) would also appear to militate

against the prospect of the Canadian telecom and communications sectors receiving large-scale investment from outside North America.

5. However, there is a significantly higher probability that a well-heeled U.S. cable-co or telecom incumbent will seek to extend its operations by buying one of Canada's well-run and competitive cable or telecom operators; this is particularly the case since the Canadian operators in many ways parallel their American counterparts, making an extension of operations across the border particularly "natural."
6. Further, integrated firms that are able to offer multi-plays would appear to be far more attractive than pure telecom firms. However, both Option 2 and Option 3 would effectively curtail the ability of a new firm to expand into video services (Option 2 appears to apply only to small firms that are subject to the Telecommunications Act). Thus even if a foreign investor decided to take the plunge and enter the Canadian market, they would find that they were effectively confined to a "telecom" silo, which would be highly unattractive from an investor's perspective.
7. Finally, even if large amounts of foreign capital are waiting to be deployed in favour of smaller Canadian entrants (principally wireless ones) or alternatively in pure-play Canadian telecom firms, that still may not justify asymmetrical policies. Asymmetrical rules can only be justified if it can be shown that there is a problem of inefficient market power in the Canadian telecom industry (specifically the wireless market segment) and that the consequences of such market power can *only be rectified by permitting entry that would otherwise not occur under either the status quo or under symmetrical liberalization rules.*
8. Under some circumstances, asymmetrical policies might create excessive incentives for entry in a market where the natural limit on the number of market participants has been reached. In particular, the type of foreign firms for whom asymmetric policies are the marginal determinant of their entry and investment decisions are more likely to be firms that effectively "steal business" from incumbent firms rather than innovative firms whose entry results in greater product variety and market expansion. In this case, the impact of asymmetrical policies might simply be to transfer market share from Canadian firms to foreign-owned firms, instead of resulting in an expansion of output and/or lower prices. Given that the other policy measures such as spectrum set-asides and network sharing obligations that IC has mandated for new entrants already impose costs on Canadian firms, the net result of subsidizing such business stealing entry maybe to leave Canadians worse off than before. Such entry could easily harm Canadian consumers if the average cost of Canadian networks rises because of the loss of market share. Rising average cost will be passed on to consumers in the form of higher prices.

9. The remainder of this report is structured as follows:
 - Section 2 lays out the fundamental economic forces that have historically shaped and are now shaping market structure in the telecommunications industry. These forces suggest a growing advantage to firms with scale and the ability to form complementary relationships with content producers, device manufacturers and other participants in the “ecosystem” of modern broadband telecommunications;
 - Section 3 discusses the benefits of liberalizing foreign ownership restrictions, in the context of Canadian telecommunications. While most existing studies have emphasized lower cost of capital, our analysis emphasizes the benefits of integration with global (chiefly North American) networks;
 - Sections 4 and 5 discuss why Options 2 and 3 as proposed by IC are likely to deny Canada the benefits of foreign ownership liberalization and may even create other harm by distorting the competitive dynamics of the market and encouraging potentially inefficient entry.

2. ECONOMIC FRAMEWORK

2.1. Fundamental economics of modern telecommunications

10. Network industries such as telecommunications are highly capital-intensive, the construction and capital costs are sunk, and they are characterized by economies of scale and scope. Economies of scale arise from long run fixed costs associated with construction and indivisibilities associated with the components of the network (the average cost of capacity of network components declines as capacity increases). Economies of scope arise because the network can be used to provide multiple services.

2.1.1. Size and scope

11. In the telecommunications world, size and scope (that is, the ability to provide a wide range of services and products, many of which are complements in use or complements in production) are distinctively advantageous. The preponderance of fixed costs over marginal costs lends significant advantages to those firms

that can recover these costs over the largest production volumes (in this case, the largest number of subscribers). Further, because many services share the same underlying plant (for instance, local and long-distance services share the same “last mile” infrastructure, as do voice services and broadband services, and even wireless services often use elements of wire-line infrastructure for transport purposes), the average incremental costs of providing multiple services is below the average cost of providing these services on a stand-alone basis.

12. Larger and more diverse firms are thus more efficient, and in fact are able to charge lower prices to their customers.
13. Competition is a selection mechanism. Firms compete by striving to reduce costs and only the efficient survive. Competitive pressure results in firms adjusting scale and scope to minimize costs. If there are economies of scale and scope we should see successful firms growing in size, either by expansion or merger. That is precisely what has occurred in telecommunications. If one were to apply the survivorship principle of Stigler (1958)², the increasing integration and scale of telecommunications firms in itself demonstrates the advantages of scale and integration across functions and capabilities. That is, the remaining firms in many markets have been created by integrating with other firms and acquiring increasing scale economies and product scope.
14. This is most clearly seen in the U.S. telecommunications market. In the long-run, there appear to have been virtually no substantial benefits from the decades-long effort to break up the Bell System. Competition concerns about the impact of a vertically integrated Bell System on new entry into the long-distance market could have been met by implementing simpler equal access requirements rather than implementing the radical option of divestiture. Noam (2009) compares the evolution of prices, overall market concentration, employment and investment in R&D for the United States over the period 1984-2009 with that in Canada, which for much of this period pursued less aggressive regulatory policies, and which did not break up its own “Bell.”³ His conclusion is that the Bell System died in vain. Ultimately, economies of scale and scope led to a significant reformation of the Bell System in the shape of a “new” AT&T and Verizon, which are by far the two largest telecommunications firms in the United States. The existence of scope economies—which provide significant efficiency gains from vertical integration—is demonstrated by the

² Stigler, George J., “The Economies of Scale”, *Journal of Law and Economics*, October 1958.

³ Noam, Eli, “Did AT&T Die in Vain? An Empirical Comparison of AT&T and Bell Canada”, *mimeo* 2009.

mergers between what were “long-distance” companies and local exchange carriers (Tardiff, 2006).⁴

15. Firms have been getting larger and/or adding complementary functions such as wireless networks to their armoury. Several examples of firms seeking to merge with other firms to derive scale economies (e.g., RBOC mergers in the United States) or vertically integrate (mergers between local and long-distance companies) or integrate so that they can add different, and possibly complementary, networks (alliances between cable operators and wireless firms, as seen in the consortium backing Clearwire, which is deploying WiMax technology in many U.S. cities) can be readily observed. Exhibit JRC-2 provides some examples of U.S. mergers and alliances in the last decade or so.

2.1.2. Implications for Canadian firms

16. Within Canada itself, the implications of economies of scale and scope have already manifested themselves in several ways:
 - The leading telcos, Bell and Telus, have moved into IPTV and are deploying FTTN and FTTH architectures in order to facilitate this move, matching not only the services available on cable networks, but also closing the performance gap.
 - Cable operators such as Videotron and Shaw are moving into the wireless space, after already broadening their service offerings to include high-speed internet access and telephony.
 - Cable companies like Rogers and Shaw have evolved from a collection of local radio and cable stations to national or regional networks by acquisition and rationalization;
 - Smaller wireless firms like Clearnet and MicroCell were subsequently acquired, which again demonstrates the logic of scale and scope in the telecom business.

17. A glance at the data shows that even the largest Canadian telecommunications firms are at the lower end of the international “size” spectrum. Particularly noteworthy is the difference in size between the Canadian firms and Verizon and AT&T in the United States.

⁴ Tardiff, Timothy, “Changes in Industry Structure and Technological Convergence: Implications for Competition Policy and Regulation in Telecommunications”, 2006.

TABLE1: REVENUE, MARKET CAP AND SUBSCRIBERS

	Revenue (U.S. \$ bn)	Market Cap (U.S. \$ bn)	Total Accesses (m)⁵
Vodafone	67	114	338
Telefonica	75	94	265
France Telecom/Orange	59	50	193
Deutsche Telekom	70	56	218
Verizon	108	75	135
AT&T	123	146	156
Qwest	12	9	15
Bell Canada	17	23	17
Telus	9	12	12
Rogers	11	20	12

Source: Yahoo Finance and Company Annual Reports; Telefonica Presentation, February 2010.

18. Canadian firms' relative lack of size means higher cost of capital and higher per-unit costs compared to other markets. Some of these costs are exacerbated by Canada's foreign ownership restrictions (a point we discuss in the subsequent sections).
19. As indicated, larger firms also enjoy the benefit of easier access to financing. Thus firm size is negatively related to the cost of equity financing for firms, as large firms are perceived as somewhat less risky (all else equal) than small firms. Table 2 shows equity betas for U.S. firms (which tend to be larger) are lower than equity betas for Canadian firms. Note that this is a simple measure of how correlated the risk of the particular stock is to overall market risk— it is a reflection of how the sales and earnings (and hence the share price) of a firm responds to fluctuations in economic conditions.

⁵ This is the sum of total fixed line (including business), broadband, wireless and Pay TV subscribers. Most of the data are from a Telefonica Presentation, February 2010, available at http://www.o2.com/downloads/profile_strategy_feb_2010.pdf. Data for some U.S. and Canadian operators was compiled from company reports, resulting in some comparability problems and under or over-counting. However, the quantum difference in scale between the largest Canadian operators and the large global firms is still apparent.

TABLE 2: REVENUES AND (LEVERED) EQUITY BETAS

	Revenue (US \$ bn)	Beta
Rogers	11	1.14
Bell	17	1.03
Telus	9	0.89
Verizon	108	0.61
AT&T	123	0.69
Qwest	12	0.8
Comcast	36	0.91

Source: finance.yahoo.com; company reports.

2.2. Implications of Size and Scope in Telecommunications

20. In the next two sections we outline two important implications of size and scope in telecommunications. The first is that it is important to distinguish between market power and *the inefficient exercise of market power*. As we explain, it should be expected that facilities based carriers will have high gross margins. The second is that there is a natural limit on the number of facilities based carriers, i.e., networks, in telecommunications markets.

2.2.1. What does “market power” really mean?

21. By the very nature of their costs, telecommunications firms cannot price at short run marginal cost as competitive firms would. Instead they must price at levels in excess of short run marginal cost, thereby exercising market power.

However, it would be wrong to expect that pricing above short run marginal cost is a measure of inefficient market power. Firms must be able to price so that they recover at least their average long run cost of production, given the fixed costs associated with operating in the industry. The exercise of market power by firms whose costs are characterized by economies of scale and scope is problematic only if it is significant and durable. The term “significant” means that prices exceed long run average cost.

22. Although some recent analyses appear to take account of the capital intensity of the industry in making assessments about underlying margins, these analyses are likely also flawed. A much better measure of profitability would be to look at the net present value (NPV) of total cash-flow generated over the life-cycle of

a network investment. This is the relevant consideration for investors funding new cycles of network investment. Such investors will anticipate that initial cash-flows will be low or even negative, but that high margins in later years will remunerate them sufficiently for high initial capital outlays—for instance, all else equal, a large-scale new network investment will depress cash-flows in the year that the investment is made, but capital requirements will drop in subsequent years, leading to the impression that even cash-flow margins are improving and “market power” is increasing, when in fact all that is happening is the normal dynamics of the investment cycle. Only if firms are able to realize returns that are substantially above their opportunity cost of capital over the life-cycle of an investment project can one even begin to draw conclusions about abnormal levels of profitability. And even if it appears that firm earnings exceed the opportunity cost of capital, care must be exercised to determine if the excess returns are attributable to market power or are Ricardian rents. Ricardian rents are really returns to superior factors of production that provide a firm with an apparent cost advantage. They are not a result of the firm exercising market power.

23. An important source of long run fixed costs that must be covered by quasi-rents, are innovative activities. A firm might acquire high market share and a period of exceptional profitability because it has invested in innovative services and products, or made substantial investments in the broadband platforms required to deliver these innovative services and products. In a dynamic market where technologies are frequently updated, it would be wrong to not allow such a firm to enjoy the fruits of its innovative efforts. If the firm expected that as a result of public policy, any exceptional profits that it realized as a result of its risk-taking and innovation were redistributed or appropriated in other ways, its incentives to continue investing and innovating would be seriously blunted.
24. In a dynamic environment, characterized by frequent upgrades to products, networks and consumer demand, providing appropriate incentives to innovate (by permitting firms to realize high returns from their innovations) would be a key under-pinning of consumer and economic welfare. Any inferences about market power in a dynamic industry would need to take account of the durability of that market power in the face of rapid change. High market share and high accounting profitability in the short-term may not suggest a reason for concern. This contrasts with the conventional technologically static environment, in which high market shares and exceptional profits might provide a more appropriate cue for policy concerns.

2.2.2. A Natural Limit on the Number of Carriers

25. Both wireline and wireless markets will be characterized by a limit on the number of viable market participants (that is, those who can compete and

survive without policy intervention designed to advantage them or subsidize them). This limit is determined by the interaction between the economies of scale and the demand that is available to be served.⁶ The smaller the market and the more extensive economies of scale and scope the fewer the number of firms. The substantial sunk costs associated with network deployment mean that short-run avoidable costs will be less than long run average cost. Economies of scale mean that short run marginal cost will be less than long run average cost. Both mean that there is some natural amount of market power, where market power is defined as the ability to profitably raise price above short run average avoidable cost or short run marginal cost, necessary for firms to break even. If there are too many networks in the short run, the competitive price will reflect short run costs and firms will not break even. In the long run, consolidation and exit will occur until firms are at least able to raise price over short run costs sufficient to break even. There is a minimum gross margin required for the marginal network to be just profitable and the number of networks will adjust in the long-run to ensure this margin is realized.

26. Thus, while the Canadian (and other) telecommunications sectors might seem highly concentrated because there are only a handful of operators of consequence, this is the natural result of the cost structure of the telecommunications industry. As noted by the U.S. Department of Justice in recent comments filed with the Federal Communications Commission, one cannot expect the textbook model of competition to prevail in broadband and telecommunications markets:

We do not find it especially helpful to define some abstract notion of whether or not broadband markets are “competitive.” Such a dichotomy makes little sense in the presence of large economies of scale, which preclude having many small suppliers and thus often lead to oligopolistic market structures.⁷

27. A look at concentration levels and market shares in international wireless markets, for example, reveals that in most countries, three firms have between 80% and 100% of the entire market for subscribers to wireless service. In fact, the total number of national competitors in any given wireless market never exceeds five, and even in that one country (the U.K.) where there are five nation-wide wireless operators present, that number will soon shrink to four (due to merger). The maximum number of facilities-based wireless carriers in

⁶ The definitive framework for analyzing the relationship between technology, market size and equilibrium market structure can be found in Sutton, John, *Sunk Costs and Market Structure: Price Competition, Advertising and the Evolution of Concentration*, (Cambridge, MA: MIT Press), 1991.

⁷ See <http://www.justice.gov/atr/public/comments/253393.pdf>.

some U.S. urban areas is seven.⁸ As mentioned previously, it is quite likely that most of the larger Canadian metropolises will see at least five competitors in the wireless market, and possibly as many as six or seven. Thus, Vancouver could be served by the three existing national networks, WIND, and likely Shaw, as a minimum, and possibly one or two smaller operators (although the viability of the smaller operators seems questionable). Market structure across different countries of roughly similar size tends to be strikingly similar, confirming the suspicion that technology and underlying costs are far and away the primary determinant of market structure.⁹

28. From this perspective, it appears surprising that Canada support or will soon support as many national competitors as the United States. One might thus have concerns about how sustainable the current market structure proves, leave alone a market structure with a new entrant added in, given the relatively small size of the Canadian market. Such an industry structure might prove particularly hard to sustain if there is a need to make significant new network investments on a regular basis, or if firms actively compete to provide customers with access to the latest products and services that are available on the global market.¹⁰

29. Further, such “regularities” in the data suggest that there is a seriously limited role for policy interventions to influence market structure. Attempts to create competition and shoehorn in additional competitors will result in gross margins in the short run insufficient to justify replacement and maintenance of networks. The short run gain of increased competition does not last. It leads to exit and consolidation in the long run and restoration of market power sufficient to sustain investment. If there is a continued pattern of policy to create

⁸ See, for example, the analysis of market shares contained in the Federal Communications Commission’s 14th CMRS Report, and also the recent report of the Parliamentary Standing Committee on Science, Technology and Industry (2010).

⁹ See Table 3 below. Rather than look at the number of national competitors, a measure of the effective number of competitors is to invert the Herfindahl Hirschman Index (HHI) and multiply by 10,000. This yields the number of equal size firms for that value of the HHI.

¹⁰ In the United States, there are four national competitors. If one imagines a United States of Europe, then there are three or four firms that are present in most national markets, namely, Vodafone, Telefonica, T-Mobile, and Orange, and a number of firms such as Telia or Hutchison that are active in a number of smaller markets. Thus Europe actually has a similar, if somewhat more concentrated market structure at the U.S., with a limited number of “national” or “trans-Continental” firms. What makes Canada unique is that it will imminently have four or five national competitors, none of whom are anything like as big as the U.S. “nationals” or the European “continentals.” This suggests that there are significant gains to be had from opening up Canadian markets in a symmetrical way, so that existing networks can use improved scale and scope to provide better products, achieve greater cost efficiency, invest and innovate. We discuss these facets of integration in Section 3 of the paper.

competition, costs in the industry will be raised as investors demand a risk premium to compensate for the risk of non-recovery of capital investment.

2.3. **Convergence and complementarity: wireless and wireline, broadcasting and telecom, devices and networks**

30. Another important development in the telecommunications world has been the phenomenon of convergence. Convergence has been defined by the CRTC as follows:

Digitized voice, data and audio and audio-visual programming may all be distributed on networks based on various physical media, including coaxial cable, copper and fibre, as well as wirelessly across multiple spectrum bands using a variety of technologies. Digitization has enabled services that were previously separate, such as voice, data, audio and video, to be distributed over the same network, to share resources and to interact with each other—this is referred to as convergence.¹¹

31. Convergence further changes the shape of the telecommunications industry. This is because previously discrete product offerings such as voice and video are now offered over the same physical medium. Further, different types of networks might be functionally equivalent from a demand perspective, and may thus be substitutes for each other. Wire-line and wireless voice (and increasingly broadband), as well as cable and telecom (DSL) broadband come readily to mind.
32. Convergence also brings with it the possibility of new players and new sources of market power and competition. For instance, products like the Apple iPhone and the iPad might appear to be of concern mainly to operators that are classified as “wireless operators.” Yet devices such as the iPhone and iPad might have the effect of creating more users for wireless broadband services, possibly at the expense of fixed-line operators that lack wireless arms to their operations. At the same time, an integrated firm offering both wireless and wireline services might be able to offer Wi-Fi coverage via its wireline network to complement “3G” wireless services, and thus out-compete a wireless-only operator.
33. At the same time as possibly conferring greater strategic advantages to integrated multi-product firms, new devices (particularly Smartphones) create a

¹¹ CRTC, “Navigating Convergence: Charting Canadian Communications Change and Regulatory Implications”, February 2010.

new and complex “eco-system” characterized by inter-dependencies and complementarities between carriers, content developers and device manufacturers. Carriers require devices to attract customers to their network, but the devices may require continued investment in networks to actually function as promised. Further, unfamiliar devices will often require carrier subsidies in order to persuade consumers to try out such devices. In return for such subsidies, carriers would hope that the devices actually sell in substantial numbers, which will depend not just on the device itself, but what applications and content it can support. Yet just as devices require applications, application developers are more likely to develop applications for devices that have acquired significant market volume. Thus carriers, operators and developers alike will need to make significant complementary investments in order to keep a virtuous cycle going. Yet their abilities and incentives to make such investments hinge critically on the share of the returns that they are able to appropriate. One observer (Hazlett 2009) suggests that the new dynamic has in fact shifted power in the “telecommunications” market away from network operators and towards device makers such as Apple and Google:

This structural reformulation is now being driven by smartphone entrants such as Apple and Google, firms possessing no wireless assets. Innovations are accessing the mobile market via unregulated contracts with carriers. Yet, the manner in which industry rents seem to be shifting in favour of such outside innovators –complementors of wireless networks – suggests that, if market power is in evidence, it is generated not by virtue of incumbency in telecommunications network services, but by competitive superiority in the creation of mobile solutions.¹²

2.3.1. Implications of convergence for market structure and networks

34. Convergence challenges conventional definitions of “significant market power” by challenging the notion that there are well-delineated markets for wireless service, or “broadcasting distribution”, or “fixed line services.” Convergence means that it is becoming more and more likely that the relevant market for the assessment of market power will be the provision of broadband network access at a geographic location. Competition between traditional telecommunication and cable networks will be over the price of access, its reliability and speed, and the bundle of services available.
35. The broad thrust of convergence (or increasing technological complexity and inter-dependency) in the telecommunications industry can be seen in a number

¹² Hazlett, Thomas, “Modular Confines of Mobile Networks: Is the i-Phone i-Phony?”, George Mason Law and Economics Research Paper 10-01, May 2009.

of developments and in particular efforts by network operators to find the optimal organizational forms that will enable them to benefit from the wave of innovations in devices and content. Firms have responded in a variety of ways to the challenges posed by the rise of “outside innovators” – device manufacturers and developers — in an effort to keep an appropriate share of available rents from innovation:

- Thus, NTT in Japan significantly shaped the development of the market for mobile applications (making Japan the most advanced market in the world for mobile services). As described in Hazlett (2009), NTT launched the i-Mode service which was the world’s first mobile Internet service, and it developed into the most innovative mobile ecosystem on the planet. Despite NTT’s significant control over setting standards for the platform, i-Mode has been very successful because it offers content developers a productive environment in which to develop their content—NTT’s significant size and reach means that developers have strong incentives to play by the rules that NTT creates for the “walled garden.”
- Similarly, carriers like Verizon have launched their own “apps store”, for smartphones using the Blackberry or Android operating systems. In this case, all such Smartphones will ship to customers with just Verizon’s own “apps store” enabled, although other apps store (such as the one Research in Motion has developed for Blackberry devices) are still accessible via the Internet.¹³ The strategies of Verizon and NTT show that there is some scope for carriers to get in on the applications and content business, and to work directly with third-party content developers, even while continuing to sell devices whose own manufacturer (such as Google/HTC, or RIM) competes with the carrier in courting the development of content and selling applications to end-users.

