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A REVIEW AND ASSESSMENT OF PRIVATIZATION IN CANADA

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SUMMARY

Most privatizations in Canada occurred in the 10-year period from the mid-1980s to the mid-1990s, and while many of the remaining candidates are both politically and economically problematic, the Harper government has signalled its renewed interest in more privatizations. This paper, written by two of Canada's leading experts on the subject, comprehensively assesses hard data from the earlier privatizations in Canada, including sectors such as energy, transport and telecommunications. They find that the overall impacts have been largely positive, in many cases impressively so. Key economic indicators such as capital expenditures, dividends, tax revenues and sales per employee tended to increase, while others such as employment initially fell, only to rise again over the long term. Ultimately, most of the privatized firms continue to operate efficiently, making them positive contributors to Canadians' social welfare through the provision of increased economic opportunities, higher profits and taxes. Drawing on lessons learned, the authors propose a common-sense framework to guide future privatizations and ensure all Canadians derive the maximum possible benefits from them. No Canadian government has ever formulated such a plan for a privatization regime, making this paper a must-read for anyone with a stake in the future of Canadian business.

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1. INTRODUCTION

The most extensive wave of privatizations in Canada followed, and to some extent imitated, the trailblazing privatizations initiated in the United Kingdom by the Margaret Thatcher government.^{1,2} Most privatizations in Canada occurred in the 10-year period from the mid-1980s to the mid-1990s.³ The main purpose of this paper is to review the existing evidence and to provide new evidence concerning the impact of Canadian privatizations on the social welfare of Canadians. We present a comprehensive evaluation of one major Canadian privatization (Canadian National Railway) including an estimate of the net social benefits to Canadians and others. For most of the other large privatizations in Canada, we use proxies of social welfare, focusing on changes in various aspects of operating performance from up to five years prior to privatization, through 21 years following privatization.

A second purpose is to broadly consider the potential for future privatizations. The last decade has been a relatively quiet period in terms of privatization at both the federal and provincial levels. There are a number of reasons for this privatization hiatus. Certainly a major contributing factor, at least at the federal level, is that the low-hanging fruit has already been privatized. This low-hanging fruit consisted of commercial crown corporations that operated in reasonably competitive markets. The absence of significant market failures provided an economic (social welfare) justification for privatization. Privatization of these firms also provided political benefits because the proceeds from the sales helped to reduce government deficits and debt levels.

Currently, the remaining candidates for privatization in Canada would be both economically and politically more problematic than those that took place previously. However, in 2009 the then-minority Harper government at least mooted the possibility of privatizing a number of “not self-sustaining” crown corporations that included the Canadian Broadcasting Corporation (CBC), Via Rail and the Cape Breton Development Corporation.⁴ Indeed, the recently announced sale of the Commercial Reactor Sales and Service Division of Atomic Energy of Canada Ltd. (AECL) may indicate a renewed interest in further privatization by the now-majority Harper government. At the provincial level, there is a much greater amount and variety of crown corporation fruit still hanging, but, again, few of the plausible privatization candidates could be described as low-hanging, whether from an economic efficiency perspective or a political popularity perspective. On the other hand, some candidates are quite large and would deliver significant revenues to provincial governments. Prominent examples of possible privatization candidates at the provincial level include the provincial electric power corporations and a range of infrastructure entities, such as BC Ferries Corporation.

¹ Feigenbaum, H., J. Henig and C. Hammet, 1998, *Shrinking the State: The Political Underpinnings of Privatization*, Cambridge: Cambridge University Press.

² Seldon, A. and D. Collings, 1999, *Britain Under Thatcher*, London: Longman.

³ Boardman, A.E., C. Laurin, and A.R. Vining, 2003, "Privatization in North America," in David Parker and David Saal (eds.), *International Handbook on Privatization*, Chapter 7, Cheltenham, UK: Edward Elgar, 2003, 129-160.

⁴ Mayeda, A., "Major Canadian Government Assets could be Sold," Canwest News Service, February 17, 2009; Lammam, C. and N. Veldhuis, 2009, "It's Time to Privatize Canada's Crown Corporations," *Fraser Forum*, 05/09.

This paper has four following sections. Section 2 explains what we mean by privatization, summarizes what has been privatized in Canada by federal and provincial governments, discusses alternative privatization methods and estimates government receipts from privatizations. Section 3 lays out a theoretical framework to comprehensively assess the social welfare impacts of privatization and discusses the expected theoretical impacts of privatization. Using this framework, Section 4 assesses the performance of Canadian entities following their privatization. It reviews an earlier social cost-benefit analysis of the privatization of Canadian National Railway (CNR) and contains new analysis of the pre- and post-privatization performance of corporate entities using proxies of social welfare. These proxies provide quantitative and qualitative information about the benefits of privatization where comprehensive data are not available. Section 5 considers potential Canadian privatizations. Although almost all of these companies operate under different economic and structural conditions than those entities privatized previously, evidence relating to the outcomes of previous privatizations is somewhat informative of the potential welfare consequences and other impacts of future privatizations. We conclude the section with some general principles (meta-rules) for governments in Canada that are considering future privatizations, which we suggest would help to ensure that Canadians' social welfare is enhanced.

2. PRIVATIZATION IN CANADA

Before describing what has been privatized, it is useful to provide some background on privatization in general. This section presents our definition of privatization and clarifies the distinction between privatization, public-private partnerships and corporatization. It also distinguishes between the two major methods of privatization: share-issue privatizations (SIPs) and direct sales to existing private-sector firms (DSPs). Canadian governments have used both methods extensively. The distinction is important because it is much more feasible to gather qualitative and quantitative data that allows one to assess the welfare consequences of SIPs.

What Privatization Is and Is Not

We define privatization as the transfer of a corporate-like entity from government ownership and control to the private sector. It involves the transfer of an on-going business (or service), not just the sale of assets. Following privatization, the primary goal typically becomes profit-maximization.

Some authors treat the formation of public-private partnerships (PPPs) as a form of privatization, but we do not. Indeed, PPPs can often be thought of as representing a step away from private ownership: facilities are initially financed, designed, constructed, maintained and operated by the private sector, but then, after some (usually long) contractual period (often 30 years), these assets revert to public ownership. Some analysts have labelled the sale of existing highways as a concession as both a PPP and privatization. While this results in a transfer of an existing business from the public sector to the private sector for some time period, in almost all cases ownership of the assets eventually reverts back to the public sector. From a pragmatic perspective, there have not been any major concession-type sales in Canada, although several

such sales have taken place in the United States.^{5, 6} For a discussion of the theory concerning the behaviour and performance of PPPs and an analysis of supporting Canadian case studies, see Vining and Boardman.⁷

It is also useful to clarify the distinction between privatization and corporatization because the two processes are sometimes confused. Although the use of corporatization is not precise, it generally refers to the process by which an activity is decoupled from direct government administrative control and placed in a separate legal entity.⁸ Unless the government is selling an entity that is already constituted in a corporate form, some form of corporatization is usually required before privatization can take place. However, corporatization is not necessarily followed by privatization; indeed, in a number of Canadian cases, governments have explicitly declared that they do not regard corporatization as a precursor to privatization.⁹ Corporatization should *not* be thought of as a form of privatization because governments retain formal ownership in the corporatized entities and their primary goal is usually not profitability. Furthermore, while the day-to-day decisions of a corporatized entity may be entrusted to managers, politicians retain ultimate control.

