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WIRELESS PHONE SERVICE IN CANADA AND ABROAD: PENETRATION, USE, PRICING AND PROFITS

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CANADIAN WIRELESS PHONE SERVICE: PENETRATION, USE, PRICING AND PROFITS[1]

INTRODUCTION

According to the CBC, "An unprecedented wave of discontent with service providers is sweeping the country."[2] Much of the anger is directed at Bell, Rogers and Telus. Collectively, the "Big Three" control more than 95% of the Canadian wireless market, and critics accuse them of using their position to inflate prices.[3] Business leaders and economists have said that high wireless prices are depressing Canada's gross domestic product (GDP), with one study estimating that "Canada would have enjoyed an average GDP per capita growth rate nearly 1 percent higher than it actually was [from 1996 to 2003], had the mobile penetration rate in Canada" been on a par with Sweden.[4] At the same time, polls show that three in five Canadians are dissatisfied with their cellphone company,[5] thousands have joined online groups and signed petitions protesting the cost of Canadian wireless service, and class-action suits against text-messaging charges and allegedly misleading system access fees are proceeding.

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(1) This paper draws heavily from the following background documents prepared by Tyler Kustra of the Library of Parliament: "State of the Canadian Wireless Telecommunication Market," "Industry Canada's 2GHz Spectrum Auction," and "Notes on the SeaBoard Group Study of Wireless Data Prices."

(2) "Special Report: Disconnected," CBCnews.ca, http://www.cbc.ca/news/background/telecom/.

(3) Peter Nowak, "The real cost of high prices," CBC.ca, 20 November 2008, http://www.cbc.ca/news/background/tech/cellphones/economy.html.

(4) Leonard Waverman, Meloria Meschi, Melvyn Fuss, "The Impact of Telecoms on Economic Growth in Developing Countries," Vodafone Policy Paper Series, Number 3, March 2005, http://www.vodafone.com/etc/medialib/attachments/cr_downloads.Par.78351.File.dat/GPP_SIM_paper_3.pdf. (At the time, 26% of Canadians had cellphones compared with 64% of Swedes.)

(5) "Almost half of Canadians would give up coffee for a month over their mobile phones," CNW Group, Toronto, 18 September 2008, http://www.newswire.ca/en/releases/archive/September2008/18/c5624.html?view=print.

This paper compares Canadian wireless service to service in other developed and developing countries by considering wireless penetration, use, pricing and profits. It finds that among people in developed countries, Canadians are the least likely to have cellphones. At the same time, regarding how much they use their phones, Canadian cellphone users hold fourth place in the world, behind the United States, Hong Kong and India. Pricing comparisons are difficult, because wireless service is sold in packages of peak and off-peak minutes rather than at a flat rate. This caveat notwithstanding, three of the four studies available found that Canadians, on average, pay more for wireless services than users abroad. Finally, as measured by their ratio of revenue to earnings before interest, taxes, depreciation and amortization, Canadian wireless service providers have the highest profit margins in the developed world. The paper concludes by noting that the federal government engineered the 2008 spectrum auction to encourage new companies to enter the Canadian wireless market in hope of lowering prices. Ten new entrants won licences and should start offering service in the second half of 2009. However, some analysts believe that the Canadian market can not support any additional players, and so the dominance of Bell, Rogers and Telus will quickly return.

MEASUREMENT

North American cellphone plans differ significantly from those in the rest of the world. Canada and the United States are among the few countries with a cellphone pricing system called receiving party pays (RPP), whereby cellphone customers pay both to send and to receive calls. Calls to phones with the same service provider are typically billed at the same rate as calls to phones with a different service provider. Moreover, Canadians and Americans generally enjoy free domestic roaming on networks from coast to coast.

Outside of North America, most countries use what is known as calling party pays (CPP) pricing, whereby incoming calls are free. Under this pricing system, outgoing calls are charged a higher rate than would be the case in an RPP system. Many service providers in countries using CPP pricing have reduced rates for intra-service provider calls. Moreover, although customers may enjoy free roaming in their home country, international roaming is typically quite expensive. Europeans are particularly affected by roaming charges: international travel is common in Europe, where over 30 countries share the world’s second smallest continent.