36. In some cases, firms’ efforts to achieve the optimal organizational forms and alliances will be achieved by outright integration with those that provide some type of complementary function, whether that complementarity arises from complementary content (as discussed above) or even complementary networks (e.g., wireline firms integrating with wireless firms, or wireless firms that require backhaul and transport from cell towers seeking to integrate or form alliances with wire-line firms that provide the leased lines that enables such transport).

¹³ Source:
http://www.cio.com/article/497284/Verizon_to_Launch_Cross_Platform_App_Store_for_BlackBerry_Palm_More

37. At the same time, scale will likely be of increasing importance. The relationship between, for example, applications developers and wireless firms might be best characterized as exhibiting “indirect network effects.” The more people that subscribe to a network, the more attractive and cost-effective it is to develop applications and devices for that network. (But for that network to attract size, it also requires devices and applications to attract subscribers). Alternatively, network operators of a sufficient size may have advantages in terms of being able to retain some of the economic rents from innovation. This in turn renders them more able and more incented to continue investing in networks that sustain innovation in devices and applications.
38. Canadian firms are disadvantaged by their relatively small size and Canada-only nature in terms of the complementary relationships that they are able to form with other parts of the “eco-system” of modern communications. Specifically, they are less likely to have sufficient bargaining power and thus realize an adequate share of the economic returns from the type of complementary innovations and investments discussed previously. Similarly, a relative lack of bargaining power might also affect their ability to realize favourable terms on licensing intellectual property, in forming supplier relationships, and in negotiating important content rights.

2.4. **Summary of economic framework**

39. The previous section has demonstrated both the traditional importance of scale, and the growing value of scale and scope in the modern “converged” telecommunications business. It has also demonstrated that conventional inferences about market power and market concentration are invalid in this sector. The underlying technology of the industry mitigates for high levels of concentration. In this context, marginal-cost pricing cannot be expected, nor are price-cost margins of the type that are typically reported particularly meaningful. Further, the lumpy nature of investment in the industry and high ongoing capital requirements likely mean that cumulative cash-flows over several years are a more appropriate measure of the ability to earn super-normal profits. Even so, the dynamic nature of the industry also suggests that market power might not be durable and that current high market share and/or margins may not be reflective of an underlying problem that requires a policy intervention.
40. Moreover in markets characterized by significant economies of scale and scope the interaction between these advantages of being large and the size of the market will set an upper bound on the number of networks that can operate profitably.

41. Although the Canadian market shows the same signs of convergence and integration as do other markets (particularly the U.S.), Canada's firms are relatively small in a global context, and their global lack of size translates into higher capital costs, higher units and less ability to develop and exploit complementary relationships.
42. In the following section, we show how liberalizing foreign ownership rules (in the abstract) can promote potentially highly beneficial integration between existing North American networks.

3. FOREIGN INVESTMENT LIBERALIZATION

3.1. Foreign Investment in the abstract

43. A significant amount of economic literature supports the idea of opening up domestic markets to foreign investment and competition. Quite often, large foreign firms bring with them sophisticated technology and managerial practices. They are often leaders in productivity. Not only are there direct benefits in terms of the job-creation that foreign investment brings, but there are significant indirect benefits in terms of productivity and technology “spillovers.” Multinationals improve allocative and productive efficiency through a range of effects ranging from disruption of supply bottlenecks to a “demonstration effect” upon local firms has been broadly supported by the economics literature for most of the last 40 years. A summary of important case studies and econometric studies on the “spillover” benefits of foreign direct investment (FDI) can be found in Blomstrom and Kokko (2003).¹⁴ Although the available literature seldom discusses consumer benefits from openness to foreign investment such as lower prices, greater product choice and quicker introduction of cutting-edge technologies, such benefits generally follow from the increased efficiencies and spillover effects described in the academic literature.
44. In the Canadian context, a variety of studies ranging from Globerman (1979) to Bernstein (1994) to recent work by Industry Canada (Rao and Tang, 2004) have found that (a) spillover effects exist — productivity is higher in sectors with more foreign ownership, both among Canadian firms and among foreign-owned

¹⁴. Blomstrom, Magnus and Ari Kokko, “The Economics of Foreign Direct Investment Incentives”, Working Paper 168, January 2003. <http://www2.hhs.se/eijswp/168.pdf>.

firms, (b) superior technology and managerial ability resulted in foreign-owned firms being 10 to 20 percent more productive than domestic ones, (c) cross-border knowledge spillovers between the U.S. and Canada have been highly significant in generating innovation and physical capital investment within Canada, and (d) finally, there is no evidence of a “hollowing out” effect of foreign ownership or participation upon Canadian industry, nor has the Canadian social safety net being compromised by closer North American integration. Exhibit JRC-3 provides a little more detail on these studies.

45. Although one rationale behind the particularly strict restrictions that exist in key sectors such as commercial aircraft and telecommunications is to promote “Canadian self-sufficiency” and nurture established areas of Canadian expertise, the Telecom Policy Review Panel (TPRP) opined thus:

The highly networked nature of telecommunications services facilitates the centralization of some management and network control functions. However, these functions may be established in different locations, either in Canada or another country, and it is not clear that Canada would be a net loser of head office or network control functions, even if some Canadian carriers became controlled by non-Canadian firms.

[N]ew “greenfield” investment, domestic or foreign, in the Canadian telecommunications sector would likely create new employment. Such investment could also provide incentives for increasingly mobile and talented individuals to stay in Canada rather than migrate to other locations around the world.

3.2. **Benefits from foreign investment in the Canadian telecom case**

46. There are two possible sources of benefits of removing existing restrictions on foreign investment in telecommunications. The first is that the relaxation in ownership restrictions lowers the cost of capital sufficiently that there is an increase in the number of facilities based networks, either from *de novo* entry by a foreign firm or acquisition of a small existing provider. The second is that eliminating foreign ownership restrictions enhance competition between existing firms. This can happen because the reduction in foreign ownership restrictions either lowers costs of telecommunication services or results in network integration. Lower costs might result because the cost of capital is less, the market for corporate control is more efficient and X-inefficiency is reduced, and foreign ownership enhances technological and knowledge transfer. The potential for benefits from network integration to occur stem from the interaction of a larger market and the benefits of size.

3.2.1. **Investment in new networks/smaller players**

47. The capital intensity of the telecommunications business makes access to capital markets a vital issue. While larger firms might be adequately served by

Canadian capital markets, it is widely claimed that smaller firms are not. As expressed in the report by the Parliamentary Standing Committee (2010):

*It should be noted that minimizing the cost of capital is important for everybody, but is critically important for SPNEs in the wireless segment. The reason for this is that the large incumbents can count on the “free” cash flow that their incumbent position provides them....the large incumbents could use this cash flow in a variety of ways including to fund expansion. The cash flow provided by their current asset base constitutes, for the large incumbents, self-generated capital and decreases their risk profile. This lower risk profile in turn lowers the risk premium demanded by capital markets.*¹⁵

48. Thus, the current lack of access to global capital markets for smaller Canadian firms might represent a binding constraint upon their ability to operate in the telecommunications market. Lifting foreign ownership restrictions might enable smaller players to access global capital markets.
49. By enabling existing smaller players to access global capital markets, removing foreign ownership restrictions could deepen competition in the Canadian telecommunications market. One of the currently small players might be able to evolve into a strong competitor, even one that offers well-differentiated products or bundles of products from other operators in the market. In this case, the consumer benefits of such entry might be substantial.
50. Further, lifting foreign ownership restrictions might encourage the entry of a large foreign firm that establishes its own Canadian operation, and builds out its own Canadian facilities.
51. Both the strengthening of existing small players and an all-new network play are much more likely to occur in the wireless sector than the wireline sector, given the even more onerous nature of sunk costs in the wireline sector, and given the inefficiency of replicating existing networks.

3.2.2. Benefits of integration of existing networks

52. However, the casting of the Canadian foreign ownership debate solely in terms of lowering the cost of capital for new market entrants misses other key benefits from liberalizing foreign ownership. As the data from the previous section showed, Canadian firms are almost “minnows” in international terms. At an obvious level, the difference in scale alone means higher costs and prices in

¹⁵ Standing Committee on Industry, Science and Technology, “Canada’s Foreign Ownership Rules and Regulations in the Telecommunications Sector”, June 2010, pp.23-25.

Canada, and greater difficulties for Canadian firms to obtain financing for risky innovation.

53. Traditionally, Canadian-owned firms in most industrial sectors are smaller than their U.S. rivals, and to at least some extent, the disadvantages of size are reflected in somewhat higher costs of finance for Canadian firms.¹⁶ This may reflect an intrinsically higher risk associated with Canada and Canadian capital markets relative to the United States. As also mentioned previously, this is reflected in the fact that Canadian telecom firms have higher Betas than their U.S. counterparts, demonstrating that they are relatively more thinly spread and more vulnerable to economic shocks. Further, foreign ownership restrictions may play a role in maintaining relatively higher costs of capital (relative, that is, to what they might be under foreign ownership and the attendant greater access to global capital markets). Evidence presented before the TPRP suggested that because of foreign ownership restrictions, the average monthly bill was \$1.09 higher for telecommunications customers and \$2.61 higher for cable customers. This was due to higher cost of capital alone.¹⁷
54. Recent developments in the U.S. emphasize the trends towards increasing scale and increasing levels of integration of different service offerings (video, voice, broadband and wireless voice and broadband). Although there has been significant criticism from some quarters regarding the consolidation of the industry, overall the United States market has seen the aggressive deployment (at least comparative to most of the larger Western European countries) of next-generation networks, by Verizon and AT&T. Further, the U.S. market has seen innovation and investment on the wireless front forge ahead. American wireless firms invest a higher share of their revenues than their European counterparts (Figure 1); further, the U.S. enjoys greater 3G coverage than many Western European countries despite its sprawling size. The U.S. also is witnessing more rapid deployment of 4th-generation networks (WiMax and LTE) than most of Western Europe. Most importantly, the U.S. is now the focus of the development efforts of many international wireless handset manufacturers. A recent filing at the FCC notes that many of the most talked-about and sophisticated handset models were launched in the U.S. market first; that there are more handset models available in the U.S. than almost anywhere else; that there is a vibrant market for “apps” or “applications” that are developed for

¹⁶ Lorie Zorn, “Estimating the Cost of Equity for Canadian and U.S. firms”, Bank of Canada Review, 2007. Zorn finds that because of a combination of factors such as different levels of leverage and Canadian firms being smaller than their U.S. rivals, the difference in the cost of equity (which is one component of the Weighted Average Cost of Capital, or WACC) between Canada and the U.S. is about 0.6%. The study finds that even after controlling for the effects of firm size and leverage, there is a persistent, if more modest, difference in the cost of equity between Canada and the U.S.

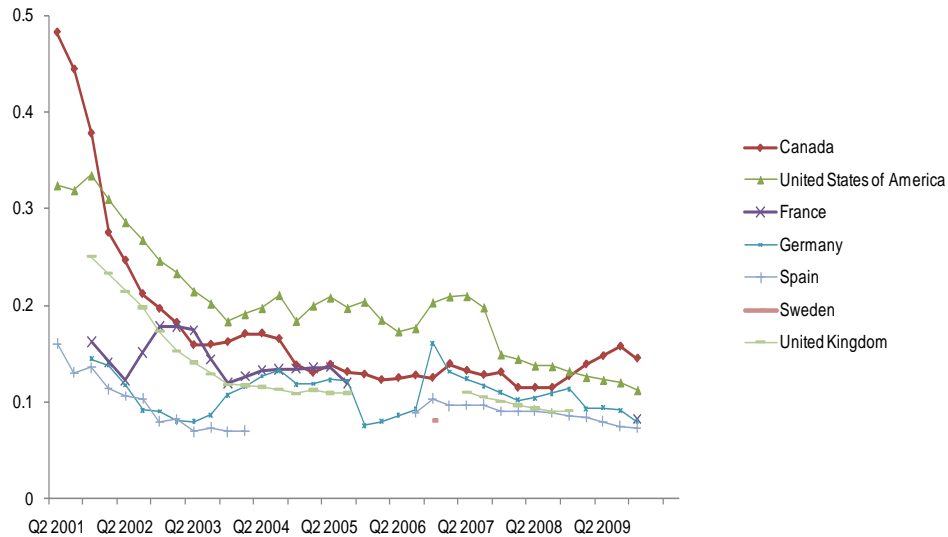
¹⁷ See TPRP Final Report, Afterword.



increasingly sophisticated phones; and that various U.S. network operators have been at the forefront of launching open development initiatives designed to bolster the development of a complementary market in applications.¹⁸ Verizon has by the far the largest deployment of fibre-to-the-home in the developed OECD countries outside of Japan and Korea, and is arguably the only large-scale deployment in the entire OECD made on a purely commercial basis and which serves primarily mid-density suburban areas.

¹⁸ See ex-parte filing of CTIA, the Wireless Association, “Updating Assumptions: Reviewing Tim Wu’s Wireless Net Neutrality Paper Three Years Later”, February 5, 2010. This paper rebuts the once-popular notion that the United States was lagging behind Europe and Asia in mobile telecommunications. It particularly demonstrates that the U.S. handset and applications markets are very vibrant. For example, 630 models of handsets were sold in the United States, compared to 147 in the United Kingdom, according to the CTIA. http://files.ctia.org/pdf/filings/100205_CTIA_Updating_Assumptions_Ex_Parte_FINAL.pdf.

FIGURE 1: RATIO OF WIRELESS CAPITAL EXPENDITURE TO REVENUE, 2000-2009



55. While the U.S. and Canada have both seen integration and consolidation across platforms, there is a potentially significant difference between Canada and the U.S. In the U.S., telecom operators are expanding and integrating into complementary areas, including into the development of content and applications. At the same time, players that were never considered part of the “telecom” business, such as Apple and Google are increasingly the most influential players in the telecom “eco-system.” These developments have brought significant consumer benefits, most especially in the form of exciting new products that rely on broadband connectivity. Although these benefits are also realized by consumers in Canada, Canada as yet lacks the eco-system of network operators, content developers and device makers (despite RIM) who have Canadian hubs for developing similar products.

56. From a Canadian perspective, this beneficial integration and these ever-evolving business models might find the Canadian border a barrier. While Canada’s own carriers have continued investing in both wireline and wireless networks, and Canadians indeed enjoy some of the most advanced wireless networks in North

America, Canadian carriers would seem significantly less well-positioned in the telecommunications “eco-system” than their U.S. rivals.

57. This is not quite to say that existing Canadian carriers are unable to invest in their networks, or that they will not prove viable going forward. Rather, it is simply the case that these Canadian carriers appear to be less well-positioned to take advantage of the *positive opportunities* that operators with the scale and scope of their larger U.S. rivals are attempting to exploit. To the extent that the success of these carriers also drives innovation through the wider telecom ecosystem (as evidenced by NTT’s success with i-Mode in Japan) and drives the creation of significant software and content developers, and to the extent that close alliances between network operators and device manufacturers can boost the development of design and manufacturing capabilities, the economic benefits to the wider economy may be of very significant size. Further, consumers in the innovating countries benefit by having access to a wider variety of devices and content, as well as better networks (in the long run). Thus important Smartphone models launch in the United States several months before they do in Canada. Indeed, the iPhone launched in Canada more than a year after it was made available in the United States, and months after its introduction in France, the UK, and Germany. Similarly, despite its proximity to the United States Canada was not close to being first in line for the new Apple iPad. As long as the Canadian market remains a distinct market from the U.S. market, Canada will enjoy a less-than-fair opportunity to fully avail of the economic opportunities and consumer benefits that might be had from rapid innovation in the telecom sector. The foregone economic benefits from the lack of integration are thus likely to be very significant.¹⁹
58. In this context, it is worth considering what North America integration might mean. The U.S. is a market of 310m people, Canada a market of about 35m

¹⁹ For instance, if a new device emerged on the market at a retail price of \$700, and was available in the U.S. a full year before it was made available in Canada, the cost of the delay can be calculated based upon the elasticity of demand for the device, and likely sales in Canada during the year when it was unavailable. One very approximate measure of the annual welfare gain from introducing this product is provided in Hausman (2002), which suggests that the annual welfare gain from introducing a new product is $\frac{1}{2}$ of revenues divided by elasticity. Thus if the device would have sold 500,000 to 1 million units in the year when it was unavailable, and demand elasticity was -1.5 (quite elastic demand, a realistic assumption for such a product) the lost welfare ranges from \$117 million to \$233 million. If similar welfare losses pertained across a variety of products and services whose introduction into Canada was delayed or abandoned, then the total welfare losses relative to the situation in which products in Canada were introduced at the same time as in the U.S. are economically significant. Of course, the full economic benefits from integration are likely to stretch well beyond just welfare gains from accelerated new product introduction, significant as these are. See Hausman, Jerry A., “Mobile Telephone”, Chapter 13 in Cave, Martin (ed.), *Handbook of Telecommunications Economics*, Volume 1 (Amsterdam: North-Holland), 2002.

people, or about 1/9th of the U.S. market. While the Canadian market is relatively small, it is not trivially small from an American perspective. Thus a large American firm may view expansion into Canada as a useful increase in the size of the addressable market. Such an expansion could be best achieved by integrating with a Canadian firm that uses similar technologies and has similar networks, but also a significant share of the Canadian market and the ability to generate cash for its American owners.