Sometimes government sets up a new, not-for-profit corporation. Control (and, in some sense, ownership) shifts from government to an independent board, usually with government and stakeholder representation. This kind of status change is exemplified by the Canadian Air Navigation System, which was transferred from the federal government to Nav Canada, a non-share capital, not-for-profit corporation in 1995. Nav Canada is governed by its 15-member board. Stakeholder groups appoint 10 of these members: the airlines (“aviation users”) appoint four board members, general aviation appoints one, the federal government appoints three and the unions appoint two. In addition, the board as a whole appoints four independent directors. The CEO also sits on the board. Any proposed changes in prices and levels of service must undergo public notice and regulatory approval. There are also restrictions on the retention of employees. Some Canadian ports and airports have undergone this type of defederalization. Some authors¹⁰ have argued that such transfers amount to privatization. However, we regard this organizational change as a form of corporatization, rather than privatization, because the new entity is not owned and controlled by the private sector.

Fortintek is sometimes referred to as Canada’s first privatization. In 1979, ownership of the Eastern and Western Wood Products Laboratories of the Canadian Forest Service was transferred from the federal government to Fortintek. This newly created entity was owned by the federal government, provincial governments and a number of private firms. It received (and continues to receive) funding from all of these organizations. Again, this restructuring is an example of corporatization, not privatization, given the continued significant public ownership.

⁵ Boardman, A.E. and A.R. Vining, 2010, “P3s in North America: Renting the Money (in Canada), Selling the Roads (in the USA)”, in G.A. Hodge, C. Greve, and A.E. Boardman (eds.), *International Handbook on Public-Private Partnerships*, Cheltenham, UK: Edward Elgar, 354-398.

⁶ In 2003, the Campbell government in BC proposed selling the Coquihalla Highway as a concession to the private sector. However, it withdrew the proposal in the face of strong political and regional opposition. Eventually, in what amounted to an act of appeasement, it even removed the existing tolls on the highway.

⁷ Vining, A.R. and A.E. Boardman, 2008, “Public-Private Partnerships in Canada: Theory and Evidence,” *Canadian Public Administration* 51(1), 9-44.

⁸ Boardman, A.E. and A. Hunt, 1997, *Review of Methodologies for Estimating the Welfare Impacts of Corporatisation and Privatisation*, final report, prepared for The Treasury, New Zealand; Bilodeau, N., C. Laurin and A.R. Vining, 2007, “Choice of Organizational Form Makes a Real Difference: The Impact of Corporatization on Government Agencies in Canada,” *Journal of Public Administration Research and Theory*, 17(1), 119-147; Laegreid, P. and K. Verhoest (eds.), 2010, *Governance of Public Sector Organizations*, Basingstoke, UK: Palgrave Macmillan.

⁹ Bilodeau, N., C. Laurin and A.R. Vining, 2007, op. cit.

¹⁰ Gillen, D. and D. Cooper, 1995, “Public versus Private Ownership and Operation of Airports and Seaports in Canada,” in F. Palda (ed.), *Essays in Canadian Surface Transportation*, Vancouver, BC: Fraser Institute, 1-52.

What Has Been Privatized?

Tables 1 and 2 provide an overview of the major entities that have been privatized in Canada using our definition of privatization. It draws upon, and updates, Boardman, Laurin and Vining.¹¹ Table 1 pertains to privatized federal entities, while Table 2 pertains to provincial entities. We use the word entity because some privatizations had previously been only parts (i.e., subsidiaries) of larger crown corporations.

TABLE 1: MAJOR CANADIAN FEDERAL PRIVATIZATIONS

Date	Company	Sector	Former Owner	Buyer and Privatization Process	Proceeds (\$M)
1985	Northern Transportation Company Ltd.	Marine shipping	CC	Inuvialuit/Nunasi Consortium (negotiated sale)	53
1985	Canada Development Corp.	Conglomerate	ME	Two public offerings in 1985 and 1987	361
1986	de Havilland Aircraft Canada Ltd.	Airplane manufacturer	CC	Boeing (negotiated Sale)	99
1986	Pêcheries Canada Inc.	Fishery	CC	La Coopérative Agro-Alimentaire Purdel (negotiated sale)	5
1986	Canadian Arsenals Ltd.	Munitions manufacturer	CC	The SNC group	92
1986	Nanisivik Mines	Zinc-lead mining	ME (18%)	Mineral Resources International Ltd. (qualified auction)	6
1986	CN Route (CN subsidiary)	Truck transportation	CC	Transport Route Canada Inc. (negotiated sale)	29
1986	Canadair Ltd.	Air transportation	CC	Bombardier Inc.	143
1987	Northern Canada Power Commission (Yukon)	Electric utility	CC	Yukon Power Corp. (negotiated sale)	76
1987	Teleglobe Canada	Telecommunications	CC	Memotec Data Inc. (qualified auction)	612
1987	Fishery Products Int. Ltd.	Fish harvesting and processing	Joint ¹	Public offering	104
1987	Varity Corporation	Farm equipment	ME	Public sale of shares and private placement	40
1988	CN Hotels (CN Subsidiary)	Hotel industry	CC	Canadian Pacific Railway Ltd. (negotiated sale)	265
1988	Air Canada	Transportation	CC	Two public offerings in 1988 and 1989	708
1988	Northwest Tel Inc. (CN Subsidiary)	Telecommunications	CC	BCE Inc. (qualified auction)	200
1988	Terra Nova Telecommunications Inc. (CN Subsidiary)	Telecommunications	CC	Newfoundland Telephone Company (negotiated sale)	170
1988	CNCP Telecom	Telecommunications	ME (50%)	Canadian Pacific Ltd. (negotiated sale)	235
1991	Petro-Canada	Oil and gas	CC	Four public offerings in 1991, 1992, 1995 and 2004	5,693
1991	Nordion International Inc.	Health sciences	CC	MDS Health Group Ltd. (qualified auction)	165
1991	Cameco	Uranium mining	Joint ²	Five public offerings of the 51% federal share in 1991, 1992, 1993, 1994, 1995	444
1992	Telesat Canada	Satellite communications	ME (53%)	Alouette Telecommunications Inc. (qualified auction).	155
1992	CN Short line in Nova Scotia	Rail shipping	CC	RailTex Inc.	20
1992	Co-enerco Resources Ltd.	Oil and gas	CC	Two public offerings in 1992, 1993	75
1995	CN Exploration (CN Subsidiary)	Oil and gas	CC	Smart on Resources Ltd.	97
1995	CNR (Canadian National Railway)	Rail shipping	CC	Public offering	2,079
1996	Canarctic Shipping Comp.	Maritime shipping	ME	Fednav Ltd. (qualified auction)	0.3
1997	Canada Communication Group	Printing, warehouse, dist.	CC	St. Joseph Corporation	7
1997	National Sea Products Ltd.	Fish harvesting and processing	ME	Scotia Investments Ltd. (minority stake)	6
1998	Theratronics International Ltd.	Health sciences	CC	MDS Inc.	15
2011	AECL's Commercial Division	Nuclear Power	CC	SNC-Lavalin Group Inc. (qualified auction)	15
				Total	11,968

¹¹ Boardman, A.E., C. Laurin, and A.R. Vining, 2003, op. cit.