Most cellphone networks use the GSM (Global System for Mobile Communications) standard, which allows users to have multiple cellphone accounts using the same cellphone. Account information is stored on a thumbnail-sized microchip called a SIM (Subscriber Identity Module), which users can easily interchange in order to switch between accounts. Because the same phone can be used for multiple accounts, the cost of multiple accounts decreases, making it an economical alternative to have several small accounts rather than one large account.

In contrast, Bell and Telus use CDMA (Code Division Multiple Access) phones that cannot easily be changed from one service provider to another. Rogers uses the GSM standard, but because it is the only GSM provider in Canada its customers do not have an alternative provider. Among the big five American service providers, AT&T and T-Mobile use GSM, while Verizon, Sprint-Nextel and Alltel use CDMA.

Because of different pricing plans and the ease of changing from one account to another with the simple swap of a chip, many users outside Canada and the United States have multiple SIMs and cellphone accounts to take advantage of free intra-service provider calling. Moreover, tourists visiting Europe often purchase local SIM cards to avoid roaming fees.

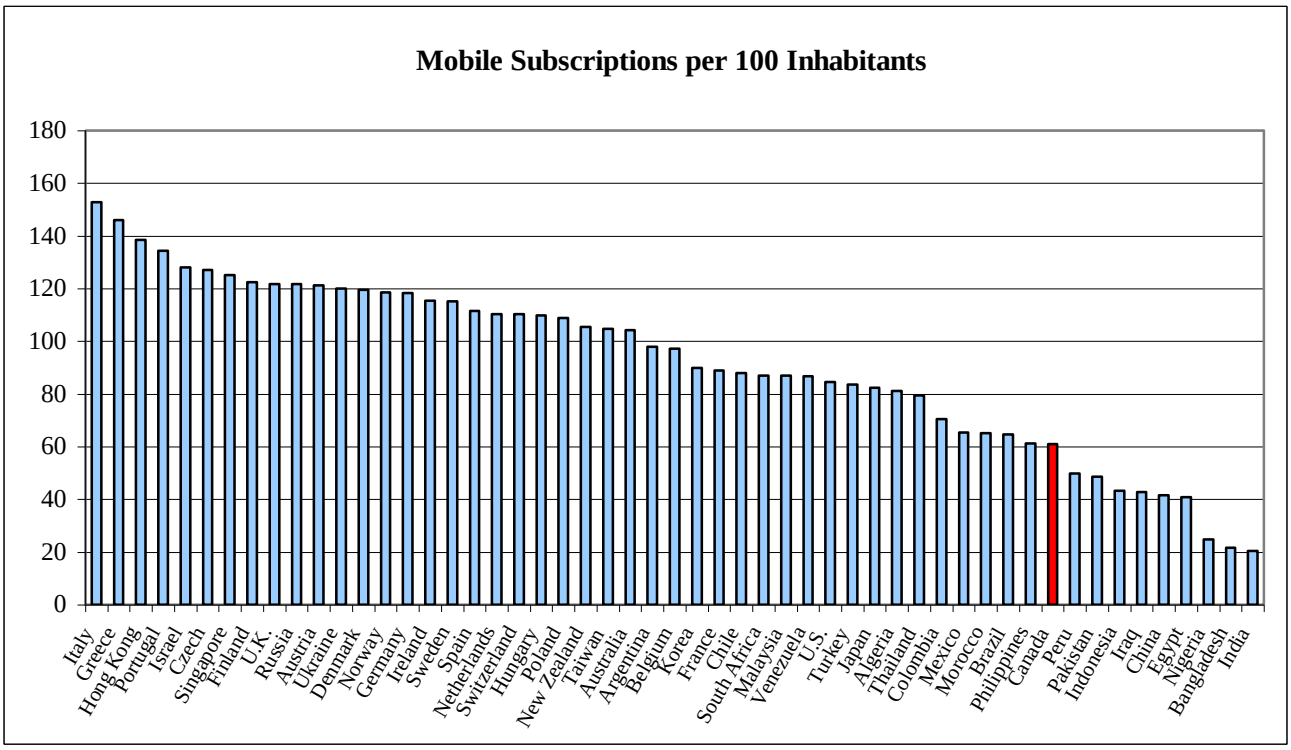
Since much of the data on wireless telephony is measured by account rather than by user, it is difficult to make comparisons between those countries where most users have a single account and countries where many users have multiple accounts.