59. The integrated firm would operate in a market of almost 350 m people, and thus would realize scale economies that were not only far greater than the scale economies realizable by a Canada-only operator, but also materially greater than those currently realized by an operator confined to the U.S. market. The Canadian firm will be able to import the latest products and technologies from the U.S. market and will have access to intellectual property and content on the same terms as the firm as a whole. Thus the vast scale of the integrated firm would mean significant lower costs and the numerous other advantages alluded to above. Canadian technology, product offerings (including devices and content) and pricing might be expected to substantially converge to that prevalent in the United States, although the integrated firm is likely to be even more efficient and thus provide lower prices than the current “parent” firm in the U.S.²⁰
60. Exhibit JRC-4 provides some brief examples of the benefits of U.S-Canadian integration within the telecom sector in its early days, and also discusses evidence on the impact of the 1965 Auto Pact, which had significant benefits for the Canadian economy. These are not exact parallels to the current situation of Canadian telecommunications. However, a striking feature of the Canadian telecom market remains its relative institutional and structural similarities to the U.S. market. Large existing Canadian firms like Bell and Telus parallel their American counterparts in terms of the range of services that they provide. Canadian cable companies like Rogers and Shaw have also developed in a parallel fashion to their American counterparts such as Comcast and Cox — starting out as a collection of small cable franchises and radio stations, and ending up as large, successful integrated providers of video, voice and data services. It would seem natural for American firms to expand into the Canadian market, and for Canadian firms to be able to contemplate selling equity stakes to American firms on an unrestricted basis.²¹ Presumably, there would be strong

²⁰ Of course, these benefits would occur only after a period of integration and re-alignment of the firm’s operations.

²¹ There have been instances where American firms have taken stakes in Canadian firms since the early 1990s – for example, AT&T and Rogers Wireless in the early 1990s, and Ameritech and Bell Canada in the late 1990s. The AT&T and Rogers Wireless example shows the importance of foreign investment as a mechanism to transfer technology and brand capital. It also shows that this is possible without eliminating all

synergies between American and Canadian firms. Acquiring larger Canadian firms would further enable American firms to benefit from scale economies, while integration costs might be relatively low comparative to acquiring a non-North American firm.

61. It is also not fanciful to imagine that an integrated North American carrier with a substantial Canadian presence is a substantially better bet for Canadian-based developers, device manufacturers (RIM) and content developers to form productive alliances than is a firm with no Canadian presence, or a firm that is only present in Canada. Further, Canada possesses a substantially skilled workforce and wage costs in Canada are somewhat lower than in the United States. Recently, movement of international personnel into the United States has also become significantly more complicated because of restrictions on U.S. work visas—prompting Microsoft to relocate a major software development centre in Vancouver instead of Seattle, for instance. Thus Canada could provide an attractive location for research and development efforts. Similar to developments in the automotive sector, it is very likely that Canada will actually improve its current position in terms of being a centre for innovation across the telecom ecosystem. Crucially, integrated firms will be in a significantly stronger position than Canadian-only firms to negotiate deals for valuable content with key content producers and rights-holders.²² Thus new products and services are much more likely to become available in Canada. All of these facets of integration are likely to be significantly additive to Canadian jobs, output, productivity and consumer welfare.

3.2.3. **Costs of liberalizing foreign ownership restrictions: Jobs, R&D and National Security**

62. Exhibit JRC-5 provides some further discussion of the impact of liberalizing foreign ownership restrictions on three specific areas of concern: (a) the conduct of R&D activities in Canada, (b) job creation in Canada, and (c) national security. Our conclusion is that there are likely net benefits to Canada, rather than net costs, in jobs and R&D activities, while the issue of national security can easily be addressed, as it is in other OECD nations.

restrictions on foreign investment. However, the extent of benefits and, for some transactions at the margin, whether there is investment, may well depend on whether the foreign investor is able to maintain control. This is likely to be particularly true when capital is scarce.

²² However, this would need to respect Canadian content regulations. A variety of factors have complicated the entry of services such as Hulu (which provides online streaming of TV shows) into Canada, feeding the perception that Canadian consumers are significantly less well served via online content than their U.S. counterparts.

3.2.4. Broadcasting, convergence, and Canadian content issues

63. While the focus of the IC options and our analysis is on relaxing or eliminating foreign ownership restrictions in telecommunications, it should be clear that the advantages of scale and size are not restricted to telecommunications carriers, but apply as well to cable networks. It is common, the IC Consultation paper is an example, to suggest that telecommunications only networks be treated differently than networks that are also used by their owner to provide broadcasting content (the owner of the network is a licensed broadcasting distribution unit or “BDU”).
64. Given convergence, however, all of the main cable companies are telecommunications providers and all of the main telecommunications providers are, or will be broadcasting distribution units. As far as we know there is not a telecommunications provider with more than 10% of national telecommunications revenues that is not also a BDU. Hence in practice there is not a distinction between Options 2 and 3 and both would relax restrictions only on new entrants or small existing players who are pure telecom players.
65. The distinction between networks used by a BDU for broadcasting and those not used by a BDU for broadcasting is based on concerns over Canadian culture and, in particular, ensuring that there is adequate Canadian content.
66. Canadian ownership of broadcasting networks, much less the infrastructure used to convey “broadcast” video content, is not required to promote Canadian content. In fact, direct regulation of content—for example, requiring a minimal percentage of programming to be Canadian-produced—would work under foreign ownership just as it has under Canadian ownership. It might be argued that while a certain minimum Canadian content requirement would be satisfied, that foreign-owned firms would not have incentives to invest in Canadian cultural industries. That is, firms might carry Canadian content over their distribution networks to meet requirements, but they would not be interested in developing Canadian content or enabling Canadian content producers to grow. However, it is unclear whether foreign owners’ incentives to do so would be substantially different from those of Canadian owners. For instance, it might be the case that foreign owners are able to take risks on Canadian programming content that smaller and less well-capitalized Canadian firms are unable to, or provide access to a wider market for Canadian performers and Canadian-produced programmers. To the extent that there are profitable opportunities to support Canadian-interest programming, then these opportunities might be as attractive to foreign owners as to Canadian owners.
67. More importantly, such concerns can also be addressed by policies such as mandated carriage of certain television channels, such as those which feature Canadian content or Canadian news (like the CBC). They can also be addressed

by subsidies and by tax breaks that make it more attractive to carry Canadian content, or to invest in Canadian content production.

68. Such policies might be sensible measures. To the extent that they involve costs (e.g., subsidies) then such costs are likely modest against the costs associated with promoting an asymmetrical regime of foreign investment that advantages “telecom-only” firms over cable firms, or even telecom firms that are licensed as BDUs.
69. Indeed these policy measures are required now, even with the limitations on ownership. The reason is obvious: the impact of the nationality of owners on Canadian content decisions is likely to be non-existent or marginal. The interest of the owners is in maximizing returns for shareholders, regardless of whether they are Canadian or foreign.

3.3. **Conclusions on foreign investment**

70. There are essentially no costs of liberalizing foreign investment rules, at least not if such liberalized across the board, for large firms and small firms, and for broadcasting and telecom firms alike. Under a symmetrical relaxation of the foreign investment rules, it is possible (although perhaps not as probable as some might think) that efficient small firms can access the capital that they need at lower cost. It is also possible that formidable foreign competitors are able to enter the Canadian market and provide significant competition to existing firms. Most importantly, it is also possible that under such a liberalization large Canadian firms would be able to integrate with other North American firms and create significant synergies and consumer benefits, including stronger possibilities to create a more vibrant innovation eco-system in Canada. This last is also the most likely possibility. Although the Canadian industry performs very creditably in terms of capital investment and innovation, Canadian firms are inherently limited by the size of the Canadian market. Integration might provide an opportunity for Canada to import “efficiencies” and a degree of innovation from the U.S. In the longer run, integration may also boost the development of complementary innovation (devices and content) within Canada, and will likely result in lower prices in both the U.S. and Canada.
71. However, as we discuss next, the proposals to asymmetrically relax foreign investment rules negate the benefits that may arise from integrating existing networks. At the same time, they hinge on a potentially incorrect assumption that the Canadian telecom market (or more specifically the wireless telecom market) suffers from overly powerful incumbent firms who need to be disadvantaged in order to secure the way for new competitors. In reality, the

symmetrical liberalization of foreign investment rules that we would favour would have exactly the same advantages for small firms (and allow for the same remote possibility of *de novo* entry) as any asymmetrical policy, but it would not have the vital opportunity cost of negating or at least substantially delaying the potential to integrate existing North American networks.

4. **ASYMMETRIC REGULATION: WHEN, WHY AND AT WHAT COST?**

72. Asymmetric regulation refers both to proposals to regulate large firms differently from small ones, and to proposals that would regulate broadcasting distribution units (BDUs) in a distinct manner from telecommunications common carriers. It is assumed here, as it was by the TPRP in its report in 2006, that existing cable firms and telecom firms that are substantially involved with the distribution of video services (via IPTV offerings) would all fall under the classification of “broadcasting distributors” that would then be subject to the Broadcasting Act. Thus, in essence, both Options 2 and 3 proposed by IC would amount to seriously restricting existing Canadian networks’ ability to benefit from a relaxation of the foreign investment rules. The presumptions inherent in Options 2 and 3 in favour of some type of asymmetrical regulation (in practice, both options would restrict the ability of existing large Canadian networks to benefit from any relaxation of the foreign investment rules) might be justifiable if:

- There was clear scope for further profitable entry in the Canadian telecom sector, especially the wireless market segment upon which the foreign investment debate has significantly concentrated, and this entry²³ is efficient—*i.e.*, it corrects a market failure;
- (Conditional on scope for further profitable entry) The critical entry barrier preventing efficient entry is access to foreign capital, *i.e.*, relaxing foreign ownership restrictions on new or small firms would lower their costs sufficiently that entry would be profitable;
- (Conditional upon the first two conditions being satisfied) There was a pool of foreign capital available (not counting the relationship between Globalive and Orascom) to fund an expansion into a relatively mature and relatively

²³ “Entry” in this context might be taken to mean entry by players that are not yet present in the Canadian market, or the strengthening of competition from players that have only a fledgling presence in the current Canadian market.

high-cost market such as Canada, implying that the returns from expanding into Canada were more attractive than the returns available elsewhere;

- (Conditional upon the first three conditions being satisfied) The combined impact of asymmetrically relaxing foreign investment rules and the various rules such as mandated site-sharing and roaming do not create sufficient competitive distortions such that the overall effect is to inefficiently subsidize and protect the Canadian operations of a large foreign firm. Such policies may simply result in redistributing existing economic rents to new players rather than eliminating these (presumably inefficient and undesirable) rents;
- (Specifically for broadcasting) There was no alternative and less economically distortive way of ensuring that Canadian content requirements in broadcasting were satisfied other than to regulate the ownership of firms involved in broadcasting distribution.

73. In what follows we establish the following, all of which militate against the proposition that relaxation of foreign ownership restrictions on new firms or existing firms with a small presence is warranted or will capture most of the benefits associated with eliminating restrictions on foreign investment:

(i) the concerns about competition in the telecom sector, either broadband or wireless are not indicative of significant and sustained market power that might justify lowering the costs for an entrant but not incumbents. The data used to justify insufficient competition typically involves a comparison of international measures of performance. Those measures of performance are *typically irrelevant to a proper market power analysis, an analysis which has not been conducted*. Moreover, as we note, there are serious issues with the data that is used to assess and rank Canada's performance. *Integration between existing networks, however, might well move Canadian performance closer to that of the U.S., especially in wireless.*

(ii) it is not clear that entry would be profitable for another network or that lowering restrictions on foreign ownership/investment would sufficiently lower the cost of capital for small firms.

(iii) asymmetrical policies that consciously attempt to tilt the playing field in favour of new entrants can actually invite excessive entry and leave Canadians worse off, not just relative to the optimal case of symmetrical foreign ownership liberalization but also relative to the *status quo* that prevails today.

4.1. **Market power, “affirmative action” and the scope for further profitable entry**

74. The debate about Canadian foreign ownership restrictions has, in recent years, been substantially linked to a debate about competition in the Canadian telecom sector. Although the TPRP’s final report does discuss the theorized benefits of removing foreign investment restrictions in terms of spillovers and wider economic benefits, and although the same report does talk about the cost of capital, it too makes a substantial link between market performance and the need for foreign investment. As the TPRP notes, were Canada leading the world in telecommunications the case for liberalization of foreign investment rules would be much weaker than it would be if Canada is lagging behind the rest of the world. Since then, there has been much attention paid to claims, based on reports by the OECD and the Berkman Center at Harvard University, that Canada has seriously slipped in various rankings of telecommunications prowess. Given the seemingly authoritative and impressive imprimatur of Harvard University upon the Berkman report in particular, the Berkman rankings have been taken to heart by many in Canada, and have been fed into the debate on foreign investment rules.
75. In the following sections we first make the following three points. First, when appropriate data is used Canada’s performance does not suggest that it is a laggard and that there is a performance crisis. Second, the appropriate analysis to determine if market power and a lack of competition is the root cause of any performance difficulties has not been completed. Such an analysis is a market power analysis and would only rely on international comparisons tangentially, if at all. Third, even if there was a market power problem it is not clear that the proposed remedy, lowering barriers to entry for small or new telecom only players would be effective. Indeed it might be completely ineffective.
76. We then show that ineffectiveness might in fact be a “best case” outcome from asymmetrical foreign ownership rules. First, relative to the option of symmetrical liberalization, such asymmetrical rules impose a significant cost by depriving Canadians of the benefits of integrating existing networks. Second, even relative to the *status quo*, they might incentivize entry that has private benefits for a foreign-owned entrant firm, but has economic costs (on net) for Canada.

4.1.1. Canada's Telecommunications Performance

77. A comprehensive rebuttal of the Berkman report is beyond the scope of this present report. However, the report is seriously flawed. For instance, the “rankings” constructed in the final report, in which Canada is ranked 19th out of 30 OECD countries, include a very distorted and imperfect measure of “mobile broadband” deployment, a totally meaningless measure of “nomadic access”²⁴ (such as Wi-Fi hotspots) and the persistent use of demonstrably conceptually flawed measures of advertised broadband speeds and broadband penetration.²⁵ Further, international comparisons suffer from distortions created by differences in institutional and market structure (such as those that result in vastly inflated counts of mobile subscribers in European nations), in advertising practices (the gap between advertised and actual speeds, which is especially high in DSL-driven European broadband markets), and in the different and asymmetrical approaches to treating data from Europe and North America by international organizations. For instance, the OECD accepts data from European National Regulatory Authorities seemingly without question, but relies on its own analysis of “company reports” to tally up broadband subscriber numbers for Canada. Exhibit JRC- 6 discusses some of these issues.

78. However, the most telling and fitting indicator of the true value of the Berkman Report (and implicitly of kindred international comparisons) is its treatment in the U.S. National Broadband Plan. The report is referenced but once, in Chapter 4 of the Plan, and then only in passing. Of course it is widely claimed that the neglect of the report only demonstrates the lobbying power of incumbents and the lack of resolve of American regulators and lawmakers. However, Canadian authorities should also investigate the possibility that the neglect of the

²⁴ See George Ou, “Flawed Data in Berkman Broadband Study”, .

<http://www.digitalsociety.org/2009/10/flawed-data-in-berkman-broadband-study/>: “The first question is how a hotspot is even defined. Does the metric define it as a single Wi-Fi radio base station (such data would be difficult to gather), or does it define it by the number of visible Service Set Identifiers (SSID)? In other words, does a hotspot covering one square mile with 20 radio base stations connected with an extensive infrastructure count the same as a hotspot in a coffee shop hanging off of a single wireless router? Does a single Wi-Fi base station advertising 10 different virtual SSIDs count 10 times more than a jumbo hotspot using 10 physical Wi-Fi base stations?”

²⁵ In the final report issued in February 2010, the report accords higher weight to “per household” measures of broadband penetration rather than the “per 100 individuals” measure preferred by the OECD, as well as correctly using measures of actual network performance rather than measures of advertised broadband speeds, which are particularly deceptive in European countries. Yet even in making these corrections, the report persists with including the demonstrably flawed OECD penetration measure as well as the advertised speed measures in the “index” that it creates. The justifications given for doing this are flimsy at best. The only real purpose (we conjecture) for keeping these measures is to mark down the performance of the United States, and by extension, Canada. For a (pre-Berkman) critique of “conventional wisdom” on broadband, see Scott Wallsten, *Understanding International Broadband Comparisons*, July 2009.

Berkman Report owed to its lack of analytic merit, before taking it as seriously as is currently the case.

79. Here, we simply note that by some metrics, Canada's telecom and broadband markets are doing very well. For instance, Canada has the highest per household broadband penetration rate in the erstwhile G-7 group of countries. Second, Canada has the second-highest actual broadband speeds (according to the latest samples gathered by Akamai) in the G-7 (after Japan, which followed a much more interventionist strategy to deploy large amounts of fibre-to-the-home). Third, Canadian incumbent firms such as Bell and Telus have—quietly—invested extensively in fibre-to-the-node technology and will, or have already, reached more than 50% of households in their footprint with such “next-generation” technology by the end of 2010. Canadian cable operators such as Shaw and Rogers have also invested extensively in Docsis 3.0 cable networks, and are offering broadband speeds of 70 Mbps or 100 Mbps—indeed Shaw was one of the first operators in North America to offer a 100 Mbps home broadband service. On the wireless front, Canada's three largest wireless operators all have deployed HSPA+ technology, and some 93 percent of the Canadian population is now covered by such “3G+” technology — Canada deployed HSPA+ technology before the United States, United Kingdom, and several other “important” countries. Finally, the capital intensity of Canadian telecom and cable firms compares well with their foreign peers.
80. Even Canada's wireless market performance—a subject of seeming consensus in policy-making circles—is not quite what it is made out to be. A variety of institutional factors ranging from the seemingly awkward (but subsequently beneficial) prevalence of “receiving party pays” and multiple standards in North America, to the excellence and low cost of fixed-line phones on this continent, played a role in explaining somewhat lower wireless penetration comparative to Europe. However, as we show in Exhibit JRC-6, by measures of market performance that take into account both penetration and usage, Canada is one of the stronger performers in the OECD, and it has among the most affordable pricing for voice calls. Above all, the link between performance and market structure that is frequently made is far from apparent. Canada's market is unexceptional in terms of concentration, and likely to become exceptional only because of the number of competitors that are forthcoming.

TABLE 3: CONCENTRATION IN THE WIRELESS MARKET, 2008

Country	National HHI	# National Competitors	Top 2 Share
USA	2220	4	55.20%
UK	2240	5	50.60%
Germany	2920	4	70.20%
Italy	3020	4	71.70%
Canada	3110	3	67.40%
Australia	3120	4	73.30%
Sweden	3370	4	75.90%
France	3390	3	78.10%
Finland	3490	3	77.00%
Japan	3590	3	77.60%

Source: Table 41, Federal Communications Commission, 14th Annual CMRS Report.

4.1.2. Not a Competition Policy Analysis

81. Concerns about the competitiveness of telecommunications markets in Canada are concerns about the exercise of market power. Market power is the ability to profitably raise price above competitive levels (or distort quality, product variety, or other non-price attributes of concern away from competitive levels). Typically market power is not a concern unless it is significant and durable. A market power analysis therefore involves an assessment of the relationship between price and the cost of production.
82. The problem with international comparisons as a means to diagnose market power is that they assume an “apples to apples” comparison. This means that they assume that all the factors that affect demand and costs are the same across countries. For instance to have an apple to apple comparison the product, the cost of production, consumer preferences, and the regulatory/institutional/legal framework all must be the same across countries.
83. It is clear that this is not true. Products are not the same on many dimensions, for example realized speed of a broadband connection, industry pricing practices differ (who pays and the extent of price discrimination), regulatory/legal frameworks differ (extent of unbundling, regulatory requirements, etc.), competitive alternatives differ (e.g. quality and price of

alternative networks), consumer preferences are not the same, the cost structure of platforms differ (geography and population density), as does the institutional/regulatory/legal environment.