TABLE 2: MAJOR CANADIAN PROVINCIAL PRIVATIZATIONS

Date	Company	Sector	Former Owner	Buyer and Privatization Process	Proceeds (\$M)
1975	Alberta Energy Company	Oil and gas	Alberta CC	Two (or more) public offerings in 1974 and 1994	75
1979	British Columbia Resources Investment Corporation (BCRIC)	Holding company	B.C. CC	Share Distribution to British Columbians	0
1986	Prince Albert Pulp Company	Pulp	Sask. CC	Weyerhaeuser	300
1986	Saskatchewan Oil and Gas Corp.	Oil and gas	Sask. CC	Public offerings in 1986, 1987, 1989, 1990, 1997	402
1987	Fishery Products International (FPI)	Fish harvesting and processing	Joint ¹	Public offering	62
1987	Donohue Inc.	Forest products	Quebec ME	Quebecor Media and Robert Maxwell	320
1987	SOQUIP Alberta	Oil and gas	Quebec CC	Sceptre Resources Ltd.	195
1988	BC Hydro's mainland natural gas division	Natural gas distribution	B.C. CC	Inland Natural Gas	741
1988	Saskatchewan Power Corporation's (SaskPower) oil and gas business	Oil and gas	Sask. CC	Saskatchewan Oil and Gas (Saskoil)	325
1989	Potash Corporation of Saskatchewan	Potash mining	Sask. CC	Two public offerings in 1989 and 1991	1,237
1989	Manitoba Forestry Resources Ltd.	Forest products	Man. CC	Repap Enterprises Inc.	132
1990	Alberta Government Telephones (Telus)	Telecommunications	Alberta CC	Two public offerings in 1990 and 1991	1,766
1991	Cameco	Uranium mining	Joint ²	Four public offerings of the 49% provincial share in 1991, 1994, 1996 and 2002	1,081
1992	Novatel's systems business	Telecom	Alberta CC	Northern Telecom Ltd. (Nortel)	38
1992	Novatel's cellular telephone manufacturing	Mobile Telecom	Alberta CC	Telexel Holding Ltd.	3
1992	Nova Scotia Power Corp	Electricity generation	N.S. CC	One public offering	816
1992	Suncor	Oil and Gas	ME	Public offering	299
1993	Alberta Liquor Control Board Stores	Retail (liquor)	Alberta CC	Owner-Licensees	51
1993	Syncrude Canada	Oil and Gas	ME	Murphy oil (5%)	502
1995	Vencap Equities Alberta	Financial Services	ME	Onex	174
1997	Manitoba Telephone Systems	Telecommunications	Man. CC	Public offering	860
2002	Ontario Power -4 Hydroelectric Stations	Electricity generation	ON. CC	Brascan Ltd.	340
2002	Skeena Cellulose	Pulp and lumber	ME	NWBC Timber and Pulp Ltd.	6
				Total	9,726

Key: CC=Crown Corporation, ME = Mixed Enterprise (with % of federal Government ownership)

1 Jointly-owned by the federal government (62.6%) and the New Foundland Government (37.4%)

2 Jointly-owned by the federal government (38%) and the Saskatchewan Government (62%)

Source: Adapted from Boardman, A.E., C. Laurin, and A.R. Vining, 2003, "Privatization in North America," in David Parker and David Saal (eds.), *International Handbook on Privatization, Chapter 7*, Cheltenham, UK: Edward Elgar, 2003, 129-160 and updated.

These tables reveal that most Canadian privatizations occurred between 1985 and 1995. Many of the privatized entities operate in natural resource, or related, sectors (fisheries, mining, or oil and gas), transportation (shipping, rail, air, truck) or telecommunications. Six of the federal privatizations were part of the break-up of the former CN conglomerate.

The Two Main Methods of Privatization

Tables 1 and 2 include a column labelled Buyer and Privatization Process because it is informative to know how an entity was privatized and who purchased it. Canadian governments have used two primary methods of privatization. One method is to sell a government entity to an existing private-sector entity — direct sale privatization (DSP). The other is to give shares away to the public or to sell shares to the public through public markets — share issue privatization (SIP).

DIRECT SALE PRIVATIZATIONS

Federal crown corporations that were disposed through DSPs included: de Havilland Aircraft Canada, Canadian Arsenals, CN Route, Canadair, Teleglobe Canada and Theratronics International. Provincial crown corporations that were disposed of via DSPs included: Prince Albert Pulp, SOQUIP Alberta, Manitoba Forestry Resources and Vencap Equities Alberta. These privatized entities were relatively small, and operated in niche markets. Their continued survival as stand-alone private-sector entities would have been difficult. Furthermore, there were probably synergistic benefits, and therefore potentially higher sale prices, from combining the privatized entities with larger private-sector firms in similar or related businesses.

Privatization of the Alberta Liquor Control Board (ALCB) retail stores was different, although it can still be thought of as a DSP. Each of the 205 store properties was either sold or sub-leased to the highest bidder (if the offer was above or close to market value), or leases were terminated or the store was closed and put on the market with a real estate agent. There was no requirement for each store to remain in liquor retail. Consequently, the stores were sold in reasonably competitive markets.

Many DSPs took place through privately negotiated sales, and six were organized as auctions that included bidder qualification procedures. Privatization of the ALCB stores was the only open auction.

SHARE-ISSUE PRIVATIZATIONS

Most large crown corporations have been privatized via SIPs. The major federal SIPs were: Air Canada, Petro-Canada, Co-enerco, and CNR; the provincial SIPs were: Alberta Energy, British Columbia Resources Investment Corporation (BCRIC), Saskatchewan Oil and Gas Corporation (SaskOil), Potash Corp, Alberta Government Telephones (which merged with BC Tel in 1999 to form Telus, as we will refer to it henceforth), Nova Scotia Power (now a subsidiary of Emera) and Manitoba Telephone Systems (MTS). Two crown corporations that were jointly owned by the federal and provincial governments were also privatized in this manner: Fishery Products International (FPI), and Cameco. Some mixed enterprises, entities with partial government ownership and partial private-sector share ownership,¹² were also completely privatized by issuing shares for the remaining government ownership, including Canada Development Corporation (CDC) and Suncor. Most of these SIPs operated in somewhat competitive environments (at least when viewed from a global market perspective) and were large enough to survive on their own following privatization for at least a reasonable period of time.

¹² Eckel, C. and A.R. Vining, 1985, "Elements of a Theory of Mixed Enterprise," *Scottish Journal of Political Economy*, 32 (1), 82-94; Boardman, A.E., C. Eckel and A.R. Vining, 1986, "The Advantages and Disadvantages of Mixed Enterprise," in A. Negandhi, H. Thomas and K. Rao (eds.), *Multinational Corporations and State-Owned Enterprises: A New Challenge in International Business*, Greenwich, Conn.: JAI, 221-244.

Some SIPs contained Canadianization provisions. These provisions were designed to eliminate or hinder foreign control or ownership. For example, no shareholder could own more than 20 percent of Petro-Canada, although this provision was not enforced in its merger with Suncor. The Air Canada Public Participation Act (1985) required Air Canada's corporate headquarters to remain in Montreal and it also required a majority of the board of directors to be residents of Canada. Whether these provisions were in the interests of Canadians or not, they probably reduced the initial share offering prices and governments' sale proceeds.

Aggregate Revenue Proceeds from Federal and Provincial Privatizations

The federal government received about \$12 billion from the privatizations listed in Table 1. These proceeds were dominated from the sale of Petro-Canada (over \$5.5 billion in aggregate) and CNR (just over \$2 billion). Most of the proceeds, including those from Petro-Canada and CNR, came from SIPs (about \$9.5 billion), with the remainder (about \$2.5 billion) from DSPs. Provincial governments received almost \$10 billion from the privatizations listed in Table 2; again, more from SIPs (about \$6.5 billion) than from DSPs (just over \$3 billion).

Did the governments leave money on the table? Governments might have left money on the table for ideological reasons (for example, the promotion of wider share ownership) or for more naked political vote-maximization reasons. Regarding ideological commitment to "people's capitalism," Boardman et al.¹³ found that most Canadian shareholders in CNR sold their shares soon after trading commenced, which tends to indicate that even if wider share ownership was an intended outcome, it did not happen.