PENETRATION

Canada ranks last in cellphone penetration among developed countries.(6) In the final quarter of 2007, cellphone subscriptions averaged 99.7 per 100 inhabitants in the developed world, compared to 60.9 per 100 inhabitants in Canada, according to the Merrill Lynch *Global Wireless Matrix*. Of the 53 countries in the developed and developing world tracked by Merrill Lynch, Canada ranks 44th, just ahead of Peru, Pakistan and Indonesia and just behind Morocco, Brazil and the Philippines. However, many users outside North America have multiple cellphone accounts. Because the data does not correct for this, comparisons between mobile phone penetration in Canada and the rest of the world should be made with caution.

(6) Merrill Lynch, *Global Wireless Matrix*, Fourth Quarter 2007.

Chart 1 – Mobile Subscriptions per 100 Inhabitants, Fourth Quarter 2007



Source: Merrill Lynch, *Global Wireless Matrix*.

MINUTES OF USE

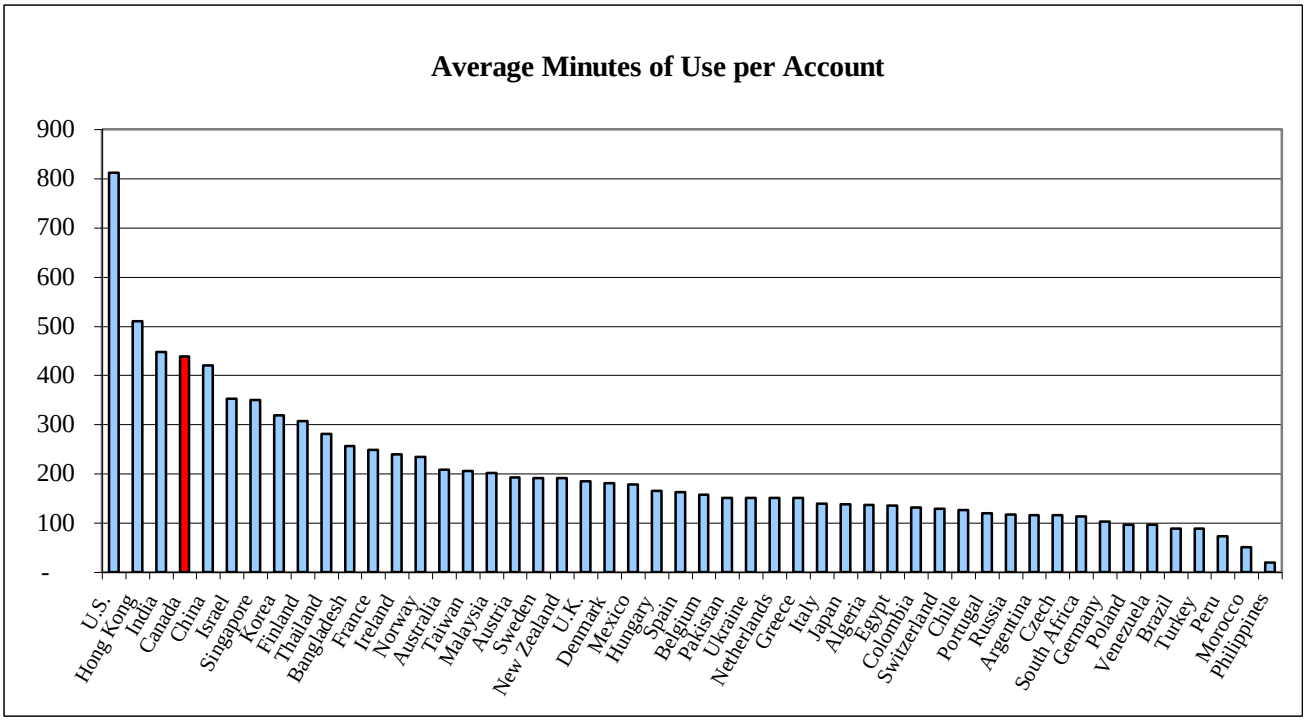
While penetration rates show the number of cellphones, average minutes of use per account show how much those cellphones are used. Canada ranks near the top, with an average of 439 minutes of use per account per month in the final quarter of 2007. This performance places Canada ahead of all European countries and behind only the United States, Hong Kong, and India, according to the Merrill Lynch *Global Wireless Matrix*.