4.1.3. The likely ineffectiveness of asymmetric policies

84. The Canadian wireless market as of late 2008 was unexceptional in its level of concentration. Further, international data suggest that there is a “hard” upper limit of about five national competitors. That hard limit was hit in the United Kingdom, which now is reverting to four national competitors (with very little objection from either the European Union or the UK’s own competition authorities) thanks to the merger of T-Mobile and Orange. There are often five, and sometimes one or two more, facilities-based firms in U.S. urban areas. But this will soon be matched in Canadian urban areas too, with the entry of Globalive and the actual or potential regional entry by cable operators, Shaw and Videotron.
85. There may simply not be that much scope for further profitable entry into the Canadian wireless market. If one were to look at the data from the perspective of a hard-eyed foreign investor, one would see that Canada (despite the constant debate about “low” wireless penetration) is a mature market, with the great majority of adults owning a mobile phone. Further, one would also see that there are three incumbents, plus several new entrants in the market. One of these new entrants, Globalive, is “off the table” in that it already has a foreign backer. Canada is a modest-sized market, and while margins may look superficially high, it is also the case that capital intensity (for both wireline and wireless services) is typically higher in Canada than in Europe, indicating both cost and competitive pressures. Such a hard-eyed investor would also take into account the history of recent entrants in Europe and the United States since 2000. For example:
 - Hutchison 3G was the beneficiary of a spectrum set-aside in the 2000 UK spectrum auctions. After some seven years, the firm had a market share of around 7% of customers, although it has recently realized some level of success in particular market segments. Whether the sums that Hutchison (the parent firm, based in Hong Kong) spent on acquiring spectrum and deploying its network have been justified by the returns it has thus far earned is questionable. The firm’s Italian operation has been more successful with around 10% market share, but this has been in a less crowded market than the U.K.;

- In Germany, new entrants such as Mobilcom and Group 3G that won spectrum in the 3G auction were subsequently forced to return their licenses before they had even begun offering services;
 - In Spain, the mobile operator Yoigo, only launched services in 2006, several years after securing spectrum rights. Again, under new ownership, the company has been able to make some headway, but as with H3G-UK and with several other new entrants into European markets since 2000, the cumulative returns to original investors have likely been substantially negative.
86. In the U.S., it remains unclear whether Clearwire can emerge as a successful competitor in the broadband and wireless markets, at least with its current technology choice and business model. Other “regional” carriers such as MetroPCS and Leap Wireless are likely to consider mergers, while smaller carriers such as Dobson were swallowed up by larger firms. In Canada, Microcell and Clearnet were acquired by Rogers and Telus. Thus the evidence from Europe and North America does not seem to suggest that there is significant scope for a brand new wireless play, much less a fixed and wireless play with no existing facilities for either service in Canada.
87. In Canada, although the wireless penetration rate might appear relatively low, it is worth bearing in mind that even the distorted and mis-measured penetration rates of Western Europe were no higher than 70 subscribers per 100 inhabitants around 2000, but with minor exceptions, the successful operators in today’s European market were already established prior to that date. Thus the Canadian market has limited room for growth, and it is unclear whether post-Globalive, there is room for another player with national ambitions and the desire to build its own facilities.
88. Thus the business case for providing significant amounts of capital to a Canadian entrant is unclear. It is possible that some entrants might find themselves able to attract capital from private equity firms or smaller investors, but not from large international wireless groups that can bring significant intangible assets (brand, marketing, relationships and experience) to the table. In fact, it is also possible that following Orascom’s interest in Globalive, there may be no “natural predators” among international wireless firms waiting to acquire Canadian entrants.
89. There is a further reason to think that this might be the case. If one examines the pattern of acquisitions by what one might term “wireless conglomerates” then usually there are important elements of cultural affinities, market niches, geographic contiguities etc that are involved in constructing such conglomerates. Exhibits JRC-7, JRC-8, and JRC-9 show the global expansions

of Telefonica, Telia-Sonera, and Vodafone. Telefonica expanded either into Spanish-speaking nations or proximate nations that were within the EU, TeliaSonera largely went east into the former Soviet Union from its base in Finland/Sweden, while Vodafone has focused on emerging markets since 2000. Other than for U.S. firms, Canada simply is not a good fit, nor a significant growth opportunity.

90. As for American firms, the most logical course of action (by far) for such large American firms is to acquire successful and well-managed Canadian firms that parallel their own operations in the United States. It is far more logical for Verizon or AT&T to acquire an integrated Canadian carrier such as Bell Canada or Telus than to acquire a wireless-only player that would then require significant capital infusions before it was able to generate cash (assuming that it was even able to reach that stage). Similarly, Canadian cable operators such as Rogers and Shaw have grown in ways that are remarkably similar to their U.S. counterparts such as Comcast, Cablevision and Cox. Rogers in particular is a cable operator that has also been a wireless pioneer, an achievement that U.S. cable companies would wish to examine and emulate. In fact, an important benefit of U.S. investment in integrated firms rather than wireless-only firms is that it will lead to benefits being realized both in the wireline and the wireless market segments. This is, of course, assuming that foreign firms do not wish to fund further facilities-based entry in the wireline market segment, an assumption that seems reasonable given the economics of doing so.²⁶

4.2. Asymmetrical policies: The Costs

91. The previous discussion shows that asymmetrical policies are unlikely to achieve the meaningful entry that they are presumably intended to promote. Yet it is not simply that asymmetrical policies are likely to be ineffective. Instead, there are definite costs or potential costs that such policies carry. Simply put, asymmetrical policies rule out the substantial and perhaps more probable benefits that could arise from integrating existing North American networks. Thus the primary cost of asymmetric policies an opportunity cost, the failure to realize the benefits associated with an increase in competition between existing networks. However, there are also other costs, relative both to the *status quo* of limited foreign ownership capability and relative to the optimal case of symmetrical liberalization. The rationale for asymmetric policies is that they are required for entry and growth of additional networks, and that competition from

²⁶ One argument that might be advanced is that new wireless entrants could compete in the wireline market segment if they were extended generous unbundling and resale policies (particularly for broadband). However, the wisdom of extending such policies is highly questionable, and the long-term goal should be to focus on facilities-based competition.

additional networks is particularly socially valuable. For many potential entrants the presence of foreign ownership restrictions are not, at the margin, the key consideration preventing entry and investment in either a small network or a new network. That is they either will or will not invest independent of the foreign ownership restrictions. Our earlier argument suggests that given that the existing number of networks is likely close to the number that can be sustainably supported, presumably many will not be attracted to enter even with the removal of all foreign ownership restrictions. On the other hand for a firm with access to superior technology or innovative new products, it is also unlikely that symmetrical liberalization of foreign ownership rules would be the key factor deterring entry.

92. The circumstances under which asymmetric policies would induce entry of another network require that a firm that enters under an asymmetrical liberalization regime would *not have entered* under a symmetrical liberalization regime or if the *status quo* persisted.²⁷ Relative to the *status quo* they would not enter because the higher costs of capital and other disadvantages associated with restrictions on foreign ownership make entry unprofitable, but with the removal of these restrictions entry becomes profitable. Relative to symmetric liberalization they would not enter because they would not find it profitable to compete against the incumbents on a level playing field where all firms in the market were able to realize the advantages consistent with relaxation or elimination of restrictions on foreign ownership. That is, entry is profitable if the incumbents are constrained by the existing restrictions, but would not be profitable if the restrictions on the incumbents were relaxed. This might be the case, for instance, if the incumbents are constrained to their current technology, costs, and product line up, but not if the incumbents or some subset of them had access to the costs, technology and product line up that would result if they were part of a North American carrier.
93. The justification for an asymmetric policy requires a demonstration that it leads to outcomes that are preferred to the *status quo* and to symmetric liberalization. The difficulty is that the circumstances under which asymmetric policies are required to promote entry are also circumstances under which entry is particularly prone to being inefficient.²⁸
94. Economic theory suggests that there are circumstances in which more entry is not necessarily a good thing, and where the appropriate public policy stance towards entry is, at best, a neutral one. This is particularly likely to be the case

²⁷ Note that entry in this context means both “Greenfield” entry or the strengthening of market participation by an existing firm due to increased foreign ownership.

²⁸ This analysis draws upon Mankiw, N. Gregory and Michael D. Whinston, “Free Entry and Social Inefficiency”, *Rand Journal of Economics*, 1986.

in industries with large fixed and sunk costs. In such cases, particularly when entrants offer products that are duplicative of what incumbent firms already offer the effect of entry is likely a “business stealing” effect in which the entrant firm predominantly wins market share from existing firms rather than expanding market output.²⁹ In this case, entry raises industry-wide average costs and leads to a reduction in efficiency. The social benefit of entry is the value of the expansion in output, while the private benefit of entry is the profits of the entering firm. The private benefit is greater than the social benefit because of the business stealing effect. The profits of an entrant include the profits earned on incremental industry output and the units that it competes away from incumbents. The transfer of revenues and profit from the diversion of existing sales from incumbent networks is a private benefit to the entrant, but not a social benefit since those sales would have been produced in any event. These transfers may make an entrant’s network privately profitable, even though the net *social* benefits do not justify the costs and as a result the entry is inefficient. If the products of the entrant are similar to those of the incumbent the concern is that there are excessive incentives for entry.³⁰

95. A policy that lowers the costs of entrants sufficient to enable entry but maintains constraints on the incumbents is likely to be one in which the business stealing effect dominates the output-enhancing or variety-increasing effects of entry. This is particularly the case since the rules will reduce the opportunities for entry to result in increased product differentiation by consigning entrants to a narrow silo of telecom products.
96. The increase in competition *might* benefit consumers if it results in lower prices. However if the reduction in scale of incumbents raises their marginal cost or if entry imposes additional costs on incumbents, competitive entry might *raise prices*. Other “affirmative” public policies such as site-sharing, mandated roaming and the like, are likely to raise the costs of incumbents.
97. If the market already appears to satisfy the natural constraint on the number of sustainable networks, the effect of the asymmetric policy, if successful in promoting entry, may well be an outcome in which Canadian incumbents are forced to exit the market. They exit because the increase in competition from the entrant reduces gross margins and they cannot recover their sunk costs and

²⁹ Berry and Waldfogel (1999) offer a particularly simple example in the case where products are perfect substitutes and all costs and prices are fixed. The entry of another firm that wins half the market share from the incumbent firm provides no increase in consumer benefit, although it increases “competition.” Further, twice the amount of resource is used to provide the same level of output, thus reducing aggregate social welfare.

³⁰ The analysis would change if asymmetries existed post-entry that meant that barriers to entry implied profitable entry deterrence. See Church and Ware (2000) for the difference between barriers to entry and profitable entry deterrence.

eventually there is exit or consolidation. However the effect of this is not to restore the initial market structure, if the entrant has lower costs. Instead the net effect is a reduction in the number of firms. Entry by the more competitive entrant leads to the exit of more than one incumbent, and is replaced by a foreign-owned firm precisely because gross margins are reduced by entry

98. This can easily result in a new market structure that is less favourable to Canada than the *status quo*. This can happen for two reasons. First it is possible that the average cost of the Canadian incumbent networks rises because their sales fall. Since these networks have higher costs because of the foreign ownership restrictions that apply to them, their average cost sets the price. If their average cost rises, so too will price and consumers will be harmed. Second even if the price of services stays the same, the replacement of Canadian firms by foreign firms is not costless if the foreign firms are effectively subsidized by other policies. Other policies that have this effect could include spectrum set asides, site sharing, and mandated roaming. The result is that Canadian firms are displaced, Canadian consumers do not benefit, and the cost of entry by foreign firms is subsidized.
99. Similar concerns suggest that asymmetric entry is even more likely to be inefficient if the alternative is symmetric liberalization. The reason is that consumers might well prefer the increase in competition between incumbent networks under symmetric liberalization to the increase in competition from an additional network but with incumbent networks constrained to have higher costs than they would have under symmetric liberalization. For instance this will be the case if the reduction in costs from symmetric liberalization is significant and there are a large number of incumbents. Hence consumers might not gain even if the natural limit on firms has not been reached.
100. Relative to the market structure with the costs reduced for all incumbents, created by the elimination of all foreign ownership restrictions, asymmetric requirements creates a second wedge between the private and social benefits of entry. Not only is there an excessive incentive to enter because of the business stealing effect, there is another social cost of entry. The cost of production of the incumbents over all of their infra-marginal output rises. Hence it is much more likely that relative to the elimination of all restrictions on foreign ownership that asymmetric restrictions are inefficient, i.e., reduce the total value of Canada's resources.
101. Moreover such a policy will likely result in higher prices for Canadians in the long run relative to symmetric liberalization. By assumption, with the elimination of all foreign ownership restrictions the entrant does not find it profitable to enter, but the average cost of all incumbents is reduced. If the restrictions on foreign ownership are asymmetric, then the costs of all

incumbents will be higher and in the long run the price in the market is equal to the average cost of the incumbents. Once again the effect of asymmetric restrictions on foreign ownership is to displace Canadian incumbents with foreign owned firms. The effect is to transfer quasi-rents to foreigners from Canadian firms and to harm Canadian consumers. Any policies that effectively provide resources to the foreign firm at less than their value, like perhaps spectrum set-asides and site sharing, reduce the welfare of Canadians even more.

102. To summarise the welfare effects of asymmetric foreign ownership restrictions that prohibit foreign ownership of existing incumbent firms:

- Entry dependent on asymmetric foreign ownership restrictions is likely to be duplicative and not likely to expand the market. Hence while privately profitable due to business stealing, such entrant is likely to be inefficient relative to the *status quo* and symmetric liberalization;
- The effect on consumers depends on the effect that entry has on the costs of the incumbent firms. If their costs rise, then consumers might be harmed by the sponsored entry;
- In the long run the effect of entry made possible by asymmetric foreign ownership policies depends on how the number of networks adjusts. Entry by another network creates competition that reduces margins. If the number of networks was close to or equal to the upper limit determine by the interaction of market size and the advantages of being large, then the additional competition will squeeze the margins of the incumbent networks and lead to the exit of some of the incumbent networks. The replacement of the incumbents by a foreign carrier might well be less favourable relative to the *status quo* if the average cost of the remaining incumbents rises (because their sales are reduced) leading to higher prices and harming Canadian consumers and if the foreign entry is effectively subsidized by other policies. Other policies will subsidize foreign entry if they make resources available to the entrant at a price less than their opportunity cost;
- Relative to symmetric liberalization, asymmetric foreign ownership policies are even more likely to be inefficient since they deny incumbent carriers access to lower costs (and consumers the benefits of innovation and product availability we emphasize in this report);
- Relative to symmetric liberalization, asymmetric foreign ownership policies are much more likely to result in higher prices (with a fixed number of networks) because they maintain higher costs for the incumbents. Asymmetric foreign ownership policies are almost

certainly to result in higher costs for consumers in the long run relative to symmetric liberalization since the price in the long run equals the average cost of incumbents and that is constrained to be higher by restricting incumbents access to foreign capital.

103. The discussion in this section is not simply fanciful theory. Berry and Waldfogel (1999) found that in the radio broadcasting industry “free entry” (that is the absence of any restriction on the number of market participants) reduced welfare by an amount equivalent to 45 percent of industry revenue.³¹ This welfare loss arose in the form of higher costs to radio broadcasters and to advertisers.
104. There is no reason to then believe that these considerations do not apply to the telecom sector. In the telecom market, one can see a similar dynamic at work in the U.K. The efforts of Oftel (the predecessor to Ofcom) to ensure entry by a fifth network operator had serious consequences for the U.K. industry. First, the largest chunk of spectrum available in the spectrum auctions of 2000 was reserved for a new entrant, thus bidding up the sunk costs incurred by incumbents. Second, entry by Hutchison, even though it was limited in its impact, hardly introduced a great variety of new products and services to the U.K. market. Thirdly, EBIDTA margins in the U.K. market have fallen in recent years, from around 27% to 30% in the 2003-2005 to around 23% in recent quarters.³² Ultimately, T-Mobile and Orange decided to merge their U.K. operations, creating a market that not only had the same number of competitors as prior to entry by Hutchison, but was actually significantly more concentrated since the top three firms will imminently have more than 90% of the market with a tenuous fringe competitor in the form of Hutchison (whereas the previous market structure, prior to 2000, featured four roughly equal operators).

5. IC’S TREATMENT OF BROADCASTING

105. It appears that both Option 2 and Option 3, as currently proposed by Industry Canada, would only affect Telecommunications Common Carriers, but not

³¹ Berry, Steven T. and Joel Waldfogel, “Free Entry and Social Inefficiency in Radio Broadcasting”, *Rand Journal of Economics* 1999.

³² Source: Wireless Intelligence database.

affect those firms that come under the control of the Broadcasting Act. In practice, the effect (and thus the analysis) of both Options is the same.

106. Both options restrict the ability of the largest firms active in the electronic communications sector to benefit from foreign investment. Thus, Bell, Telus, Rogers, Videotron and Shaw would all come under the jurisdiction of the Broadcasting Act, and would be disqualified on that basis alone. At least the first three would also fall foul of the “size requirement” of Option 2. MTS, since it is active in video distribution, would presumably also fall foul of Options 2 and 3. Both options effectively consign entrants to a narrow “telecom pure play” silo. While it is possible that these rules are revised (as per the recommendations of the TPRP which suggested a five-year period in which ownership liberalization rules apply only to telecom, and then upon review, be considered for application to broadcasting), the marginal effect of such restrictions is to deter foreign investment and entry rather than encourage it.
107. In the medium-term, even “telecom” firms would be seriously constrained by the proposed asymmetric rules, to the extent that such rules made it impractical for such firms to integrate (or re-integrate) into the distribution of broadcasting content. Such integration is natural and the viability of pure-play competitors is doubtful.
108. Firms unable to provide broadcasting will be at a competitive disadvantage because they do not benefit from economies of scope from offering the same variety of services as competing networks that are BDU and because they cannot offer bundles that include broadcasting.
109. Not only is such a distinction between broadcasting and telecommunications entirely unjustified from an a priori theoretical economic perspective, but the practical implications of such restrictions are likely to be manifested in a set of foreign ownership rules where the best outcome one can hope for is that they are simply ineffective.

6. CONCLUSIONS

110. IC’s proposed Options 2 and 3 will prevent virtually all significant existing Canadian networks—cable and telecom—from availing of the liberalization of foreign investment rules. Thus the inevitable cost of implementing such asymmetrical rules is that Canadians are deprived of the potentially very significant benefits from integrating existing networks with global networks,

particularly those of counterpart U.S. firms. Such benefits include greater production innovation, lower costs, and convergence of Canadian and U.S. pricing (with lower pricing in both countries).

111. Symmetrical liberalization rules will still allow for Greenfield entry or the strengthening of competition from currently marginal entrants—to the extent that such entry or strengthened competition is at all plausible. Asymmetrical rules, then, can only be justified if it can be shown that there is a problem of inefficient market power in the Canadian telecom industry (specifically the wireless market segment) and that the consequences of such market power can *only be rectified by permitting entry that would otherwise not occur under either the status quo or under symmetrical liberalization rules.*
112. However, the most likely outcome of asymmetrical liberalization rules is to produce little consequential entry, at least not by the types of large global wireless firms whose entry could enhance product diversity and innovation in the Canadian market. Further (and even setting aside one’s doubts about the viability of further entry or the availability of investment funds to promote such entry), the type of entrant whose entry is contingent upon asymmetrical liberalization rules is likely to have a higher probability of simply being a business stealer rather than a firm that expands market output or which adds significantly to market innovation. Under such circumstances, one runs the risk of simply replacing an incumbent Canadian firm with a foreign firm, thus at best maintaining the original market structure but with a less favourable distribution of rents than under the *status quo*. Alternatively the market structure could be less favourable, leading to higher costs and prices that harm Canadian consumers. Consequently, the asymmetrical liberalization rules could leave Canada and Canadians likely worse off than they would be under symmetrical liberalization rules, but might also be harmful relative to the status quo.