It is difficult to know whether the DSPs were priced to maximize (the net present value of) the sale price, and we are not aware of research on this question. Extant research has focused on the underpricing of SIPs. Using a sample of 104 privatizations in 25 countries, Laurin, Boardman and Vining¹⁴ found that SIPs were, on average, underpriced by about the same percentage as traditional private-sector initial public offerings (IPOs). They argue that, due to the different characteristics of SIPs vs. IPOs (SIPs were usually considerably larger entities that had longer operating histories, for example), one would expect less underpricing of SIPs than IPOs. They conclude, therefore, that underpricing of SIPs was somewhat affected by political goals. However, these results differ by country type; the degree of underpricing is lower in large developed countries than in developing countries. Furthermore, the nine Canadian companies in their sample were underpriced by 6.3 percent, which is considerably less than the underpricing in other developed countries, which averaged 15.2 percent. Consequently, Canadian governments do not appear to have left a great deal of money on the table in SIPs.

¹³ Boardman, A.E., C. Laurin, M.A. Moore and A.R. Vining, 2009, "A Cost-Benefit Analysis of the Privatization of Canadian National Railway," *Canadian Public Policy*, 35 (1), 59-83.

¹⁴ Laurin, C., A.E. Boardman and A.R. Vining, 2004, "Government Underpricing of Share-Issue Privatizations," *Annals of Public and Cooperative Economics*, 75(3), 399-429.

3. SOCIAL WELFARE ASSESSMENT OF PRIVATIZATION

From a normative perspective, the most appropriate measure of the social value of privatization is the net change in social welfare. The aggregate change in social welfare attributable to a given privatization can be written as:

$$\Delta W = V_p - V_g + \lambda_g(Z - T_g) - \lambda_p(Z + T_p) \quad (1)$$

where W is social welfare, V_p is the value to society of the entity under private operation, V_g is the value to society of the entity under continued government ownership and operation, and Z is the sale price. T_g and T_p denote the transactions costs that both government and the private sector incur, respectively, and λ_g and λ_p are shadow multipliers (weights) on government revenue and private funds, respectively. We explain the relevance of these latter terms later in this section.

In order to consider the distributional impacts of privatization, it is useful to disaggregate the total change in social welfare into the changes in value that accrue to different segments in society (consumers, shareholders, government and employees):

$$\Delta W = \lambda_c \Delta CS + \lambda_p \Delta PS + \lambda_g \Delta GS + \lambda_e \Delta ES \quad (2)$$

where ΔCS is the change in consumer surplus (CS) due to privatization, ΔPS is the change in producer surplus (PS, economic profits or rents) due to privatization (after tax), ΔGS is the change in the government surplus (GS, government revenues minus expenditures), ΔES is the change in the employee surplus (ES), and λ_c and λ_e are shadow multipliers for CS and ES, respectively. We discuss both of these latter terms later.

The change in consumer surplus will be largely affected by the magnitude of any price change due to privatization. In turn, price changes will affect quantity changes, depending on the demand elasticity. In reasonably competitive markets, both prior to and following privatization, the price and quantity changes attributable to privatization might be quite small. There might, however, be quality changes that would affect consumer surplus.

The change in producer surplus will reflect the present value of the economic profits following privatization (net of government taxes and taking into account the opportunity cost of the shares, Z), less private-sector transaction costs, T_p . In principle, the change in PS should include changes in the profits of the privatized entity's competitors and suppliers, as well as the change in the profits of the privatized entity itself.

The change in GS should include the amount received from the sale of the privatized entity less government's transaction costs, $Z - T_g$, less the foregone profits that government would have received if the entity had remained state-owned. It should also include corporate taxes paid by the company and capital gains taxes paid by individuals following privatization. Finally, it should also include the change in net government receipts (or reduced subsidies) from the time that the privatization was announced until the privatization itself. Note that ΔPS does not necessarily measure the change in the entity's profit due to privatization. Profits before privatization are part of GS. If an entity were profitable before and after privatization, then privatization would increase ΔPS and reduce ΔGS , even if there were no change in profit.

The change in ES should include changes in producer surplus (rents) gained (or lost) by employees of the corporation or third-party persons, such as consultants and investment bankers. Unions have often argued that the increased profits of privatization come at the expense of lower salaries. Such effects would raise PS and lower ES. Furthermore, laid-off workers may not find jobs that pay as well, they may experience periods of unemployment before finding another job, or they may incur transaction costs in finding a new job. Each of these factors would lower ES, especially during periods of low overall economic growth. Severance benefits would increase ES but would, of course, reduce GS.

Another potential impact of privatization is the hollowing out of corporate skills, especially if the entity is sold to a foreign-owned firm, but even if it is not. Conceptually, these impacts can also be considered as reductions in ES. This issue came to the fore in the proposed takeover of Potash Corp by BHP Billiton (although this occurred quite a few years after the privatization). Unknown to many, Potash Corp's senior management had effectively relocated from Saskatoon to Chicago. When a firm moves its headquarters, it tends to employ consultants, lawyers and accountants who are located nearby. In the Potash Corp case, there was almost certainly a loss of some highly paid Canadian jobs. During the takeover battle, BHP promised to relocate the headquarters back to Saskatoon. In order to garner political support to block the takeover, Potash Corp had to promise to match this offer. Globally, a number of takeovers and privatizations have been similarly affected by the hollowing-out issue. One company might be large enough to create or destroy a cluster of professional services of critical mass. If it moves away, it will have negative externality effects on complementary organizations in the affected region.

In practice, the shadow multipliers (weights) in equation (2) are often set equal to unity. However, many scholars argue that this is an incorrect weighting.¹⁵ Arbitrarily, one shadow price multiplier is set equal to unity — usually λ_c , the shadow price of consumption. Unless there is reason to weight employees differently from other people, the shadow price of employment is also set equal to unity. Whether or not it is also appropriate to set the shadow price of private investment funds equal to unity depends on the discount rate method that is used. Boardman, Moore and Vining¹⁶ argue that the appropriate social discount method is to weight flows in and out of the private sector by the shadow price of capital, and then discount all flows at a consumption rate of interest. Following that method, one sets λ_p equal to the shadow price of capital.¹⁷ The shadow multiplier on government revenue, λ_g , should reflect the fact that raising government revenue through taxation typically involves a reduction in allocative efficiency, which is referred to as the deadweight loss of taxation, and depends on the marginal excess tax burden. There is a benefit (avoided loss) from obtaining government revenue from the sale of a government entity, rather than through the imposition of incremental income taxes. Thus, it makes sense to set λ_g equal to one plus the marginal excess tax burden.

¹⁵ Boardman, A.E., D.H. Greenberg, A.R. Vining and D.L. Weimer, 2011, *Cost-Benefit Analysis: Concepts and Practice*, 4th ed., Upper Saddle River, N.J.: Prentice Hall.

¹⁶ Boardman, A.E., M.A. Moore and A.R. Vining, 2010, "The Social Discount Rate for Canada Based on Future Growth in Consumption," *Canadian Public Policy*, 36 (3), 323-341.

¹⁷ We estimate the shadow price of capital is about 1.1 and suggest that the consumption rate of interest should be 3.5 percent based on the optimal growth rate method. Other analysts would set λ_p equal to unity and would use a higher discount rate — on the order of about 8 percent.

The aggregate change in social welfare also depends on who has standing.¹⁸ In the context of Canadian federal privatizations, standing most naturally pertains to all residents of Canada, but one could take a global perspective on standing, that is, one could include the impacts on everyone on the planet. The decision on standing is important because it usually affects some of the estimated surpluses. In particular, ΔPS depends on whether the actual profits following privatization are higher or lower than expected and on the residency of the net shareholders. If profits exceed expectations, but Canadians do not own the privatized firm at that time, they will not benefit directly from the high profits. For provincial privatizations, analysis could be conducted at the provincial, federal or global levels. If it is conducted at the provincial level, negative or positive externalities borne outside the privatizing province would not be included in the analysis.