However, these data suffer from the same problem that confounds the penetration rate data, i.e., many users outside North America have multiple accounts. In this case, however, the multiple account problem biases the data from the rest of the world downward, since these data show minutes of use per account, and many users in other parts of the world have multiple accounts.

Moreover, the minutes-of-use data are generated from billing data. In receiving party pays countries, this includes both incoming and outgoing minutes, but in calling party pays countries only outgoing minutes would be counted. Merrill Lynch has adjusted the data to account for this discrepancy, but notes that even with the adjustment the minutes-of-use data are

potentially overstated in receiving party pays countries. Merrill Lynch lists Canada, China, Hong Kong, India, Singapore, and the United States as counties whose minutes-of-use data may be overstated, and it should be noted that these countries comprise six of the top seven countries in terms of minutes of use.

Chart 2 – Average Minutes of Use per Account, Fourth Quarter 2007



Source: Merrill Lynch, *Global Wireless Matrix*.

PRICE COMPARISON

Canada's rank in international price comparisons varies depending on how rates are compared. Post-paid service plans are normally sold in tiers, with a flat rate for a set of peak and off-peak minutes and steep overage fees. This pricing system makes it difficult to calculate an average per minute rate, since the average rate varies with the size of the plan and the ratio of peak to off-peak minutes, and plan sizes and compositions vary among service providers. To deal with this, studies construct hypothetical low, medium and high intensity users and attempt to find the least costly plan in each area under study. This method, however, can be sensitive to how the hypothetical customers are constructed. With high fees for exceeding the included minutes (known as overage fees), it is often more economical for a customer to move up to a

higher tier if they use even a few more minutes than their current plan includes. Since each service provider sets its own tiers and peak to off-peak ratios, the hypothetical medium intensity user may fall into the low usage tier of one provider, the medium tier of another, and the high tier of a third. With a slight change in the user specification, however, the medium intensity user would switch to the medium usage tiers of all three providers.

The problem is compounded by variations in calling patterns between calling party pays countries, where users encourage others to call them because incoming calls are free, and receiving party pays countries, where users pay for both incoming and outgoing calls. This pricing difference causes different calling patterns between calling party pays and receiving party pays countries and it is unclear whether this should be taken into account when making pricing comparisons.

Moreover, many features and charges vary from provider to provider and country to country. For instance, most Canadian service providers charge system access fees while service providers in the rest of the world do not. Canadian and American providers often provide free or deeply discounted cellphones to customers who sign up for multi-year contracts, while providers in other countries often charge full price for phones. Finally, features such as caller ID and voicemail are included in some plans while they are an option provided at an additional charge in others. All of these factors must be taken into account when evaluating the studies summarized below. It should also be noted that in all the price comparisons listed below, currency conversions were performed using purchasing power parity exchange rates. This rate is less prone to fluctuations in the foreign exchange markets than the nominal exchange rate.

A. *OECD Communication Outlook 2007*

Canada swings from the twelfth least expensive of the 30 OECD countries for low intensity users, to the ninth most expensive for medium intensity users, and then to the ninth least expensive country for high intensity users in the *OECD Communication Outlook 2007* comparisons.[7] The numbers were calculated using cellphone rates as of August 2006 for Rogers and Bell and do not adjust for regional calling patterns. The OECD notes that the numbers take sales tax and system access fees into account, but it does not provide details about what calling features are included.

(7) *OECD Communication Outlook 2007*, OECD, Paris.

B. SeaBoard Consulting's *Lament for a Wireless Nation*

Canadian cities consistently have higher wireless prices than Berlin and Stockholm, and are often higher than US centres, according to SeaBoard Consulting's report *Lament for a Wireless Nation*.(8) The March 2007 study compared rates for low-, medium- and high-intensity users on post-paid subscriptions as well as low-intensity pre-paid users in 10 cities: Athens, Georgia; Berlin; Kelowna, BC; London; Los Angeles; New York; Saskatoon; Stockholm; Toronto; and Winnipeg. Canadian medium- and high-intensity users are worse off than their counterparts in Berlin, Stockholm or any of the American cities surveyed, and are better off only in comparison with Londoners. Canadian low-intensity users are, once again, worse off than those in Berlin or Stockholm, but they are better off than their counterparts in the United States and London.