It is thus puzzling that IC would consider Options 2 and 3, based as they are on meaningless distinctions between broadcasting and telecommunications and on the wrong-headed assumption that the only, or the primary, benefits of liberalizing foreign ownership rules is the promotion of entry. The more likely benefits will come from integration of Canadian and American networks leading to increased competition between existing networks. The increased competition is attributable to the benefits of integration including lower unit costs, lower costs of capital, and superior access to global supply chains and global content and device developers.



BERKELEYRESEARCH

Exhibit JRC-1

Jeffrey Robert Church

July 2010

Contact Information

Department of Economics
University of Calgary
2500 University Drive, N.W.
Calgary, Alberta
T2N 1N4
Phone: (403) 220 6106
Fax: (403) 282-5262
e-mail: jrchurch@ucalgary.ca

Citizenship

Canadian

Education and Professional Qualifications

- Ph.D., Economics, University of California, Berkeley 1989, specialization in Industrial Organization and International Trade. Supervisory Committee Richard Gilbert, Michael Katz, and Jeffrey Perloff.
- B.A. First Class Honours (Economics), University of Calgary 1984.
- Qualified as an expert witness before the National Energy Board, the Alberta Energy Utilities Board, the Canadian Radio-Television and Telecommunications Commission, the Federal Court of Canada, and Supreme Court of British Columbia.

Positions Held

Academic Appointments

- Professor, Department of Economics, University of Calgary (since July 1, 2001).



BERKELEYRESEARCH

Exhibit JRC-1

- IAPR Professor, Institute for Advanced Policy Research, University of Calgary, *Coordinator of the Markets, Institutions, and Regulation Working Group* .
- Associate Professor, Department of Economics, University of Calgary (1994-2001).
- Assistant Professor, Department of Economics, University of Calgary (1989-1994).

Other Appointments

- Chairperson, Terra Nova Reference Price Committee, Newfoundland (2007 and 2010).
- Fellow, Economics Network for Competition and Regulation (ENCORE), Netherlands, (since 2007).
- Founding Academic Director, Centre for Regulatory Affairs in the Van Horne Institute for International Transportation and Regulatory Affairs, University of Calgary (1998-2001).
- T.D. MacDonald Chair in Industrial Economics, Competition Bureau, Industry Canada, Hull, Quebec (1995-1996).
- President, Church Economic Consultants Ltd. (since 1992).

Academic Awards and Distinctions

Teaching Awards

- Faculty of Social Science Distinguished Teacher Award, University of Calgary 1994 and 2004.



BERKELEYRESEARCH

Exhibit JRC-1

- Superior Teaching Award, Department of Economics, University of Calgary, 1997, 1999, 2000, 2002, 2003, 2004.
- Students' Union Teaching Excellence Award, University of Calgary 1994-95.

Major Academic Distinctions

- Faculty of Social Sciences Gold Medal, University of Calgary 1984.
- Listed as one of the leading competition economists in the world in the Directory of Competition Economists in *The International Who's Who of Competition Lawyers and Economists*. London: Global Competition Review 1998 onwards.

Research Interests

- Industrial Organization
- Economics of Regulation
- Competition Policy

Publications

Refereed Journal Articles

- "Indirect Network Effects and Adoption Externalities." (with N. Gandal and D. Krause) *Review of Network Economics* 7: 325-346, 2008.
- "The Church Report's Analysis of Vertical and Conglomerate Mergers: A Reply to Cooper, Froeb, O'Brien and Vita." *Journal of Competition Law & Economics* 1: 797-802, 2005.
- "Specification Issues and Confidence Intervals in Unilateral Price Effects Analysis." (with O.Capps, Jr. and H.A. Love) *Journal of Econometrics* 113, 3-31, 2003.



BERKELEYRESEARCH

Exhibit JRC-1

- "Systems Competition, Vertical Merger, and Foreclosure." (with Neil Gandal) *Journal of Economics and Management Strategy* 9, 25-52, 2000.
- "Abuse of Dominance under the 1986 Canadian *Competition Act*." (with Roger Ware) *Review of Industrial Organization* 13, 85-129, 1998.
- "Strategic Entry Deterrence: Complementary Products as Installed Base." (with Neil Gandal) *European Journal of Political Economy* 12, 331-354, 1996.
- "Delegation, Market Share and the Limit Price in Sequential Entry Models." (with Roger Ware) *International Journal of Industrial Organization* 14, 575-609, 1996.
- "Complementary Network Externalities and Technological Adoption." (with Neil Gandal) *International Journal of Industrial Organization* 11, 239-260, 1993.
- "Bilingualism and Network Externalities." (with Ian King) *Canadian Journal of Economics* XXVI, 337-345, 1993. Reprinted in *Economics of Language*. ed. D. Lamberton. International Series of Critical Writing in Economics, Vol. 150, Northampton, MA.: Edward Elgar Publishing, 2002.
- "Comment on 'Energy Politics in Canada, 1980-81: Threat Power in a Sequential Game'." *Canadian Journal of Political Science* XXVI, 61-64, 1993.
- "Integration, Complementary Products and Variety." (with Neil Gandal) *Journal of Economics and Management Strategy* 1, 651-675, 1992.
- "Network Effects, Software Provision and Standardization." (with Neil Gandal) *Journal of Industrial Economics* XL, 85-104, 1992.

Invited Papers

- "Trade-Dress and Pharmaceuticals in Canada: Efficiency, Competition and Intellectual Property Rights," (with Roger Ware) *Policy Options* 18: 9-12, 1997.

Books and Monographs

- *The Impact of Vertical and Conglomerate Mergers on Competition* Brussels: European Commission, 2004 at <http://europa.eu.int/comm/competition/mergers/others/#study>. Published as European Commission, 2006, *The Impact of Vertical and Conglomerate Mergers on Competition* Luxembourg: Office for Official Publications of the European Communities.
- *Industrial Organization: A Strategic Approach* (with Roger Ware) San Francisco: IRWIN/McGraw-Hill, 2000. Second edition forthcoming from Cambridge University Press.
- *Traditional and Incentive Regulation: Applications to Natural Gas Pipelines in Canada* (with Robert Mansell) Calgary: Van Horne Institute, 1995.
- *Econometric Models and Economic Forecasts: A Computer Handbook Using MicroTsp* New York: McGraw-Hill, 1990.

Chapters in Books

- "Conglomerate Mergers." in W.D. Collins ed., *Issues in Competition Law and Policy* Volume 2 Chicago: American Bar Association, pp. 1503-1552, 2008.
- "Vertical Mergers." in W.D. Collins ed., *Issues in Competition Law and Policy* Volume 2 Chicago: American Bar Association, pp. 1455-1502, 2008.
- "Platform Competition in Telecommunications." (with N. Gandal) in M. Cave, S. Majumdar, and I. Vogelsang eds., *Handbook of Telecommunications* Vol. 2 Amsterdam: North-Holland, pp. 119-155, 2005.



BERKELEYRESEARCH

Exhibit JRC-1

- "Mergers and Market Power: Estimating the Effect on Market Power of the Proposed Acquisition by The Coca-Cola Company of Cadbury-Schweppes' Carbonated Soft Drinks in Canada." (with A. Abere, O. Capps, Jr. and H.A. Love) in D. Slottje ed., *Economic Issues in Measuring Market Power*, Contributions to Economic Analysis, Vol. 255, Amsterdam: North-Holland, pp. 233-294, 2002.
- "The Economics of Coordinated Effects and Merger Analysis." in D. Houston ed., *CBA Competition Law Conference 2000* Juris Publisher: Yonkers, N.Y., pp. 561-575, 2001.
- "Network Industries, Intellectual Property Rights, and Competition Policy." (with Roger Ware) in N. Gallini and R. Anderson eds., *Competition Policy, Intellectual Property Rights and International Economic Integration* Calgary: University of Calgary Press, pp. 227-285, 1998.

Papers and Proceedings

- "The Interface Between Competition Law and Intellectual Property in Canada: An Uneasy Alliance or Holy War?" on CD-ROM, *2005 Annual Fall Conference on Competition Law*. Ottawa: Canadian Bar Association, 2005.
- "The Economics of Exclusionary Contracts and Abuse of Dominance in Canada." on CD-ROM, *2003 Annual Fall Conference on Competition Law*. Ottawa: Canadian Bar Association, 2003.
- "Competition Policy and the Intercity Passenger Transportation System in Canada." in M. Duncan, ed. *Directions: A New Framework for Transportation* Calgary: Van Horne Institute, pp. 21-25, 1993.

- "Commodity Price Regulation in Canada: A Survey of the Main Issues." (with Robert Mansell) *Papers and Proceedings of the Fifth Annual Regulatory Educational Conference*, Canadian Association of Members of Public Utility Tribunals, 1991.

Public Reports

- *Transmission Policy in Alberta and Bill 50* (with William Rosehart and John MacCormack). School of Public Policy, University of Calgary Research Paper, 2009.
- *Buyer Power: Background Note*. Competition Committee, Directorate for Financial and Enterprise Affairs, OECD, Paris, 2009, Available at <http://www.oecd.org/dataoecd/38/63/44445750.pdf>.
- *Vertical Mergers: Background Note*. Competition Committee, Directorate for Financial and Enterprise Affairs, OECD, Paris, 2007. Available at <http://www.oecd.org/dataoecd/25/49/39891031.pdf>.
- *An Evaluation of Traditional and Incentive Regulation for Canadian Natural Gas Pipelines*. (with Robert Mansell) Study submitted to, and available from, the National Energy Board of Canada, 1992.
- *Methodology for Evaluating Natural Gas Transmission System Reliability Levels and Alternatives*. (with Robert Mansell) Study prepared for, and available from, the Canadian Petroleum Association, 1991.

Public Regulatory Interventions

- Submission of The Director of Investigation and Research to Industry Canada re: Canada Gazette Notice No. DGTP-008-95 Review of Canadian Overseas Telecommunications and Specifically Teleglobe Canada's Role October 27, 1995 (with David Smith).



BERKELEYRESEARCH

Exhibit JRC-1

- Reply Comments of The Director of Investigation and Research to Industry Canada re: Canada Gazette Notice No. DGTP-008-95 Review of Canadian Overseas Telecommunications and Specifically Teleglobe Canada's Role December 11, 1995 (with David Smith).
- Submission of The Director of Investigation and Research to The Canadian Radio-Television and Telecommunications Commissions re: Telecom Notice CRTC 95-36 Implementation of Regulatory Framework, Local Interconnection and Network Component Unbundling January 26, 1996 (with Cal Gundy and Patrick Hughes).
- Final Argument of The Director of Investigation and Research to The Canadian Radio-Television and Telecommunications Commissions re: Telecom Notice CRTC 95-36 Implementation of Regulatory Framework, Local Interconnection and Network Component Unbundling October, 1996 (with Cal Gundy and Patrick Hughes).
- Final Oral Argument of The Director of Investigation and Research to The National Energy Board in PanCanadian Petroleum Limited application dated 26 July 1996 for an order requiring Interprovincial Pipe Line Inc. to transport natural gas liquids for PanCanadian Petroleum Limited from Kerrobert, Saskatchewan (MH-4-96) November 1996 (co-author).
- Opening Statement to the Alberta Utilities and Energy Board in Federated Pipe Lines Ltd. Application to Construct and Operate a Crude Oil Pipeline from Valhalla to Doe Creek, Alberta Energy and Utilities Board March (Decision 98-12) March 1998.
- Final Argument of The Director of Investigation and Research to The Canadian Radio-Television and Telecommunications Commissions re: Telecom Notice CRTC 98-10 Local Competition Start-Up Proceeding November, 1998 (with Cal Gundy).



BERKELEYRESEARCH

Exhibit JRC-1

- *Commissioner of Competition Intellectual Property Enforcement Guidelines*, Hull, Quebec: Competition Bureau. External member Commissioner of Competition's Drafting Team, first draft released in June 1999, second draft released April 2000, final version released September 2000.
- Final Argument of The Commissioner of Competition to The Canadian Radio-Television and Telecommunications Commissions re: Telecom Notice Public Notice 2001-37 - Price Cap Review and Related Issues October 2001 (with Cal Gundy).
- Comments of The Commissioner of Competition to The Canadian Radio-Television and Telecommunications Commissions re: Telecom Notice Public Notice 2001-47 Framework for the expansion of local calling areas and related issues November 2001 (with Cal Gundy and Masood Qureshi).
- Written Comments of the Competition Bureau to the Alberta Electricity Industry Structure Review February 2002 (with David Krause and Mark Ronayne).
- Final Submission of the Commissioner of Competition to the Ontario Energy Board's Natural Gas Forum Consultation on the Ontario Natural Gas Market November 2004 (with Mark Ronayne).
- The Commissioner of Competition Evidence, Final, and Reply Argument, The Canadian Radio-Television and Telecommunications Commissions re: Telecom Notice Public Notice 2005-2, Forbearance from Regulation of Local Exchange Services June, September, and October 2005 (part of the Competition Bureau's drafting team).
- *Market Power and the Mackenzie Gas Project*, Evidence filed before the National Energy Board, Mackenzie Gas Project, GH-1-2004, June 2005.



BERKELEYRESEARCH

Exhibit JRC-1

- The Commissioner of Competition Evidence, Supplementary Material, Final Argument, and Reply Argument, The Canadian Radio-Television and Telecommunications Commissions re: Telecom Notice Public Notice 2006-14, Review of Regulatory Framework for Wholesale Services and Definition of Essential Service 2007 (part of the Competition Bureau's drafting team).
- Commissioner of Competition, *Abuse of Dominance Provisions as applied to the Telecommunications Industry*, Hull, Quebec: Competition Bureau. External member Commissioner of Competition's Drafting Team, first draft released September 2006, final version released June 2008.

Book Reviews

- *Competition Policy: A Game -Theoretic Perspective* (by Louis Philips) for *The Economic Journal*, 107, 1590-1592, 1997.

Websites

- *Industrial Organization: A Strategic Approach*. URL: <http://www.econ.ucalgary.ca/iosa/>
- *Industrial Organization: A Strategic Approach Instructor's Manual*. URL: <http://www.econ.ucalgary.ca/iosa/IM/>

Research In Progress

- "Network Externalities, Technological Progress, and Competitive Upgrades." (with Michael Turner) Mimeo, Department of Economics, University of Calgary 2002.
- "Direct and Indirect Strategic Effects: A Taxonomy of Investment Strategies." (with L. Moldovan) Mimeo, Department of Economics, University of Calgary 2006.
- "Market Power in the Alberta Red Meat Packing Industry." (with D. Gordon) IAPR Technical Paper 07-004, Institute for Advanced Policy Studies, University of Calgary 2007.



BERKELEYRESEARCH

Exhibit JRC-1

- “Capacity Constraints as a Commitment Device in Dynamic Pipeline Rent Extraction.” (with L. Vojtassak and J. Boyce) Mimeo, Department of Economics, University of Calgary 2007.
- “Platform Competition with Software Bundling.” (with J. Mathewson) Mimeo, Department of Economics, University of Calgary 2007.
- “Asymmetries, Simulation and the Assessment of Input Foreclosure in Vertical Mergers.” (with A. Majumdar and M. Baldauf) Mimeo, Department of Economics, University of Calgary 2010.

Presentations

- “Asymmetries, Simulation and the Assessment of Input Foreclosure in Vertical Mergers.” Bates White’s Seventh Annual Antitrust Conference, Washington, D.C., June 2010.
- “The Competition Act and the Fair Efficient and Open Competition Regulation.” Workshop for the Alberta Utilities Commission, Calgary, April 2010 (with Barry Zalmanowitz).
- “Transmission Policy in Alberta and Bill 50.” School of Public Policy Workshop, Electricity Transmission Policies: Issues and Alternatives, Calgary, October 2009 and the National Energy Board, Calgary, February 2010.
- “Economics of Vertical Mergers.” British Institute for International and Comparative Law, 7th Annual Merger Conference, London, November 2008.
- “Telecommunications in Canada: Market Structure and the State of the Industry.” 2008 Telecommunications Invitational Forum, Landgon Hall, Ontario, April 2008.



BERKELEYRESEARCH

Exhibit JRC-1

- “Cartel Cases Under Section 45: Is Proof of Market Definition the Achilles Heel?” Panelist, Competition, Crime and Punishment, Canadian Bar Association National Competition Law Section Spring Conference, Toronto, April 2008.
- “Forbearance of Local Telecommunications in Canada: One Back, Two Forward?” Telecommunications and Broadcasting Current Regulatory Issues and Policy Insight Communications Conference, Ottawa, April 2007.
- “The Economics of Non-Horizontal Merger Guidelines.” ENCORE Workshop on the Assessment of Non-Horizontal Mergers, The Hague, April 2007.
- “Stumbling Around in No Man’s Land is Dangerous: Competition Policy, the CRTC, and Deregulation of Local Telecom in Canada.” Competition Policy in Regulated Industries: Principles and Exceptions, C.D. Howe Institute Policy Conference, Toronto, November 2006.
- “Competition in Local Telecommunications in Canada: Grading the CRTC.” Delta Marsh Annual Conference, Department of Economics, University of Manitoba, Winnipeg, October 2006.
- “Grading the CRTC: Forbearance from the Regulation of Retail Local Exchange Services Telecom Decision 2006-15.” part of the Panel on Local Competition at the Annual Meetings of the Canadian Economics Association, Montreal, May 2006.
- “The Interface Between Competition Law and Intellectual Property in Canada: An Uneasy Alliance or Holy War?” Presented at the Canadian Bar Association Annual Fall Conference on Competition Law, Gatineau, November 2005.



BERKELEYRESEARCH

Exhibit JRC-1

- “Game Theory and Industrial Organization: An Introduction.” Competition Tribunal, Knowlton, Quebec, October 2005.
- “The Impact of Vertical and Conglomerate Mergers on Competition: An Overview of the Survey And Implications for Competition Policy.” DG IV European Commission, Brussels, July 2004, UK Competition Commission, London, September 2005, British Institute of International and Comparative Law/Competition Law Forum, Brussels, September 2005 and Conference on Economics in Competition Policy, Ottawa, April 2006.
- “The Economics and Competition Policy of Exclusionary Agreements.” Competition Bureau, Gatineau, April 24-25, 2005.
- “Intellectual Property Issues and Abuse: The IP/Competition Policy Interface in Canada.” 2004 Competition Law and Policy Forum, Langdon Hall, Cambridge, Ontario, April 2004.
- “Efficiencies Gained and Paradise Lost? Or the Inverse? Comments on the Propane Case.” Economics Society of Calgary Seminar Regulation vs. Competition: Different Shades of Grey, Calgary, October 2003.
- “The Economics of Exclusionary Contracts and Abuse of Dominance in Canada” Presented at the Canadian Bar Association Annual Fall Conference on Competition Law, Hull, October 2003.
- “Network Externalities, Technological Progress, and Competitive Upgrades” Presented at PIMS-ASRA Alberta Industrial Organization Conference, Calgary, November 2002.
- Panelist, The Changing Competition Law Landscape, Osler, Hoskin & Harcourt, Calgary, June 2002.



BERKELEYRESEARCH

Exhibit JRC-1

- Panelist, Efficiencies in Mergers Under the Competition Act, Annual Meeting of the Canadian Economics Association, Calgary, June 2002.
- "Specification Issues and Confidence Intervals in Unilateral Price Effects Analysis" Presented at the Annual Meeting of the Canadian Economics Association, Calgary, June 2002.
- "The Economics and Econometrics of Unilateral Effects Analysis." Competition Bureau, Gatineau, January 7th and 8th, 2002 (with Oral Capps, Jr. and H. Alan Love).
- "Economics and Antitrust of Network Industries." Competition Bureau, Gatineau, January 2001.
- "The Economics of Coordinated Effects and Merger Analysis." Presented at the Canadian Bar Association Annual Fall Conference on Competition Law, Ottawa, September 2000.
- "Network Externalities, Technological Progress, and Competitive Upgrades." Presented at the Annual Meeting of the Canadian Economics Association, Vancouver, June 2000.
- "Competition Policy for Network Industries." Presented at Centre for the Study of Government and Business New Challenges for Competition Policy Panel, Annual Meeting of the Canadian Economics Association, Vancouver, June 2000.
- "Applying Antitrust Concepts in IT Industries." Presented at Roundtable on Reassessing the Role of Antitrust in Mega-Mergers and IT Industries Faculty of Law, University of Toronto, June 2000.