Expected Social Welfare Effects of Privatizations

Both theory and evidence suggest that the social welfare effects of privatization depend considerably on the market structure, both pre- and post-privatization. In markets that are reasonably competitive, both pre-privatization and post-privatization, property rights theory and agency theory predicts that profitability would increase significantly following privatization.¹⁹ These hypotheses have been largely supported by empirical evidence, both globally and in Canada.²⁰ In reasonably competitive markets, we would expect that the increase in profit, roughly reflected by the increase in PS minus the reduction in GS, would dominate the other terms in equation (2), leading to increased social welfare. Furthermore, increased profits would lead to increased corporate taxes and an increase in GS, with a further increase in social welfare. Part of any increase in profits might come at the expense of a reduction in ES; however, the change in ES is likely to be much smaller than the change in profits. If the entity is in a competitive market, employees are likely to be paid competitive wage rates. Also, the change in CS is likely to be small because output prices are set competitively. In sum, therefore, in competitive markets, the change in social welfare is likely to be dominated by the change in profits. In such situations one can reasonably use profitability and some other measures (such as employment and taxes paid) as proxies for the change in social welfare.

¹⁸ Whittington, D. and D. MacRae, 1996, "The Issue of Standing in Cost-Benefit Analysis," *Journal of Policy Analysis and Management* 5(4), 1-18.

¹⁹ De Alessi, L., 1980, "The Economics of Property Rights: A Review of the Evidence" in R. Zerbe (ed.), *Research in Law and Economics*, Vol. 2. Greenwich, CT: JAI Press, 1-47; Fama, E.F. and M.C. Jensen, 1983, "Separation of Ownership and Control," *Journal of Law and Economics*, 26(2), 301-26.

²⁰ Boardman, A.E. and A.R. Vining, 1989, "Ownership and Performance in Competitive Environments: A Comparison of the Performance of Private, Mixed and State-Owned Enterprises," *Journal of Law and Economics*, 32(1), 1-33; Vining, A.R. and A.E. Boardman, 1992, "Ownership Versus Competition: The Causes of Government Enterprise Inefficiency," *Public Choice* 73(2), 205-239; D'Souza, J. and W.L. Megginson, 1999, "The Financial and Operating Performance of Privatized Firms During the 1990s," *Journal of Finance*, 54 (4), 1397-1438; Megginson, W.L. and J.M. Netter, 2001, "From State to Market: A Survey of Empirical Studies on Privatization," *Journal of Economic Literature*, 39(2), 403-52; Boardman, A.E., C. Laurin, and A.R. Vining, 2002, "Privatization in Canada: Operating and Stock Price Performance with International Comparisons", *Canadian Journal of Administrative Sciences*, 19 (2), 137-154.

Theory is ambiguous on the welfare consequences of privatization when the entity operates in a market that is not competitive.²¹ The expected welfare changes would depend on the particular institutional and regulatory environment following privatization and on the extent of any government failure following privatization.²² The net effect of the interplay of these factors is hard to determine *ex ante*, especially as changes in the regulatory framework frequently occur at the same time that privatization occurs. Some evidence suggests that improvements in welfare do occur in non-competitive markets in developed countries.²³

4. THE IMPACT OF PRIVATIZATION IN CANADA

The previous section has outlined the theoretically correct way to assess the social welfare effects of privatization. In Canada, only one study²⁴ has performed a comprehensive welfare analysis along these lines. We, therefore, begin this section with a summary of this study. After that we turn to the use of proxies and measures of operational performance in SIPs. We then consider the performance of SIPs for which there are no quantitative performance data. Finally, we briefly discuss the impact of privatization on DSPs.

Social Welfare Gains from the CNR Privatization

A study in which the present authors participated²⁵ examined the social welfare gains from the privatization of Canadian National Railway (CNR), one of the largest rail privatizations globally. A unique feature of their study was that it used the costs of Canadian Pacific Railway (CPR) to estimate CNR's costs if it had not been privatized. This method produces a superior counterfactual to those used in other privatization studies.

²¹ Vickers, J. and G. Yarrow, 1991, "Economic Perspectives on Privatization," *Journal of Economic Perspectives*, 5 (2), 111-132; Foster, C., 1992 *Privatization, Public Ownership and the Regulation of Natural Monopoly*, Oxford: Basil Blackwell; Martin, S. and D. Parker, 1995, "Privatization and Economic Performance throughout the UK Business Cycle," *Managerial and Decision Economics*, 16(3), 225-237; Bradburb, R., 1996, "Privatization of Natural Monopoly Public Enterprises: The Regulation Issue," *Review of Industrial Organization*, 10 (3), 247-267; Newbery, D. and M. Pollitt, 1997, "The Restructuring and Privatization of Britain's CEGB—Was It Worth It?" *Journal of Industrial Economics*, 45(3), 269-303.

²² Datta-Chaudhuri, M., 1990, "Market Failure and Government Failure," *Journal of Economic Perspectives*, 4 (3), 25-39; Winston, C., 2006, *Government Failure versus Market Failure: Microeconomics Policy Research and Government Performance*, Washington DC: Brookings Institution Press; Weimer, D. and A. R. Vining, 2010, *Policy Analysis: Concepts and Practice*, Upper Saddle River, NJ: Pearson Prentice Hall.

²³ Domah, P. and M.G. Pollitt, 2001, "The Restructuring and Privatisation of the Electricity Distribution and Supply Businesses in England and Wales: A Social Cost-Benefit Analysis", *Fiscal Studies*, 22(1), 107-146. The empirical findings are more variable both in developing countries (see Boubakri, N., J-C. Cosset and O. Guedhami, 2005, "Liberalization, Corporate Governance and the Performance of Privatized Firms in Developing Countries," *Journal of Corporate Finance*, 11(5), 767-790) and in transition economies (see Estrin, S., J. Hanousek, E. Kocenda and J. Svejnar, 2009, "The Effects of Privatization and Ownership in Transition Economies," *Journal of Economic Literature*, 47(3), 699-728).

²⁴ Boardman, A.E., C. Laurin, M.A. Moore and A.R. Vining, 2009, *op. cit.*

²⁵ *Op. cit.*

In our base case analysis, we argued that the privatization of CNR had a minimal effect on market prices, output levels or quality and, therefore, that the change in CS was minimal. We further argued that there were no significant changes to employee numbers or salaries due to privatization and therefore, the effects on ES were minimal. Finally, we argued that the impacts on competitors or on companies upstream or downstream were also minimal. Consequently, our analysis of welfare impacts focused on the cost-efficiency improvements that could be attributed to the privatization.

We found that during the four-year period immediately prior to the change in management at CNR (1988 through 1991), CNR's real average total cost (ATC) per revenue-tonne kilometre of freight shipped was 6.66 percent higher than CPR's ATC during the same period. Assuming that this cost differential would continue if CNR were not privatized and using CPR's actual costs, the authors constructed a counterfactual for CNR's ATCs for the 1993-2003 period. CNR's actual costs were subtracted from these counterfactual costs to obtain an estimate of the annual ATC savings. This difference was multiplied by CNR's actual volumes to obtain estimates of the annual (total) cost savings. Finally, these amounts were converted to real dollars and discounted using a real social discount rate of 3.5 percent. We estimate that the present value of the cost savings due to privatization was just over \$3 billion (in 1992 dollars) for the 1993-2003 period. Projecting the future savings beyond 2003 and discounting these amounts back to the year of privatization yielded \$12 billion in additional cost savings. Thus, we estimate the total welfare gain from the privatization of CNR was about \$15 billion.

This welfare gain was shared between shareholders and the government. Government received the sale proceeds of almost \$2 billion and additional tax revenue following privatization of about \$6 billion. The hardest component to estimate was the foregone profits under government ownership from the time of privatization. We provide a range of values with a mid-point of about \$1 billion. Aggregating these components implies that the change in GS was about \$7 billion, as shown in Table 3.²⁶ By subtraction, and assuming that the λ s equal one, the change in producer surplus was about \$8 billion. As Table 3 also shows, most of that surplus accrued to foreigners because they were long-term shareholders.