SeaBoard reports that its study took into account all fees, charges and taxes involved to show what users actually pay. The study did not take into account the discount Canadian and US service providers typically give customers for signing a long-term contract, or any discount on cellphones they may have provided. When measuring prices in London, Berlin and Stockholm, the study adjusted the customer profiles for European calling patterns. The study compared both large metropolises and smaller centres, providing both a domestic and an international price comparison. However, it should be noted that Athens, Georgia, is one of the few cities in the United States served by MetroPCS, a small service provider known for its low-price unlimited calling plans.

C. Economics and Technology, Inc.'s *Comparison of Wireless Service Price Levels in the United Sates and Canada*

Canadian cellphone plans were more expensive than their US counterparts in five of the six cases studied by Economics and Technology, Inc.(9) The consulting firm calculated the costs for users ranging from a very low-intensity consumer who talks for 150 minutes a month, to a very high-intensity user, such as a corporate executive, who is on the phone 1,800 minutes a month. Services from Bell, Rogers, and Telus as well as from the US carriers Alltel, AT&T, SprintNextel, and Verizon were considered. In five of the six cases, a US carrier had the lowest price.

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(8) Ian Grant and Kevin Restivo, *Lament for a Wireless Nation*, SeaBoard Consulting, Toronto, March 2007.

(9) Lee L. Selwyn and Colin B. Weir, *Comparison of Wireless Service Price Levels in the United Sates and Canada*, Economics and Technology, Inc., Boston, 25 May 2007.

The study took into account the prices for popular features such as voicemail and caller ID, as well as system access fees. It also took into account any bonus minutes offered as an inducement to sign a long-term contract, provided that the minutes applied over the balance of the contract. Taxes were not included in the calculations.

D. SeaBoard Consulting's *Wireless Data Prices*

According to SeaBoard Consulting, Canadians are not just paying more for wireless voice service, they are paying more for wireless data service too.(10) In November 2007, the firm compared the price of downloading 1GB of data to a Windows Mobile PDA. Out of the 15 carriers in the nine countries that the consultants examined, Bell and Telus tied for the second highest price at $100.(11) Rogers had the highest price at $1,580 although the vast majority of this comes from overage fees. In contrast, TMN of Portugal had the lowest price of the carriers examined, at $23.

The study did not account for any discounts provided on PDAs, system access fees, taxes, voice services included in the plans, nor speed and network coverage. Moreover, the study mentioned but did not account for free airtime for telephone calls, which is provided by Leap and MetroPCS in the United States, and T-Mobile in the United Kingdom, but not by the other providers.

EARNINGS BEFORE INTEREST, TAXES, DEPRECIATION AND AMORTIZATION

Divided by a company's total revenue, earnings before interest, taxes, depreciation and amortization (EBITDA) provides one measure of a company's profitability. By this metric Canadian wireless telecommunications companies have the highest profit margins in the developed world at 45.9% in the final quarter of 2007.(12) However, it should be noted that EBITDA does not account for the cost of any previously purchased assets that helped generate the profit – such as investment in a cellular phone network – and therefore should be used with caution.