BERKELEYRESEARCH

Exhibit JRC-1

- "The Economics of Electricity Restructuring: The Case of Alberta." Canadian Law and Economics Conference, Toronto, September 1999.
- "Refusals to License and the IP Guidelines: Abuse of Dominance and Section 32." McMillan Binch Symposium on Intellectual Property Rights and Competition Policy, Toronto, June 1999.
- "The Economics of Electricity Restructuring: The Alberta Case." presented at Economic Society of Calgary conference Alberta's Electricity Market—Moving Towards Deregulation, Calgary, May 1999.
- "Competition in Natural Gas Transmission: Implications for Capacity and Entry." presented at Van Horne Institute conference The New World in Gas Transmission: Regulatory Reform and Excess Capacity, Calgary, April 1999.
- "Bill 27: The Regulatory Framework." presented at Canadian Institute of Resources Law conference on Restructuring Alberta's Electricity System: How will It Work?, Calgary, June 1998.
- Panelist, Antitrust and Telecommunications, Global Networking '97 Conference, Calgary, June 1997.
- "Network Industries, Intellectual Property Rights, and Competition Policy." presented at Author's Symposium on Competition Policy, Intellectual Property Rights and International Economic Integration, Ottawa, May 1996.
- Panelist, Symposium on Barriers to Entry, Bureau of Competition Policy, Ottawa, March 1995.
- "Branded Ingredient Strategies," presented at the Summer Conference on Industrial Organization, University of British Columbia, Vancouver, August 1994.



BERKELEYRESEARCH

Exhibit JRC-1

- "Equilibrium Foreclosure and Complementary Products," the Annual Meetings of the European Association for Research in Industrial Economics, Tel-Aviv, September 1993, the Annual Meeting of the Canadian Economics Association, Ottawa, June 1993 and the Mini-Conference on Network Economics at Tel Aviv University, July 1992.
- "Competition Policy and the Intercity Passenger Transportation System in Canada," presented at the Van Horne Institute for International Transportation and Regulatory Affairs symposium on *The Final Report of the Royal Commission on National Passenger Transportation*, The University of Calgary, February 1993.
- "Integration, Complementary Products and Variety," presented at the Annual Meeting of the Canadian Economics Association, Prince Edward Island, June 1992 and Telecommunications Research Policy Conference, Solomons Island, MA, September 1991.
- "The Role of Limit Pricing in Sequential Entry Models," presented at the Twenty-Fifth Annual Meeting of the Canadian Economics Association, Kingston, June 1991.
- "Commodity Price Regulation in Canada: A Survey of the Main Issues," presented at the Fifth Annual Regulatory Educational Conference, Canadian Association of Members of Public Utility Tribunals, May 1991.
- "Complementary Network Externalities and Technological Adoption," at the Twenty-Fourth Annual Meeting of the Canadian Economics Association, Victoria, June 1990 and at the Fifteenth Canadian Economic Theory Conference, Vancouver, June 1990.

Invited Seminars

- Faculty of Commerce and Business Administration, University of British Columbia, April 2002
- Department of Economics, University of Toronto, March 2002



BERKELEYRESEARCH

Exhibit JRC-1

- School of Business & Economics, Wilfred Laurier University March 2002
- Competition Bureau, January 2002
- Department of Economics, University of Laval, April 1996
- Department of Economics, Carleton University, Ottawa, January 1996
- Stern School of Business, New York University, December 1995
- Bureau of Competition Policy, Industry Canada, Ottawa, March 1994
- Department of Economics, Simon Fraser University, November 1992
- Department of Economics, University of Victoria, November 1992
- Department of Economics, University of Toronto, October 1991
- Department of Economics, Queen's University, Kingston, October 1991
- Department of Economics, University of Alberta, February 1990

Refereeing

- American Economic Review
- Canadian Journal of Agricultural Economics
- Canadian Journal of Economics
- Canadian Journal of Political Science
- Canadian Public Policy
- C.D. Howe Institute
- European Economic Review
- FCAR
- Information Economics and Policy
- International Economics and Economic Policy
- International Economic Review
- International Journal of the Economics of Business
- International Journal of Industrial Organization
- Journal of Econometrics
- Journal of Economic Behavior and Organization
- Journal of Economic Education
- Journal of Economic Psychology
- Journal of Economics



BERKELEYRESEARCH

Exhibit JRC-1

- Journal of Economics and Business
- Journal of Economics and Management Strategy
- Journal of Industrial Economics
- Journal of International Economics
- Journal of Law, Economics, & Organization
- Management Science
- Marketing Science
- National Science Foundation
- RAND Journal of Economics
- Journal of Economic Surveys
- Review of Industrial Organization
- Review of Network Economics
- Routledge
- SSHRC
- University of Cambridge Press

Professional Service

- Chair Canadian Bar Association National Competition Law Section Economics and Law Committee, 2005-2007.
- Vice-Chair Canadian Bar Association National Competition Law Section Economics and Law Committee, 2004-2005.
- Juror, James M. Bocking Memorial Award, Canadian Bar Association National Competition Law Section, 2006, 2007, 2008, 2009, 2010.
- Co-Editor, *Journal of Economics & Management Strategy*, 2001-2007.
- Editorial Board, *Canadian Journal of Economics*, 1993-1996.
- Theme Head Economics Sessions and Programme Committee, International



BERKELEYRESEARCH

Exhibit JRC-1

- Telecommunications Society and the International Council for Computer Education Global Networking '97 Conference, Calgary, June 1997.
- Organizer, Roundtable on Vertical Mergers, Competition Committee, Directorate for Financial and Enterprise Affairs, OECD, Paris, 2007. See <http://www.oecd.org/dataoecd/25/49/39891031.pdf>
 - Organizer, Roundtable on Buyer Power, Competition Committee, Directorate for Financial and Enterprise Affairs, OECD, Paris, 2008. See <http://www.oecd.org/dataoecd/38/63/44445750.pdf>
 - External Examiner for E. Croft Ph.D, Policy Programme, Faculty of Commerce and Business Administration, University of British Columbia, April 1999, B. Isaacs Ph.D, Department of Economics, Simon Fraser University, May 2000, and J. Landa Ph. D, Department of Economics Carleton University May 2001
 - House of Commons Standing Committee on Industry, Science and Technology Roundtable Participant on Competition Policy, December 2001.
 - House of Commons Standing Committee on Industry, Science and Technology, Deregulation of Telecommunications, February 2007.

Teaching Experience

Graduate

- Ph.D. Micro Theory
- Industrial Organization
- Regulatory Economics

Undergraduate

- Regulatory Economics
- Competition Policy



BERKELEYRESEARCH

Exhibit JRC-1

- Honours Micro Theory
- Industrial Organization
- Intermediate Microeconomics

Professional

- Regulatory economics through the Centre for Regulatory Affairs.
- Principles of Microeconomics, Industrial Organization and Competition Policy for the Competition Bureau.

Graduate Student Supervision/Examination

Completed

- Supervisor, M. Ec. Programme, Mark Larsen, "Calgary Crossfield Sour Gas: A Case Study in the Costs of Regulation," Department of Economics, University of Calgary, 1993.
- Supervisor, M. A. Programme, George Given, "The Dynamics of Industries Characterized by Complementary Network Externalities," Department of Economics, University of Calgary, 1994.
- Supervisor, M. Ec. Programme, R. Allan Wood, "Subsidies to Municipal Golfers in Calgary, AB. ," Department of Economics, University of Calgary, 1995.
- Supervisor, M. A. Programme, Marcy Cochlan, "Branded Ingredient Strategies," Department of Economics, University of Calgary, 1995.
- Supervisor, M. Ec. Programme, Shaun Hatch, "Optimal Pricing and the Allocation of Water Under Uncertainty: A Stochastic Nonlinear Programming Approach," Department of Economics, University of Calgary, 1995.
- Supervisor, M. A. Programme, Denelle Peacey, "Priority Pricing," Department of Economics, University of Calgary, 1995.



BERKELEYRESEARCH

Exhibit JRC-1

- Supervisor, M.A. Programme, Michael Turner, "Analysis of Product Upgrades in Computer Software," Department of Economics, University of Calgary, 1999.
- Supervisor, M.A. Programme, Kurtis Hildebrandt, "Market Dominance and Innovation in Computer Software Markets," Department of Economics, University of Calgary, 1999.
- Supervisor, M.A. Programme, Alex Harris, "Optimal Multiproduct Tolling on an Oil Pipeline," Department of Economics, University of Calgary, 2000.
- Supervisor, M.A. Programme, Noelle Bacalso, "Conceptual Hazards Associated with Power Purchase Arrangements," Department of Economics, University of Calgary, 2000.
- Supervisor, M.A. Programme, Laura Jolles, "Antitrust Logit Model," Department of Economics, University of Calgary, 2005.
- Supervisor, M.A. Programme, Mohamed Amery, "The Procurement of Ancillary Services in Alberta," Department of Economics, University of Calgary, 2007.
- Supervisor, M.A. Programme, Graham Thomson, "Optimal Price Cap Regulation," Department of Economics, University of Calgary, 2008.
- Supervisor, M. A. Programme, Kevin Wipond, "Market Power in the Alberta Electrical Industry," Department of Economics, University of Calgary, 2008.
- Supervisor, M.A. Programme, Nicholas Janota, "Introducing Competition into Regulated Network Industries: From Hierarchies to Markets in Canada's Railroad Industry" Department of Economics, University of Calgary, 2009.



BERKELEYRESEARCH

Exhibit JRC-1

- Supervisor, Ph.D. Programme, David Krause, "Internalizing Network Externalities," Department of Economics, University of Calgary, 2002.
- Supervisory Committee, Ph.D. Programme, Lucia Vojtassak, "Equilibrium Concepts in Exhaustible Resource Economics." Department of Economics, University of Calgary, 2006.
- Examination Committee Member, M. Ec. Programme, Murray Sondergard, "An Examination of the Efficient Markets Hypothesis for the Toronto Stock Exchange," Department of Economics, University of Calgary, 1992.
- Examination Committee Member, M.A. Programme, Denise Froese, "Auctioning Private Use of Public Land," Department of Economics, University of Calgary, 1993.
- Examination Committee Member, M.Ec. Programme, Merrill Whitney, "Economic Espionage as a Form of Strategic Trade Policy" Department of Economics, University of Calgary, 1994.
- Examination Committee Member, M.Ec. Programme, Robert Richardson, "North-South Disputes Over IPRs" Department of Economics, University of Calgary, 1994.
- Examination Committee Member, M. Ec. Programme, Eva Cudmore, "The Viability of New Entry into the Alberta Electrical Generation Industry," Department of Economics, University of Calgary, 1997.
- Examination Committee Member, M. A.. Programme, Geok (Suzy) Tan, Course Based M.A, Department of Economics, University of Calgary, 1997.
- Examination Committee Member, M.A. Programme, Kris Aksomitis, "Strategic



BERKELEYRESEARCH

Exhibit JRC-1

Behaviour in the Alberta Electricity Market," Department of Economics,
University of Calgary, 2002.

Current

- Supervisor, M.A. Programme, Susan Baker, Cory Temple, Jecielle Alonso, and Michael Ata, Department of Economics, University of Calgary.

University Service

- University Research Grants Committee 1994/95
- Dean's Academic Appointment Committee, Department of Mathematics and Statistics 2001
- ISEEE Tier II Chair in Energy and Climate Change Search Committee 2005/06
- Faculty of Social Sciences Academic Program Review Committee 2000/01
- Faculty of Social Sciences Executive Council 2002/03
- Department of Economics, Ad Hoc Outreach Committee 2001/02
- Curriculum Fellow, Department of Economics, 2001
- Department of Economics Representative on Van Horne Institute Sub-Committee on Centre for Regulatory Affairs 1997/98
- Department of Economics Advisory Committee 1997/98
- Department of Economics Undergraduate Curriculum Committee 1993/94, 1994/95, 1996/97, 1997/98, 1999/00, 2000/01, 2001/02
- Department of Economics Honours Advisor 1992/93, 1993/94, 1994/95, 2006/07
- Department of Economics Hiring Committee 1990/91, 1991/92, 1994/95, 1998/99, 1999/00, 2002/03, 2003/04, 2004/05, and 2005/06
- Department of Economics Computer Committee 1992/93, 1993/94, 1996/97, and 1997/98
- Department of Economics Ph.D. Ad Hoc Committee 1990/91 and 1992/93
- Department of Economics Ad Hoc Committee on the Status of Women 1991/92
- Department of Economics Striking Committee 1991/92
- Department of Economics Guest Lecturers Committee 1990/91 and 1991/92
- Department of Economics Graduate Curriculum Committee 1989/90
- Department of Economics Library Coordinator 2006/07



BERKELEYRESEARCH

Exhibit JRC-1

- Department of Economics Graduate Studies Committee 2007/08 and 2008/09
- Department of Economics Fund Raising Coordinator 2006/07, 2007/08, and 2008/09
- University of Calgary Appointment Appeals Committees 2008
- Haskayne School of Business, Academic Appointment Review Committee 2007/08, 2008/09
- General Promotions Committee, University of Calgary 2008/2009, 2010/2011

Consulting Experience

President of Church Economic Consultants Ltd., for whom I have written consulting reports and provided advice on issues in regulatory and antitrust economics for Alberta Beef Producers, Apotex, Bayer CropScience, BC Ferries, the Canadian Association of Petroleum Producers, the Canadian Cattlemen's Association, the Canadian Competition Bureau, The Coca-Cola Company, The Conference Board of Canada, Enbridge Pipelines, EPCOR, European Commission, Foothills Pipelines, Google Inc., James Richardson International Limited, Mackenzie Explorers Group, Maple Leaf Foods, Microcell, Nokia, Nova Gas Transmission, OECD Competition Division, Pacific Gas & Electric, Pan Alberta Gas, PanCanadian Petroleum, Peace Pipe Line, Perimeter Transportation, Superior Propane, TransAlta, TransCanada Pipelines, Williams Energy, and eight major motion picture film studios.

Other

- 3M National Coaching Certification Program Level 1 Softball January 2002
- 3M National Coaching Certification Program Coach Level Hockey November 2002
- 3M National Coaching Certification Program Level 1 Baseball September 2003.

1. PROMINENT DEVELOPMENTS IN THE U.S. TELECOM INDUSTRY

1. Prominent examples of firms' desire to seek economies and scale can be found in the United States, such as:
 - Mergers between Regional Bell Operating Companies (RBOCs), which operated in separate territories. One of the earliest prominent mergers included Bell Atlantic/Nynex (to form a new Bell Atlantic), which then merged with GTE (which had franchises in many states where Bell Atlantic was the main incumbent carrier, but which also had presence in states such as Washington and California where Bell Atlantic was not previously active). This combined firm became known as Verizon Communications, and the wireless arms of the various original companies were also amalgamated;
 - Subsequently, SBC Communications (formerly Southwestern Bell) merged with Ameritech. The combined firm then merged with AT&T in 2005. Between 1984 and 2005, AT&T had been first a long-distance-only firm, and then entered into some local markets for voice and Internet services, as well as providing wireless services. AT&T's wireless offerings were bolstered significantly by a merger between itself and Cingular Wireless in 2004. Following the SBC/AT&T merger, the amalgamated firm then merged with BellSouth, and was rebranded as AT&T;
 - On the wireless front, Verizon Wireless merged with Alltel in 2007. Also, proposed mergers between smaller wireless players such as Leap Wireless and Metro PCS are often mooted in the financial press;
 - Of especial note is the desire of cable operators to start offering wireless services to complement their cable TV, broadband and home phone services. The largest such cable operator, Comcast, is itself the product of massive consolidation (for instance, acquiring considerable cable assets from the-then AT&T in the late 1990s). Comcast has taken a stake in Clearwire, which runs a "4G" (fourth-generation) wireless network in many major American cities, using WiMax technology. Comcast currently offers wireless services via reselling Clear's services. However other cable operators are building out their own networks: for instance, Cox Communications acquired spectrum



BERKELEYRESEARCH

Exhibit JRC-2

with the intention of providing wireless services over its own 4G network utilizing the LTE technology;

- In order to compete effectively with cable television operators who are able to offer high-quality broadband services along with traditional cable video programming, the major U.S. telecom operators have had to either start building their own networks capable of carrying IPTV (Verizon and AT&T), or have had to form alliances to resell other video packages (Qwest with DirecTV).

2. EMPIRICAL EVIDENCE ON FDI BENEFITS IN CANADA

1. In the Canadian context, Globerman (1979) found that Canadian-owned plants in manufacturing industries characterized by a high degree of foreign ownership were more productively efficient than Canadian-owned plants in manufacturing industries that had seen less foreign involvement.³³
2. These findings were confirmed in subsequent studies by Statistics Canada (Rao and Tang, 2004), which found that multinational firms in Canada were 10 to 20 percent more productive (controlling for other factors such as scale) than domestically-controlled firms owing to their superior technology and managerial knowhow.³⁴ Further, the Statistics Canada study also found positive productivity spillovers from multinationals to Canadian-owned firms.
3. Although not directly concerned or restricted to foreign direct investment, an important study by Bernstein (1994) found that cross-border knowledge spillovers between Canada and the United States were of great significance in generating cost-reducing innovations, especially in Canada.³⁵ This study found that “as producers in the corresponding U.S. industry increase their investment in R&D capital, Canadian producers increase the amount of R&D content in their output.” It also found that international spillovers tended to create higher levels of physical capital investment in Canada. Given the importance of these spillovers to creating more investment in physical capital and R&D in Canada, Bernstein’s study recommends ways to improve international technology transfers. Clearly, eliminating barriers to foreign direct investment would rank as a highly effective means to speed up technology transfer and thus accelerate the international spillovers that Bernstein finds are so significant for the Canadian economy. Bernstein’s work is also a demonstration of the benefits that closer North American integration would bring to the Canadian economy, something which current and proposed foreign investment rules substantially prevent in the Canadian telecom sector.

³³ Globerman, Steven, “Foreign Direct Investment and ‘spillover’ efficiency benefits in Canadian manufacturing industries”, *Canadian Journal of Economics*, February 1979.

³⁴ <http://www.statcan.gc.ca/pub/11f0024m/pdf/abstracts-resumes/series1/4193751-eng.pdf>

³⁵ Bernstein, Jeffrey, “International R&D spillovers between industries in Canada and the United States.” Available at <http://www.ic.gc.ca/eic/site/eas-aes.nsf/eng/ra00045.html>.



BERKELEYRESEARCH

Exhibit JRC-3

4. Of equal significance, recent work by Statistics Canada has found that foreign investment does not displace domestic investment. Higher levels of foreign direct investment do not lead to a “hollowing out” of Canadian industry, and despite closer North American integration, Canada has been able to maintain a much more extensive social “safety net” than the United States.³⁶

³⁶ For example, Statistics Canada found that head office employment in Canada increased between 1999 and 2005, and much of this increase was accounted for by foreign owned firms. Beckstead, Desmond and Mark Brown, 2006, “Head Office Employment in Canada, 1999–2005,” Statistics Canada Economic Analysis Analytic Paper Series 11-624- MIE No. 014. Cited in Head, Keith and John Ries, “Head Office Location: Implications for Canada”, available at [http://www.ic.gc.ca/eic/site/cprp-gepmc.nsf/vwapj/Head%20_Ries.pdf/\\$FILE/Head%20_Ries.pdf](http://www.ic.gc.ca/eic/site/cprp-gepmc.nsf/vwapj/Head%20_Ries.pdf/$FILE/Head%20_Ries.pdf).