TABLE 3: THE WELFARE GAINS DUE TO THE PRIVATIZATION OF CNR AND THEIR DISTRIBUTION (MILLIONS OF 1992\$)

	ΔW	ΔGS	ΔPS	$\Delta PS^{\text{Canadian}}$	$\Delta PS^{\text{Foreign}}$	$\Delta W^{\text{Canadian}}$
Base-Case Counterfactual^a	15,056	6,901	8,155	3,692	4,463	10,593
Conservative Counterfactual^b	4,346	2,296	2,051	945	1,106	3,241

^a CNR's average unit costs = 1.066*CPR's average unit costs in each year

^b CNR's average unit costs fall 1.062 percent/year faster than CPR's average unit costs

Source: Adapted from Boardman, A.E., C. Laurin, M.A. Moore and A.R. Vining, 2009, "A Cost-Benefit Analysis of the Privatization of Canadian National Railway," *Canadian Public Policy*, 35 (1), 59-83.

²⁶ In addition, the federal government received about \$80 million of additional profit during the pre-privatization (commercialization) period of 1993-95, and capital gains taxes of approximately \$70 million from the sale of the underpriced shares. It also incurred transaction costs associated with the sale of about \$73 million.

In fact, CNR's cost disadvantage relative to CPR decreased during the 1980s, prior to commercialization-privatization. Specifically, CNR's ATC fell on average by 1.062 percent per year faster than CPR's ATC between 1981 and 1991. Consequently, we calculated a conservative counterfactual for CNR's ATCs assuming that CNR's ATCs in 1993 equalled CNR's actual ATC in 1992, times CPR's rate of decrease in ATC for 1992-1993, minus 1.062 percent. CNR's counterfactual ATC in each subsequent year through 2003 was based on a similar formula. Based on this conservative counterfactual, we estimated that CNR's privatization generated welfare gains of about \$4 billion in aggregate (in 1992 dollars). As Table 3 shows, the federal government captured just over half of this amount.

Operational Performance and Proxies of Social Welfare Changes in SIPs

The previous section illustrates that obtaining a theoretically correct estimate of the change in social welfare following a privatization is demanding. Rarely are appropriate data available. Importantly, however, it is sometimes possible to use proxies for CS, PS, GS and ES. Most importantly, measures of technical efficiency and profitability are indicative of the net change in PS plus GS, excluding transaction costs and taxes. Changes in employment provide some information about changes in ES. Furthermore, changes in taxes paid are an important component of GS. Thus, examination of measures of technical efficiency, profitability, employment and taxes provide qualitative and quantitative (although not monetized) information about changes in social welfare.

This sub-section examines the pre-privatization and post-privatization operating performance of Canadian SIPs. It builds upon our earlier analysis²⁷ but it extends this work in three major ways. First, it includes two more privatizations, namely SaskOil and MTS, resulting in 11 SIPs. Second, it extends the data backward up to five years pre-privatization (rather than three years) and extends the data forward to up to 2009 (rather than only three years post-privatization), whenever possible. Third, it primarily uses Compustat data.²⁸ These changes improve the reliability and robustness of the earlier results.

For the complete sample of 11 firms, we have data for two years pre-privatization and three years post-privatization. As we extend our analysis further backwards or further forwards, the number of firms declines due to unavailability of data (e.g., FPI), the occurrence of mergers or acquisitions (SaskOil and Petro-Canada), or because the entity was privatized relatively recently (especially MTS, but also CNR and others). There are data for seven firms for up to 17 years post-privatization (Air Canada, Potash Corp., Telus, Petro-Canada, Cameco, Suncor and Emera). After that, it is no longer reasonable to compute measures of average operating performance.

²⁷ Boardman, A.E., C. Laurin, and A.R. Vining, 2002, *op. cit.*

²⁸ Some early data for Potash Corporation and some later data for Air Canada come from the annual reports in SEDAR. Some data around the time of privatization of FPI, Air Canada, Petro-Canada and for all years for MTS were taken from the hard copies of the annual reports.

A BRIEF OVERVIEW OF WHAT HAPPENED TO THE SIPS

SaskOil was the first SIP in our sample to be privatized. It was established in 1973 as a crown corporation to explore for oil and natural gas in Saskatchewan, extract these products and market them. It also provided a window on the industry. The majority of the shares were sold in a public offering in 1986. In 1996, its name was changed to Wascana Energy and in 1997 it was acquired by Canadian Occidental, a publicly traded Canadian company. In 2000, Canadian Occidental was renamed Nexen. Currently, Nexen has assets of \$22 billion and reported a profit of about \$6 billion in 2010.

For FPI, we can only go back two years pre-privatization and go forward for three years post-privatization. FPI suffered enormously from the collapse of the cod fishery on the East Coast. However, it managed to survive and in December 2007, FPI's Manufacturing and Marketing Group was taken over by High Liner Foods Inc., formerly National Sea Products.

For the other nine companies we have data from three years prior to privatization (except Emera) until 2009 or, in the case of Petro-Canada, until it merged with Suncor. Most of these firms have made acquisitions following privatization. After an extended takeover battle, Air Canada took over Canadian Airlines in 2001. Telus, which was initially Alberta Government Telephones, merged with BC Tel (technically BC Telecom) in 1999 to become Canada's second-largest telephone company. Subsequently, Telus acquired ED Tel in 1990 and the QuebecTel Group in 2000. Nova Scotia Power acquired Bangor-Hydro Electric in 2000. CNR acquired the Illinois Central Railroad in 1998 for \$2.4 billion US and began integrating those operations in 1999. It then acquired Wisconsin Central for \$1.2 billion US in 2001, Great Lakes Transportation for \$380 million US in 2003 and BC Rail for \$1 billion in 2003.

OVERVIEW OF CHANGES IN OPERATING PERFORMANCE

Table 4 presents a summary of the operating performance before and after privatization on a number of measures and the changes in these measures. All variables that were originally measured in nominal dollars have been converted to real 1983 dollars using the Canadian CPI. For convenience, we drop the term "real" in this sub-section.

TABLE 4: PRE AND POST-PRIVATIZATION OPERATIONAL PERFORMANCE OF SIPS

	Mean 5 Years Before	Mean 3 Years Before	Mean 3 Years After	Mean 5 Years After	Mean 17 Years After	Mean Change: 3 years before & 3 after	Mean Change: 5 years before & 5 after	Mean Change: 5 years before & 17 after
Real Sales	1,455	1,426	1,336	1,442	2,974	-91	-13	1,520
Real Assets	2,395	2,335	2,300	2,686	5,308	-35	291	2,913
Real CAPEX	196	186	240	270	555	54	74	359
CAPEX to Sales	19.3%	17.9%	23.5%	23.9%	20.6%	5.6%	4.6%	1.3%
CAPEX to Assets	8.8%	8.3%	10.2%	10.5%	9.9%	2.0%	1.7%	1.1%
Number of Employees (actual number)	10,614	9,245	7,809	7,608	9,274	-1,437	-3,005	-1,340
Real Sales per Employee (\$1000s)	199	218	229	262	462	11	63	263
Real Net Income	18	17	69	82	222	52	64	204
Net Income to Sales (ROS)	4.3%	6.0%	8.7%	9.0%	8.6%	2.6%	4.7%	4.3%
Net Income to Assets (ROA)	2.3%	2.9%	3.4%	3.4%	3.3%	0.5%	1.1%	1.0%
Real Dividends	19	17	35	40	69	18	21	50
Dividends to Sales	1.9%	1.7%	4.8%	4.7%	3.9%	3.1%	2.8%	2.1%
Real Taxes	29	29	47	64	158	18	35	129
Debt to Assets	55.4%	56.1%	45.1%	47.3%	55.4%	-11.0%	-8.1%	0.0%

*All data in millions of dollars or a percentage except where noted.