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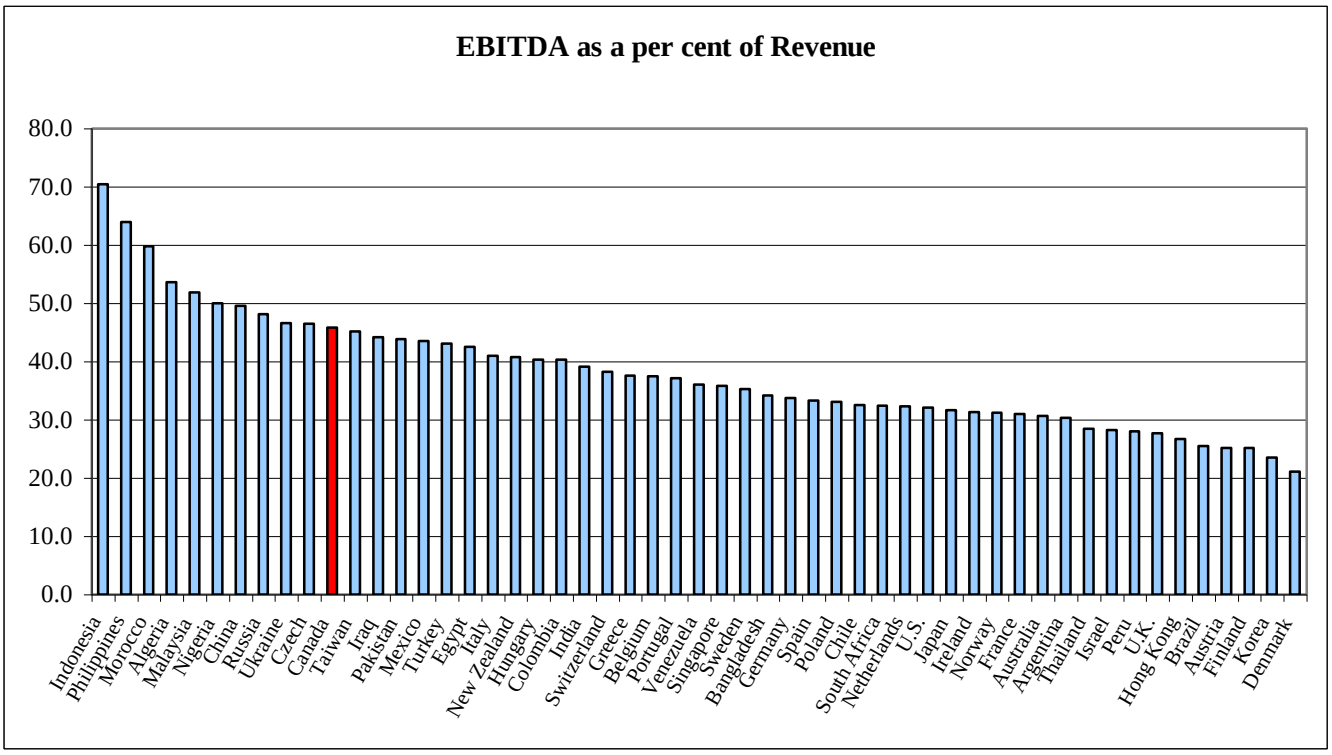
(10) *Wireless Data Prices*, SeaBoard Consulting, Toronto, November 2007.

(11) All figures in Canadian dollars.

(12) Merrill Lynch, *Global Wireless Matrix*, Fourth Quarter 2007.

Chart 3 – EBITDA as a per cent of Revenue, Fourth Quarter 2007



Source: Merrill Lynch, *Global Wireless Matrix*.

CONCLUSION

Hoping that more competition would lower wireless prices, the federal government reserved 40% of the spectrum licences in the 2008 auction for companies entering the wireless market.(13) The licences permit service providers to broadcast on cellphone frequencies, and the auction was the first time in 13 years that new licences became available. Concerned that the incumbent providers – Bell, Rogers, and Telus – would outbid the new entrants and in so doing impede competition, the federal government set aside licences for new entrants.

The two months of bidding ended on 21 July 2008 with 10 new entrants acquiring licences. In each region of the country at least two new entrants won licences, with some areas seeing up to five new companies. The companies are expected to begin offering service in the second half of 2009. The auction set the stage for a renaissance period of wireless use and

(13) "Government of Canada Opens Up Wireless Industry to More Competition," Industry Canada, Ottawa, 27 May 2008, http://www.ic.gc.ca/cmb/welcomeic.nsf/261ce500dfcd72598525648200 68dc6d/85256a5d006b972085257456004d567b!OpenDocument.

growth in Canada that will see more aggressive pricing models, according to Lawrence Surtees, vice-president of communications research at IDC Canada.(14) However, other analysts say that the Canadian wireless market is too small to support additional companies, and therefore, the new entrants may soon exit the market, returning Canadians to the dominance of Bell, Rogers and Telus. In a briefing note entitled "Fourth Wireless Entrant Economics Don't Work," Scotia Capital analyst John Henderson considered three market scenarios. "Only [in] the highly unlikely optimistic case" was entrance into the Canadian wireless market profitable for investors in a stand-alone wireless provider.(15)

(14) David George-Cosh, "Wireless Users Stand to Win," *National Post*, 22 July 2008, p. A1.

(15) John Henderson, "Fourth Wireless Entrant Economics Don't Work," Scotia Capital, Toronto, 15 May 2006.