3. EXAMPLES OF INTEGRATION IN AN HISTORICAL PERSPECTIVE

3.1. The Bell System and Bell Canada

1. To lend some life to this otherwise abstract debate about what may be if markets were indeed integrated across North America, one might consider two significant precedents. First, it is worth remembering that the provision of local telephone service in Canada evolved alongside that in the United States. For instance, data from the ITU shows that Canada reached 90% household penetration for fixed-line telephone service by 1970, around the same time as the United States. Most major West European nations did not reach this level until the middle 1980s, and Japan did not until 1989. Only Sweden and New Zealand reached the 90% mark in the 1970s.³⁷
2. The developments in Canada occurred in the context of a quasi-Bell System in Ontario and Quebec (then by far the most populous provinces, accounting for around 70% of telephone lines in Canada in the early 1970s) in which the American Bell System had a substantial ownership stake. Although AT&T's stake in Bell Canada was diluted as a result of repeated stock issues in which AT&T could not participate, Bell Canada developed in a very similar fashion to the rest of the Bell System. In particular, until the settlement between the U.S. Justice Department and AT&T in 1956 ("the Consent Decree"), Western Electric (the equipment-manufacturing arm of the Bell System) controlled 44 percent of Northern Electric, its Canadian analogue.³⁸ Given that Bell Canada purchased more or less exclusively through Northern Electric, some observers have argued

³⁷ See presentation of Michael Minges, http://www.itu.int/ITU-D/ict/WTIM99/PDF/PartVIFinalR_e.pdf.

³⁸ Some differences between Bell Canada and companies that were officially part of the Bell System were (a) that Bell Canada owned its own patents at the outset of the telephone era, although the importance of this faded after the patents expired, (b) that Bell Canada did not use AT&T's "Long Lines" for long-distance service, but had its own lines, and (c) Bell Canada did not purchase from Western Electric because of Canadian legislation, but purchased from Northern Electric. However, the control of Northern Electric by Western Electric meant that effectively Bell Canada was getting much the same technology and equipment as the Bell System proper.



BERKELEYRESEARCH

Exhibit JRC-4

that this more or less made Bell Canada's independence from AT&T a purely statutory independence.³⁹

3. Patent licensing agreements between Western Electric and Northern Electric, and important service agreements that were signed between AT&T and Bell Canada, ensured that Bell Canada and Northern Electric had access to not only the technological excellence of Western Electric, but the managerial, planning, informational and technical expertise of AT&T. In fact, for Bell Canada itself, its service agreement involved a royalty of 1 percent of gross revenue, compared to 1.5 percent for the "rest" of the Bell companies. As the service agreement "included data exchanges on operating the telephone system and all the aspects of company management, it consisted of a total technology transfer involving the entire enterprise. Since AT&T was the most advanced telephone system in the world, Bell had made an excellent deal."⁴⁰
4. A range of activities ranging from a unified North American numbering plan (still in effect today) to standardization of transmission and signaling equipment throughout the system, as well as many aspects of network management, were shared across the system and across the border. Until 1975, when AT&T sold its final stake in Bell Canada, Bell could participate in system-wide cost-sharing projects.⁴¹
5. Thus, while AT&T's financial stake in Bell had been dwindling steadily since the 1910s, a number of other institutional factors ensured that the U.S. and (Central) Canadian telephony systems developed using the same technology and the same network management and operational techniques. If Bell Canada was not officially part of the Bell System, its development appears to be inseparable from the overall development of that System.
6. Although this example shows that complete financial control is not an absolute requirement for integration, it also illustrates the aspects of technology transfer and knowledge spillovers that can arise with the participation of a highly capable foreign parent. Would Canada have achieved similar success had it consciously opted, in the late 19th century, to maintain a separate and parallel telecoms universe from the United States?

³⁹ See Rens, Jean-Guy, *The Invisible Empire: A History of the Telecommunications Industry in Canada* (Montreal: McGill University Press), 2001, Chapter 12.

⁴⁰ Rens, p.219.

⁴¹ See also "Bell Canada: A New Balance", *Bell Telephone Magazine*, March/April 1975, available from http://www.porticus.org/bell/canadian_bell_companies.html.

3.2. The 1965 Auto Pact

7. Second, there are encouraging lessons to be drawn from the United States-Canada “Auto pact” of 1965. Creating an integrated North American market for automobiles and parts led to a much larger and much more successful Canadian automotive industry. Serving the small Canadian market afforded few opportunities to realize economies of scale, particularly for parts manufacturers based in Canada. Following the integration of the North American market, not only did Canadian production volumes increase substantially, but there was also a substantial migration of production into Canada. Not only did the Auto Pact lead to an increase in the number of cars and trucks produced in Canada, and in exports of cars and trucks to the United States from Canada, but it also led to substantial investment in auto parts and peripheral industries in Canada. Currently, one of the leading car parts suppliers in the world, Magna International, is Canadian-based and Canadian-owned. Thus the integration of automotive markets created new market opportunities and a much stronger “ecosystem” related to the automobile industry in Central Canada. The elimination of tariffs led a large increase in intra-industry trade across the border, and production became distributed much more favorably towards Canada. Thus Canadian production was, by 1970, 52% higher than what it would otherwise have been absent the Auto Pact.⁴² As with other industries following implementation of NAFTA, integration and rationalization of industries on a North American basis resulted in specialization in Canadian plants, resulting in longer product runs, increased productivity, and lower costs as economies of scale were realized. Moreover, consumers benefited from not just lower prices on Canadian produced models/varieties, but also lower prices for models/varieties produced at efficient scale in the United States and imported, some of which were not available before free trade.

⁴² Fuss, Melvyn and Leonard Waverman, “The U.S.- Canada Auto Pact of 1965: An Experiment in Selective Trade Liberalization”, NBER Working Paper 1953, 1986.

4. SOME COMMENTS ON R&D, JOBS AND NATIONAL SECURITY

4.1. R&D

1. Some concern might be raised about the impact of foreign ownership on R&D conducted in Canada. The TPRP report discussed the issue as follows:

[T]he weight of the economic evidence is that foreign investment can bring important R&D capabilities into Canada, including and not only greenfield investments. Nevertheless, in a foreign takeover of some existing Canadian telecommunications carriers, the implications for Canadian R&D performance could be a matter of public interest. The focus of concern may not necessarily be connected with the R&D undertaken directly by a telecommunications carrier acquired by a foreign firm, but rather with future willingness to purchase innovative new products and technologies from other Canadian companies that have formed part of its supply chain, instead of from the supply chain companies of the foreign acquirer.

2. While it is impossible to be completely determinative in one's answer, the precedent of the automobile industry shows that integration in vehicle assembly helped to create a vital eco-system of auto-related activities, particularly in Ontario. This eco-system consisted both of foreign-owned firms that were incented to set up Canadian operations as a result of vehicle assembly shifting to Canada, and of Canadian-owned firms. In effect, the foreign-owned suppliers of auto parts and the like replicated their supply chains as they existed in the United States. Of course, telecommunications in the 21st century is undeniably different from auto assembly in the 1960s, but it seems difficult to imagine that foreign ownership would prove deleterious to Canadian innovators such as RIM and to Canadian content developers. In fact, at the current time, RIM may have stronger incentives to form partnerships and alliances with larger foreign firms, that may take some innovative functions out of Canada than it would if it had the opportunity to deal with a firm that has Canadian presence. Likewise, Canadian developers might find better partnership opportunities and easier access to venture capital if they had the opportunity to be backed by a large multinational firm—a probability that increases if the firm has a presence in Canada.

4.2. Job creation in Canada

3. Certainly, foreign ownership of existing firms in particular might mean that some jobs and functions are rationalized and are thus taken out of Canada. Alternatively, just as foreign ownership can mean new opportunities for product development and innovation within Canada, foreign ownership also means new opportunities for job creation within Canada. Further, to the extent that U.S. multinationals are taxed at higher rates if they repatriate retained earnings, they may find it attractive to invest in Canada as an alternative to investing in the United States, where high corporate taxation reduces the after-tax return on investment.⁴³ In fact, the United States has had major debates in the last decade about reforming its corporate tax system, as it is probably the case that American taxation of global income leads (at the margins) to incentives to create jobs and investment overseas. U.S. telecom firms also do not typically have the kind of extensive overseas presence that their European rivals do, and thus in terms of competing for job creation and investment opportunities, Canada would be competing with a higher-wage and higher-tax country. So at least with American-led investment, Canada should have some advantages in terms of attracting inward investment and job creation, all else equal. Further, it would be wrong to give the impression that there is a fixed pool of jobs that are then redistributed among the various countries in which a large multinational firm chooses to invest. In fact, job creation, productivity and investment in multinational firms are often complementary. For instance, one recent study of U.S. multinationals found that a 10 percent increase in overseas investment was associated with a 3.7 percent increase in U.S. employee compensation and 2.6 percent greater domestic investment.⁴⁴ The empirical evidence suggests that foreign investment is often a two-way street, with advantages for both the country receiving investment and the country from which the investment originates. For instance, a Canadian operation might lend sufficient scale to a U.S. firm wanting to make a risky investment in fibre-to-the-home. Prior to acquiring that scale, the investment may not have met some “hurdle rate” met by investors. Thus the investment may not have happened at all, and the jobs associated with the investment would have been created neither

⁴³ U.S. corporate tax is assessed at a 35 percent rate, and unlike many other countries, the U.S. taxes global income. Thus U.S. corporates are often loath to repatriate the profits they earn overseas, even though they do get credits for foreign corporate tax already paid. In this case, the optimal policy for a foreign country such as Canada would be to lower its own corporate tax rate, or at least what is charged to U.S. investors, and thus increase the attractiveness of investing in Canada by increasing the gap between after-tax returns on investments of similar pre-tax profitability made in Canada versus the United States.

⁴⁴ Desai, Mihir, C.Fritz Foley and James R. Hines Jr., “Domestic Effects of the Foreign Activities of Multinationals”, *American Economic Review: Economic Policy Issue* 2009.



BERKELEYRESEARCH

Exhibit JRC-5

in Canada nor the United States, but after the acquisition, jobs might be created in both Canada and the United States.

4.2.1. National Security

4. Other OECD countries tend to permit foreign ownership of their telecommunications and broadcasting firms, without apparent concerns about national security. Further, it may be possible to devise policies such that approval of any acquisition might be made contingent on satisfying a national security test. This might be particularly relevant for broadcasting ownership. It is simply not the case that national security concerns can only, or even properly, be addressed by imposing percentage limits on foreign ownership.

5. BROADBAND MARKET PERFORMANCE IN CANADA

5.1. Broadband penetration

1. The appropriate measure of broadband penetration is at the household level and not at the individual level. This is at least true for fixed broadband penetration, which is taken out at the household level, and remains the primary form of broadband access for most households and businesses. Although increasing numbers are using mobile broadband (including dongles), at present this is usually as a complement to fixed broadband service, rather than as a substitute (although this could change in coming years).
2. Although data on household penetration are difficult to find on a comparable basis, available data suggest that the roughly 70 percent household penetration rate that Canada achieved by 2009 would put it second to only Korea among developed countries with more than 20m people (Figure 1). Although the OECD measure of “broadband subscribers per 100 population” ranks Canada “only 10th” among 30 member nations, other than Korea, all the other nations that lead Canada in this ranking have less than half the population of Canada and are considerably more geographically compact. Two of the countries that lead Canada are Luxembourg and Iceland, which have populations not even equal to the metropolitan population of a medium-sized North American city.
3. Further, the OECD measure flatters countries that have small household sizes. Since it also (inappropriately) combines business and household subscribers, and since businesses often connect many users via a single connection (such as a leased line), countries where relatively large businesses account for a high share of employment are penalized by the methodology. Canada has larger households and a higher share of employment accounted for by large businesses than most European nations.⁴⁵ Hence Canada’s 10th place performance is actually very creditable given the extent to which the measurement is stacked against a country like Canada.

⁴⁵ Dasgupta, Kalyan and Leonard Waverman, “Canada and Broadband: When ‘Behind’ is Actually ‘Ahead’”, *Globe and Mail*, March 23rd, 2010.

5.2. **Broadband and Internet usage**

4. By several measure of Internet use, Canadians are among the leaders in the OECD. Internet traffic per capita in Canada is among the highest among relatively large nations (data for smaller nations in Europe are not available). (Figure 2).
5. Further, Canadians are among the leaders in use of online video services, a particularly interesting fact given criticisms of usage caps imposed by Canadian ISPs and of supposedly slow download speeds.⁴⁶

5.3. **Other broadband comparisons**

6. The folly of comparing advertised broadband speeds across countries and especially of drawing conclusions about pricing is illustrated by the latest study of U.K. broadband speeds by Ofcom. This study shows that of those who were sold advertised speeds of “up to 20 Mbps”, only 2% received speeds of between 14 and 20 Mbps, 32% received speeds of between 8 and 14 Mbps, while 65% received speeds of less than 8 Mbps.⁴⁷ The Ofcom study measured speeds that were deliverable to the subscriber line, not the actual speeds that would be experienced given other factors such as network congestion, user equipment and the like.
7. In the U.K. and Europe, speeds of 20 to 24 Mbps are advertised by DSL providers, but the underlying technology used to deliver such speeds is still all copper in the last mile between the user and the exchange. In North America, speeds of 20 Mbps or above are sold either by cable operators with upgraded networks or in areas where telephone companies have pushed fibre either to homes or to remote cabinets that are much closer to homes than is the exchange. As such, the distortion between actual and advertised speeds is less. While North American ISPs tier their pricing so that 20 Mbps service is more expensive than 10 Mbps, 6 Mbps or 3 Mbps service this reflects the fact that ISPs are offering such speeds based on technology realistically capable of delivering them to those users to whom the speeds are marketed. Thus tiered pricing reflects the need to recover the network investment that is needed to provide higher speeds.
8. For these reasons alone, price comparisons of advertised speeds are meritless. They ignore the fact that marketing practices are very different across countries, they ignore the actual value proposition received by consumers. For instance, the

⁴⁶ Source: Comscore, “Video Overview by Global Market”, January 2010.

⁴⁷ Source: BBC News, “Ofcom Calls for Clarity on Broadband Speed ads”, July 26th, 2010. See <http://www.bbc.co.uk/news/technology-10760069>.



BERKELEYRESEARCH

Exhibit JRC-6

“up to 20 Mbps” DSL offers in Europe might provide a good value to those very few consumers within sufficient proximity of their local exchange to receive double-digit speeds. But for the average consumer receiving 6 Mbps or less, the value proposition might not look so attractive.

9. Further, pricing comparisons are especially unwarranted because they do not take into account promotions and negotiated discounts (common in some markets, but not others). They also ignore the fact that many broadband packages are purchased as part of a bundle of voice, video and data services, and that these bundling practices are more important in some markets than others. Comparing the prices of bundles is also complicated. For example, cable franchise fee costs are incorporated in the price of U.S. television bundles, causing prices to be higher. Further, fixed-line voice packages in Europe typically do not include calls to mobiles (which are expensive) in their “unlimited” offers. Likewise, in the U.K., the cheapest “triple play” packages offered by cable operators do not include much programming (especially sought-after sports programming) that is not otherwise available for free. Adding such valuable content drives up the costs of such packages significantly. Yet none of these subtleties are incorporated in pricing comparisons of the sort frequently offered as evidence of market power in Canadian or U.S. telecoms.
10. In any case, next-generation investment in Europe in reality trails well behind North America. As an example, consider that the OECD finds that the average broadband speed in France is over 50 Mbps, even though the type of infrastructure that can offer such speeds is unavailable to roughly three-quarters of French homes.
11. The pricing and speed comparisons offered by the Berkman Center, OECD and others fall well short of the type of evidence that would be accepted in a competition inquiry of market power.
12. The reality is that high rates of voice, cable TV, and broadband penetration, as well as high consumer usage levels, suggest that Canadian broadband networks are in good shape.
13. Finally (Figure 3), Canada actually compares rather well on a measure of the actual broadband experience received by consumers, prepared by Akamai Technologies.



BERKELEYRESEARCH

Exhibit JRC-6

6. WIRELESS ISSUES

6.1. Wireless penetration comparisons

14. Canada's wireless penetration rate is somewhat lower than that in the United States and Europe, for a variety of reasons. . One study by Quigley and Sanderson⁴⁸ found that low wire-line prices were statistically significantly linked to lower wireless penetration. Data presented in that study showed that Canadian wire-line subscription prices were substantially cheaper—for all levels of usage—than comparable U.S. plans, whereas wireless prices were similar. Thus the relative price of wireless compared to wire-line in Canada was higher than in the U.S., and in the great majority of other OECD nations
15. However, Figure 4 shows that the comparisons with Europe are grossly distorted and the constant use of unfiltered European penetration numbers runs the risk of providing wrong policy signals. This figure shows the difference between the number of subscribers and the true measure of the proportion of the population that actually uses a mobile phone.

6.2. Better measures of wireless industry performance

16. On a measure of industry performance that U.K. regulator, Ofcom, prepared to take account of the distorted inferences created by European subscriber over-counting, Canada's performance is strong (Figure 5), although trailing the United States.
17. Secondly, in terms of effective price per minute, Canada has the third lowest price per minute in the OECD after only the United States and South Korea.⁴⁹ As for the OECD's pricing comparisons in the wireless sector, the problems with these have been shown up in several analyses, particularly in the U.S. For instance, U.S. usage of voice minutes is far and away the highest in the world, and U.S. effective price per minute used is the lowest in the developed world by some margin; yet the OECD, through a maladroit choice of what constituted a "high" usage pattern, found that the U.S. was the most expensive country for a high intensity user of wireless telephony.⁵⁰

⁴⁸ Quigley, Neil and Margaret Sanderson, "Going Mobile –Slowly", C.D Howe Institute, Commentary No. 222, December 2005.

⁴⁹ According to the FCC's 14th Report on Competition in Mobile Radio Services, Table 40, shows that revenue per minute in Canada was 9 cents (U.S.) per minute, compared to 5 cents in the United States and 8 cents per minute in South Korea, but typically over 12 cents per minute in Europe.

⁵⁰ Ford, George S., "Be Careful What You Ask For: A Comment on the OECD's Mobile Price Metrics." (September 16, 2009). PHOENIX CENTER PERSPECTIVE No. 09-02.



BERKELEYRESEARCH

Exhibit JRC-6

18. The Berkman report also marks down Canada for its allegedly low uptake of 3G services. However, even if this were true up to 2008, Canadian 3G coverage has expanded and been upgraded, to the point where Rogers, Bell, Telus and Videotron all offer HSPA+ technology, making Canada significantly more advanced in terms of the wireless technology available to the great majority of the population than the United States, United Kingdom, France, Germany or Italy.

7. INVESTMENT

19. Finally, Canada's wireless and wireline carriers have significantly higher capital intensity based on available data than their European counterparts. Capital intensity in the wireless sector over the last 10 years is shown in Figure 1 of the main report. Similarly, available data on wireline capital intensity also shows that Canadian carriers are investing substantially more of their revenues than their European rivals.⁵¹
20. The high investment to revenue ratio of Canadian operators suggests that Canada's near-ubiquitous inter-platform competition is driving significant innovation and investment by both cable and telecom network operators.

8. CONCLUSIONS

21. This review of market performance in broadband and wireless in Canada has been brief. Much more can be said about the true state of Canadian performance, which is rather strong. However, the purpose of this section is to illustrate that the case for "market failure" in Canadian broadband or wireless markets is not just baseless, but perhaps astonishing in light of the facts. The evidentiary case for "market failure" is easily disputed, and it seems almost certain that were the rigorous standards of a competition inquiry to be used, such evidence as currently presented would fall well short of constituting a real case for structural remedies to correct perceived market power problems.