In the three-year period following privatization, net income, capital expenditures (CAPEX), dividends, taxes, taxes-to-sales and sales per employee increased, on average, and continued to increase throughout the 17-year post-privatization period. Again examining the averages, some variables decreased in the years immediately following privatization and then increased throughout the post-privatization period: sales, assets, liabilities and income per employee. The average debt-to-assets ratio followed the same pattern, but never reached pre-privatization levels in the post-privatization period. The average number of employees decreased for five years following privatization and then started to increase, lagging earlier increases in sales and assets. Profitability, as measured by return on sales (ROS) and return on assets (ROA), increased post-privatization, but did not continue to increase beyond the initial five years following privatization. The average CAPEX expressed as a percentage of sales or assets and the average dividends-to-sales ratio increased soon after privatization, but then remained constant or declined slightly. Average net income per employee did not change much following privatization, but subsequently increased considerably. We now discuss the measures of operating performance in more detail.

GROWTH AND INVESTMENT

While firm growth is not a direct measure of social welfare, growth may enable increases in profits, employment and taxes, which better reflect welfare. Consequently, we begin with an analysis of sales and assets and then turn to CAPEX, which captures investment in the firm and is a potential indicator of future profits. Again, we use real dollars. Finally, we examine the CAPEX-to-sales and CAPEX-to-assets ratios. Another reason for examining sales is that they may be indicative of the social purpose or political goals of crown corporations.²⁹ Even though the firms in our sample operated in competitive environments prior to privatization, for political reasons they might have had more output (and sales) than would have been profit-maximising. When privatized, their sales would fall in the short run. In the longer run, pressure for profits might well lead to increased sales. Thus we expect a U-shaped relationship over time.

As expected, sales were lower (by \$90 million in real dollars per year) in the three years post-privatization than in the three years pre-privatization. Also, as expected, sales increased afterwards. In fact, sales decreased from \$1.70 billion per year on average five years prior to privatization to \$1.32 billion per year, on average, in the first year following privatization. Since then, average sales have increased in every year. By the 17th year post-privatization, sales averaged over \$7 billion per year in 1983 dollars (\$11 billion per year in nominal dollars). In terms of individual firms, Suncor produced the largest average increase in sales following privatization of over \$4 billion per year. Potash Corp produced the biggest increase in sales in percentage terms: sales averaged \$240 million per year prior to privatization, but over \$1.6 billion following privatization. Nova Scotia Power generated the smallest increase in sales following privatization.

²⁹ Zif, J., 1981, "Managerial Strategic Behavior in State-Owned Enterprises-Business and Political Orientations," *Management Science*, 27:11, 1326-39.

Assets decreased in the five years prior to privatization to just over \$2 billion in real dollars, on average, in the year of privatization. After that, assets increased steadily. By the 17th year, assets averaged over \$13 billion, which amounts to an average increase of almost 12 percent per annum. Suncor generated the largest increase in assets following privatization: its assets increased by 2,785 percent (21.9 percent per annum on average), with much of that increase attributable to its merger with Petro-Canada. Other privatizations with strong asset growth included SaskOil, Potash Corp, CNR, Petro-Canada, Cameco and Telus.

On average, CAPEX increased 11.9 percent per annum following privatization, which is a very similar rate to the rate of increase in assets. There were, however, large differences across firms. Potash Corp and Suncor had the largest average increase in CAPEX post-privatization. Suncor and Petro-Canada have, on average, spent almost \$1.5 billion per year on CAPEX since privatization. Telus, CNR and Air Canada have also incurred large expenditures, averaging between \$450 million per year and \$820 million per year. In contrast, CAPEX declined following privatization at Emera and FPI.

The average CAPEX-to-sales ratio was higher prior to privatization for Canadian SIPs than for SIPs in other industrialized countries and it increased more in Canada than other countries following privatization.³⁰ The average CAPEX-to-sales ratio was almost five percentage points higher in the five years following privatization than in the five years prior to privatization. After that, the ratio fell back to a level similar to the pre-privatization level. There were, however, substantial differences across companies. Following privatization, the CAPEX-to-sales ratio was high (over 30 percent on average) for SaskOil and Suncor. On the other hand, it fell following privatization for Nova Scotia Power, Potash Corp, MTS, Telus and FPI. The CAPEX-to-assets ratio provides a similar picture, although the ratios are naturally smaller.

In conclusion, there were large reductions in sales and assets during the pre-privatization period. Soon after privatization, however, sales, assets and CAPEX increased on average and continued to increase throughout the 17-year post-privatization period. Furthermore, CAPEX increased as a percentage of sales or assets for about five years following privatization from an initially high level, relative to SIPs in other industrialized countries.

EMPLOYMENT AND EMPLOYEE SURPLUS

Employment in crown corporations might have been higher than the profit-maximizing levels for social or political reasons. The removal of these socio-political pressures and a concomitant increased emphasis on efficiency and profitability would lead to a fall in employment following privatization. Reduced employment might in turn reduce ES. However, as we discussed above in the welfare analysis of CNR, employment might fall without any major change in ES.

In fact, the average number of employees decreased significantly in the five-year period prior to privatization and continued to decrease for five years following privatization. Average employment decreased from over 16,000 people five years prior to privatization to just over 7,000 people in the fifth year following privatization. Since then, average employment increased to over 12,000 people in the 17th year, still below the pre-privatization level.

³⁰ Boardman, A.E., C. Laurin, and A.R. Vining, 2002, op. cit.

Petro-Canada and CNR now have more than 30 percent fewer employees than they had in the three-year pre-privatization period, while Emera has 24 percent fewer employees. On the other hand, Telus was the main contributor to the increase in employment: it added over 10,000 employees as a result of its merger with BC Tel in 1999, and its number of employees has continued to increase. With over 36,000 employees, it is currently the largest employer in the sample. Potash Corp and Cameco have had the largest percentage increase from three years prior to privatization until last year — 186 percent and 90 percent, respectively. Air Canada has exhibited the most variability. It shed almost 3,000 employees during the first five years of privatization, but then gained about 10,000 employees when it merged with Canadian Airlines in 1999. Since then, Air Canada has been reducing employees. It now has only slightly more employees than it had five years prior to privatization.

The drop in employment in the five-year pre-privatization period and the three-year post-privatization period was dramatic. Other industrial countries also reduced their employment levels following privatization, but the reduction by Canadian firms was a much larger percentage change.³¹ However, after many of these companies restructured, which took about five years following privatization, hiring began again. As documented in our analysis³² of CNR, many of the reductions in employment were voluntary and many would probably have occurred anyway due to competitive pressures.

EFFICIENCY, PROFIT, PROFITABILITY, DIVIDENDS AND PRODUCER SURPLUS

We begin with a discussion of operational efficiency, measured by sales per employee, because it is a good indicator of success. We then turn to accounting profits (net income). Over the long run, we would expect accounting profits to be positively correlated with economic profits and producer surplus. Investors, however, tend to focus on returns. Therefore, measures of profitability, such as ROA and ROS, are also useful. Finally, we examine dividends, in absolute terms and again as a percentage of sales and assets. Changes in dividends are an important determinant of changes in returns to shareholders and are directly related to producer surplus.