⁵¹ Dasgupta and Waverman, *op. cit.*

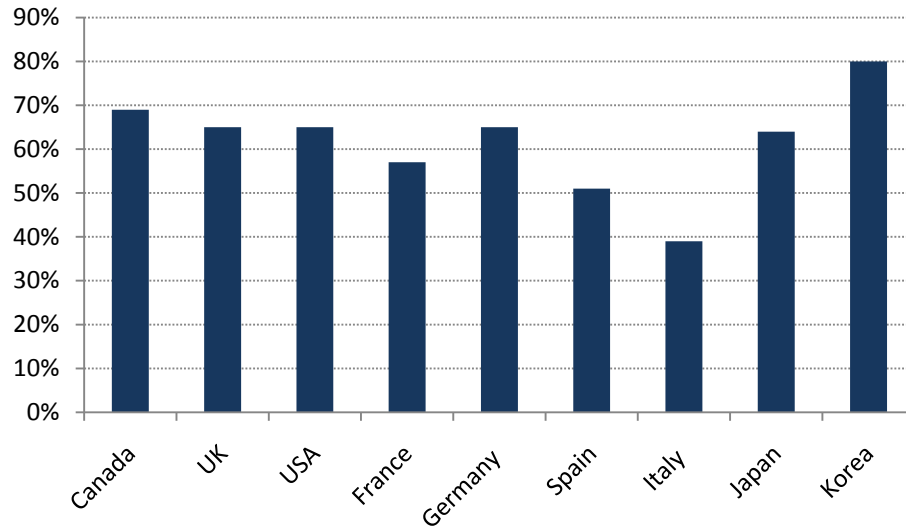


BERKELEYRESEARCH

Exhibit JRC-6

22. Yet asymmetrical foreign ownership rules such as proposed by IC in Option 2 and Option 3 should be seen as amounting to a “structural” remedy imposed on the telecom sector, especially the wireless market segment. The primary justification for such a remedy is a compelling demonstration of significant market power in the sector; yet such a demonstration is singularly lacking, and indeed the type of evidence that would be required to make a case for significant market power has not been presented.

FIGURE 1: HOUSEHOLD BROADBAND PENETRATION



Sources: National Broadband Plan (USA); Eurostat, July 2009 Community Survey of ICT Usage in Enterprises and Households⁵²; UK data from Ofcom, Communications Market Research July 2009; Japanese data from Strategy Analytics; Korean data from Scott Wallsten.⁵³

⁵² It appears that this survey may include households where only a wireless broadband option is used; further, it may be the case that the impact of wireless-only broadband households is picked up in differential ways across countries. A priori, the difference between French and German household penetration rates seems too high, while Italian penetration seems too low.

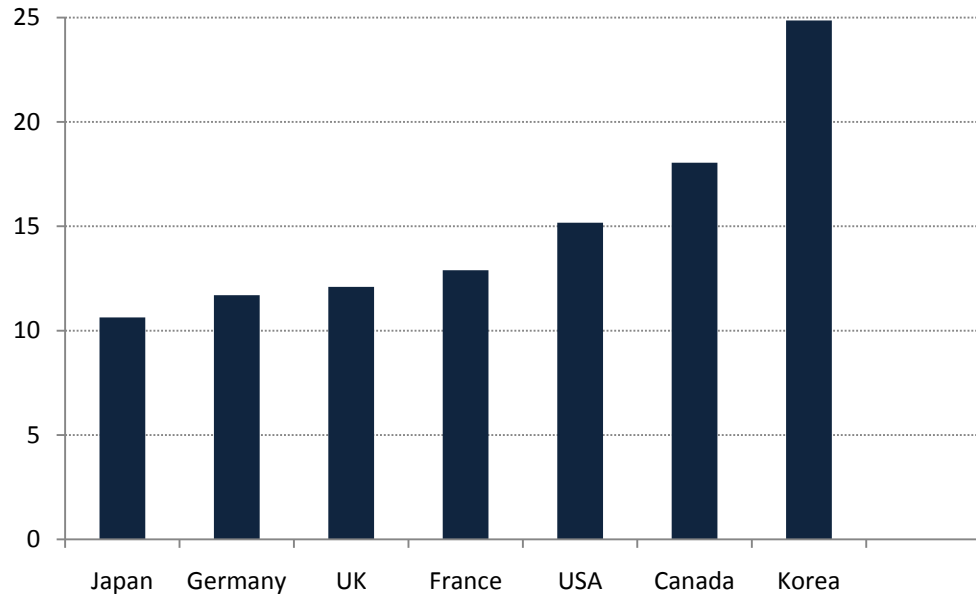
⁵³ Wallsten, Scott. "Understanding International Broadband Comparisons", Technology Policy Institute, Washington DC: July 2009.



BERKELEYRESEARCH

Exhibit JRC-6

FIGURE 2: INTERNET TRAFFIC PER CAPITA (GB PER CAPITA PER YEAR)



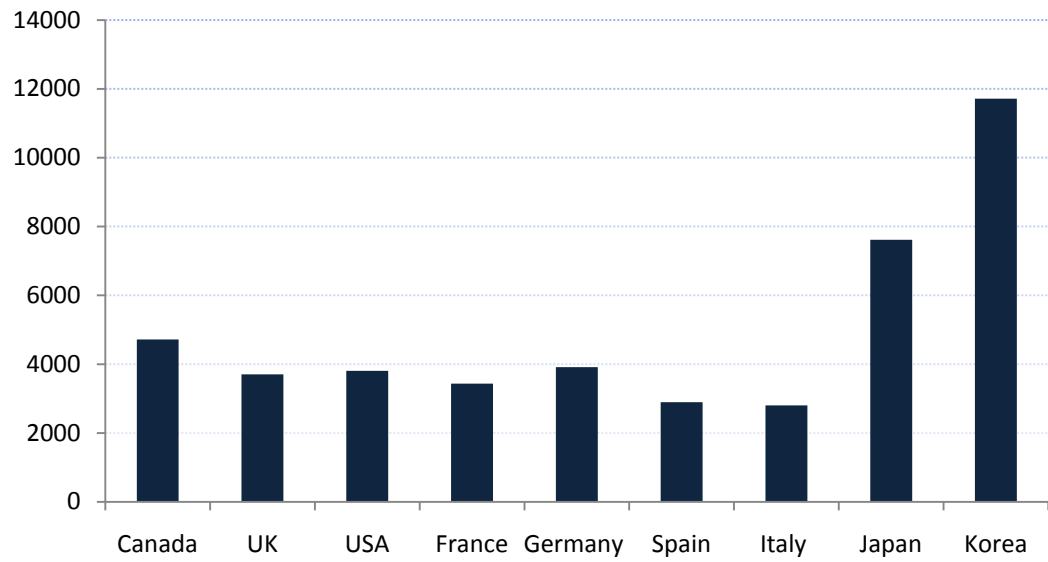
Source: Cisco Systems.



BERKELEYRESEARCH

Exhibit JRC-6

FIGURE 3: AVERAGE BROADBAND DOWNLOAD SPEEDS (KBPS)



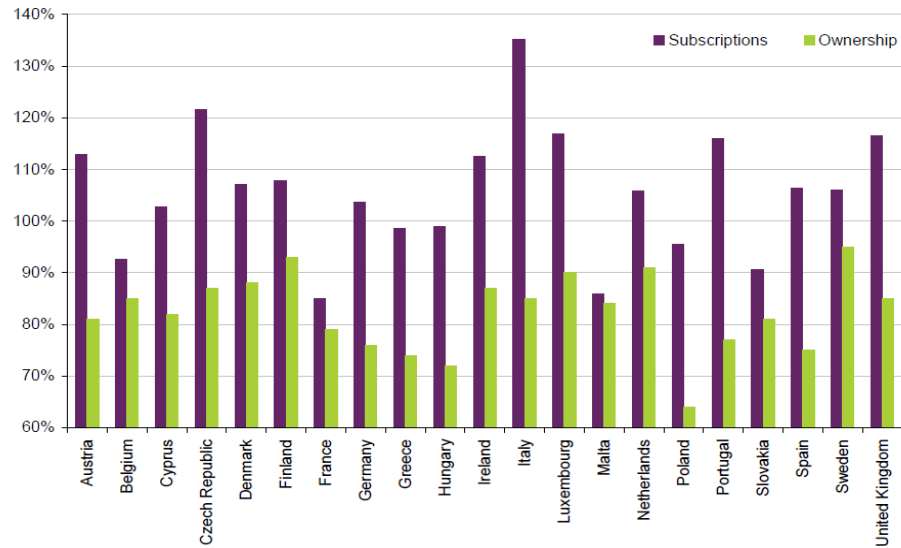
Source: Akamai, State of the Internet, Q4 2009.



BERKELEYRESEARCH

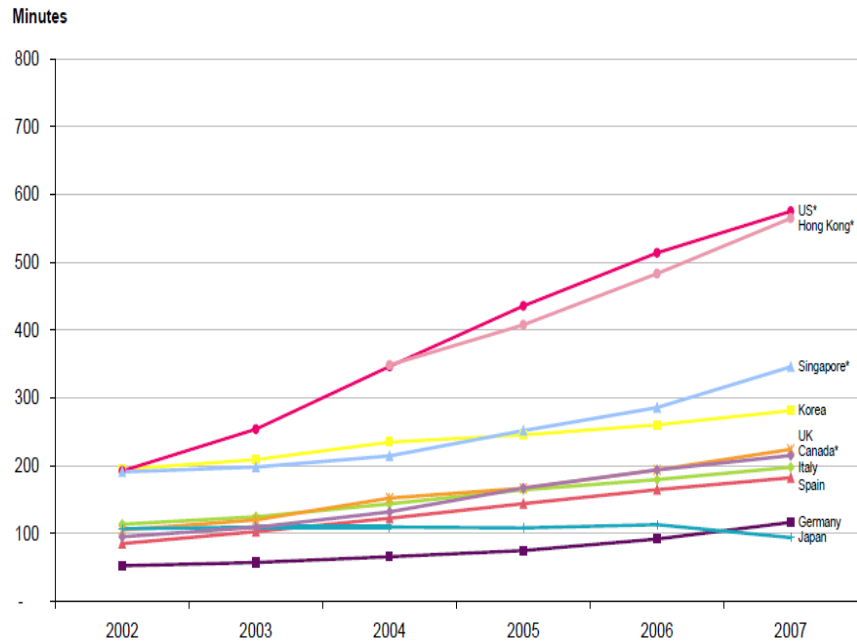
Exhibit JRC-6

FIGURE 4: OWNERSHIP VERSUS SUBSCRIPTION RATES IN EUROPE



Source: Ofcom, Consultation Document on Mobile Wholesale Voice Termination, May 2009, Annex 5.

FIGURE 5: “MINUTES PER CAPITA”



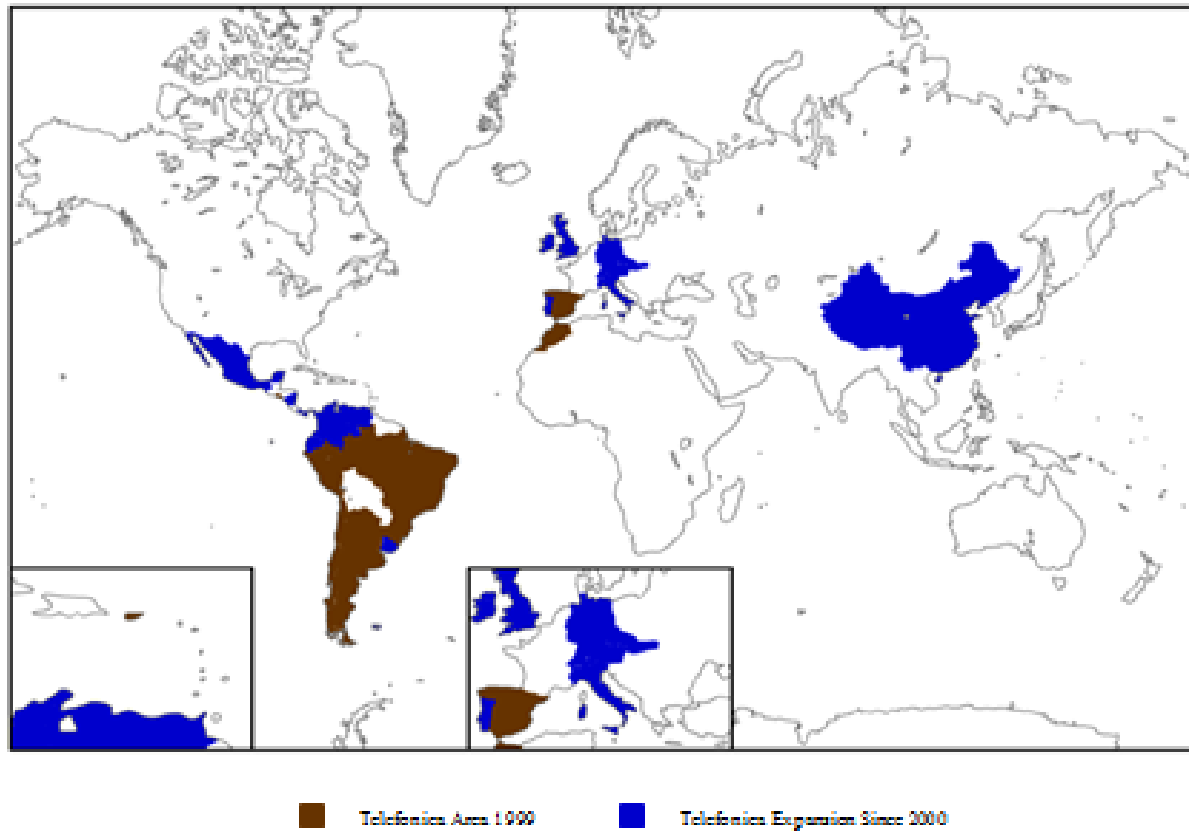
Source: Ofcom, Consultation Document on Mobile Wholesale Voice Termination, May 2009, Annex 5. Data reflect Ofcom’s “de-biasing” of Merrill Lynch data.



BERKELEYRESEARCH

Exhibit JRC-7

Exhibit JRC-7
Telefonica Expansion

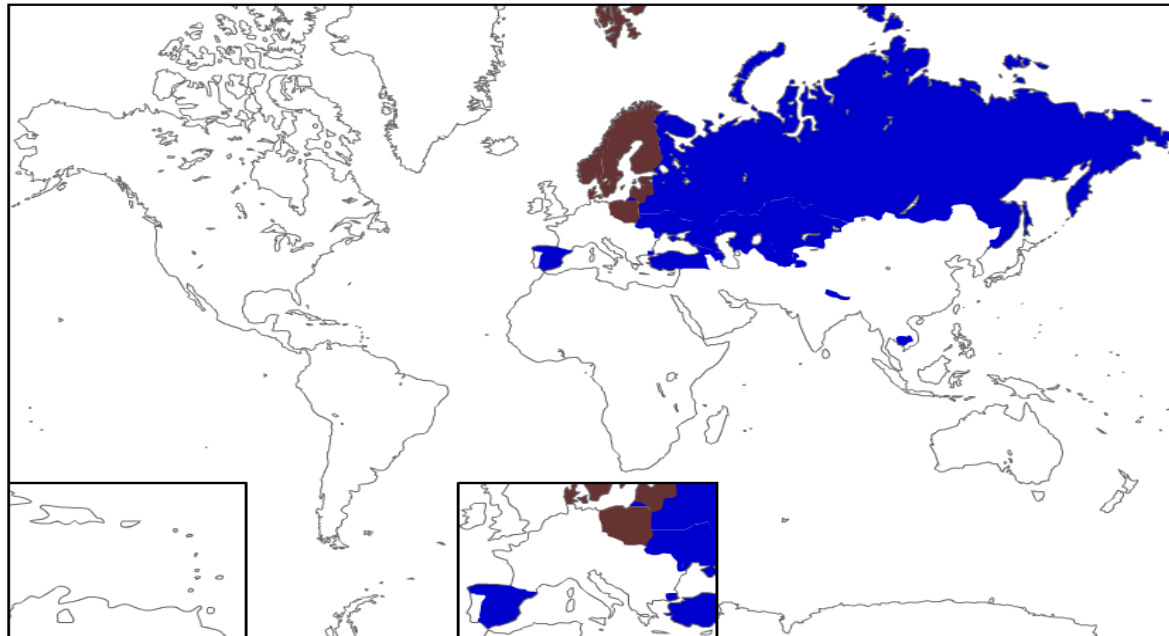




BERKELEYRESEARCH

Exhibit JRC-8

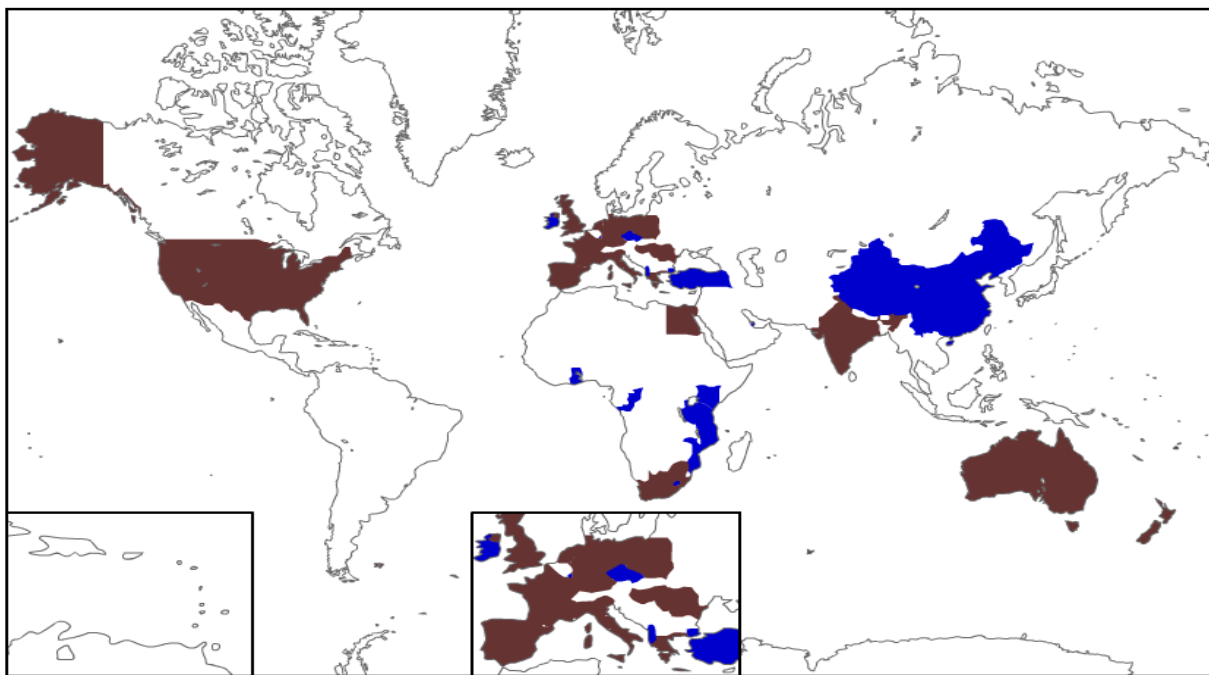
Exhibit JRC-8
TeliaSonera Expansion



TeliaSonera Area 1999

TeliaSonera Expansion Since 2000

Exhibit JRC-9
Vodafone Expansion



Vodafone Area 1999

Vodafone Expansion Since 2000

Note: Vodafone also had subsidiaries or joint ventures in Belgium, Japan, Mexico, South Korea, Sweden, and Switzerland at one point in time.