As we have discussed above, in the one to five-year period following privatization, (real) sales were increasing and employment was decreasing. Consequently, average sales per employee was increasing during that period. Prior to that period, sales and employment were both decreasing, and after that period sales and employment were both increasing. From this information alone, it is not clear whether sales per employee was increasing or decreasing during these periods. In fact, the average sales per employee rate was slightly higher in the three-year post-privatization period than in the three-year pre-privatization period. After that, the average sales per employee increased in almost every year. By the 17th year post-privatization, it averaged \$873,000 per employee, which is 340 percent higher than in the three-year pre-privatization period (equivalent to a 9.1 percent per-annum increase on average). In fact, sales per employee increased at all the privatized firms following privatization. Petro-Canada generated the most impressive improvement, increasing its real sales per employee from \$405,000 in the year of privatization to almost \$3 million 17 years later. Telus, Emera, Air Canada and MTS have had the most difficulty improving sales per employee, with real average annual increases in the range of 2.65 percent to 3.65 percent. Overall, though, there have been large improvements in operational efficiency following privatization.

³¹ Op. cit.

³² Boardman, A.E., C. Laurin, M.A. Moore and A.R. Vining, 2009, op. cit.

During the three years prior to privatization, the real net income (NI) of the SIPs averaged \$17 million. Petro-Canada, Suncor and CNR all took large write-downs during this period. Post-privatization, NI for the full cohort increased fairly consistently, reaching over \$600 million per year, on average, in the 17th year. There were a number of particularly noteworthy increases in NI. CNR moved from an average three-year pre-privatization loss of \$223 million per year to an average 14-year post-privatization profit of \$718 million per year. CNR's NI is currently over \$1 billion per year. Both Petro-Canada and Suncor increased their average post-privatization NI by over \$500 million. Potash Corp produced exceptional profits in 2008 (over \$2 billion in real dollars), but has only averaged a NI of \$278 million per year following privatization. On the other hand, Air Canada has lost an average of \$412 million per year since privatization. In 2003, it lost over \$3.5 billion (over \$5 billion in nominal dollars).

On average, profitability, as measured by ROS and ROA, was considerably higher post-privatization than it was pre-privatization. However, this apparent improvement came about because, as mentioned above, some companies (especially Potash Corp and CNR) took significant write-offs in the pre-privatization period. Nonetheless, the ROS for both of these companies post privatization has been impressive: it has been over 20 percent for the past five years for CNR and has averaged over 12 percent for Potash Corp since privatization. Cameco, MTS and Emera have also generated high post-privatization ROS. Air Canada has had some large losses following privatization and has had an average post-privatization ROS of -6.6 percent and post-privatization ROA of -8.2 percent. Telus also had a lower ROS post-privatization than pre-privatization, although this is not surprising. It absorbed BC Tel and other acquisitions. Furthermore, it operated in a regulated industry that has been undergoing major structural changes and has experienced increased competition. Both SaskOil and FPI also had lower ROS following privatization. In summary, profitability increased on average in the first few years following privatization, but not thereafter. There were, however, significant differences across companies.

Increasing profits and increasing profitability might be expected to lead to increasing (real) dividends. On average, dividends were low prior to privatization and, in fact, decreased slightly prior to privatization. They averaged \$17 million per year during the three-year pre-privatization period. In the year of privatization, the average dividend increased to \$36 million, largely because of a \$96 million dividend paid by Potash Corp and a \$75 million dividend paid by SaskOil. Dividends remained at about that level (\$35 million per year on average), for the three-year post-privatization period, about \$18 million per year higher than prior to privatization. Thereafter, the average dividends increased regularly. By the end of the 17th year after privatization, dividends averaged \$138 million per year, equivalent to an average (real) annual increase of 8.2 percent. Telus and CNR have provided the most dividends, followed by Suncor and Petro-Canada. This evidence suggests rising PS.

TAXES AND GOVERNMENT SURPLUS

Our one distinct indicator of GS is the amount of corporate taxes paid. Prior to privatization, (real) corporate taxes averaged about \$29 million per year. In the three-year post-privatization period, corporate taxes rose to \$47 million per year, an increase of about \$18 million per year. After that period, taxes increased consistently; they amounted to over \$300 million in the 17th year following privatization on average. Petro-Canada has been the largest payer of taxes by far, averaging over \$600 million per year since privatization. CNR and Suncor have paid the next highest amount on average, followed by Telus. In contrast, SaskOil, FPI and Air Canada have paid virtually no tax.

DEBT-TO-ASSETS

Finally, we discuss capital structure. It has little direct bearing on social welfare, but is of theoretical interest. We expect that debt (relative to assets) would decrease following privatization for two reasons. First, reduced or eliminated government ownership will increase the cost of debt. Second, the firm will have direct access to capital markets and will find it easier to raise equity. In the longer run, the debt-to-assets ratio might increase as profitability increases, risk is reduced and banks become more willing to lend to these entities.

In fact, the debt-to-assets ratio decreased considerably following privatization by 11 percent, on average, from 56 percent in the three-year pre-privatization period to 45 percent in the first three-year post-privatization period. In the fourth year post-privatization, the average debt-to-assets level rose to 51 percent and it has been at that level or higher ever since. A major contributor to the high level is Air Canada, whose debt-to-assets ratio has been as high as 160 percent, but is now trending down.

SIPs with No Quantitative Performance Data

It is worth briefly discussing SIPs for which we have no hard data. Alberta Energy Company (AEC), Co-enerco, BCRIC and CDC all fall into this category. We did not include AEC in the dataset because it was privatized in 1975, only two years after it became fully operational. Thus, it is not really practical to perform a pre- vs. post-privatization comparison. However, AEC appears to have performed well following its privatization and, by 1995, it had become the second-largest oil and gas producer in Canada. In December 1995, AEC acquired Conwest Exploration Company for \$1.1 billion and in 2002 it merged with PanCanadian to form ENCANA. For the same reason, we did not include Co-enerco, which was acquired by Pennzoil in 1994, only two years after the first public offering.

BCRIC was an unusual privatization. Prior to privatization, it was a conglomerate that held a variety of natural resource companies, most of which had been bailed out by the BC government. BCRIC was privatized in a giveaway: every resident of BC received five shares.³³ Few people sold their shares because they were worth little and the transactions costs of selling (or buying) shares were relatively high. As a result, share ownership was dispersed, there was no effective shareholder control and management was not held accountable. Soon after privatization, BCRIC changed its name to the Westar Group Ltd., after one of its subsidiaries. It expanded into unprofitable businesses, and lost considerable amounts of money. There was a 125-for-1 share consolidation and in 1997, the remaining parts of the company were acquired by the Jim Pattison Group. This privatization experience suggests problems with excessive share ownership dispersal and lack of appropriate corporate governance. Also, obviously, government received no revenue from the privatization.

CDC was a mixed enterprise, with a combination of private and government shareholders. It was intended to foster wider share ownership, to encourage large-scale development projects and to maximize profits. It was a conglomerate with holdings in oil and gas, mining, petrochemicals, office information products, life sciences, industrial information and venture capital, all reasonably competitive industries. Boardman and Vining³⁴ analyzed its financial

³³ Ohashi, T.M., 1980, *Privatization, Theory and Practice: Distributing Shares in Private and Public Enterprises*, Vancouver, B.C.: Fraser Institute.

³⁴ Boardman, A.E. and A.R. Vining, 1984, "An Evaluation of Canada Development Corporation," Working Paper, UBC Faculty of Commerce.

performance between 1973 and 1983 and conclude that its performance was inferior to comparable private-sector Canadian companies. CDC was largely privatized in 1985 and subsequently broken up.

Post Privatization Performance of DSPs

When DSPs are sold, they are usually integrated into already existing businesses. It is impossible to access data that allows us to assess the post-privatization performance of such companies. Table 5 summarizes the current status of these entities, as best we know. Most of the purchasing companies appear to be still operating profitably, except Transport Route Canada Inc. and Nortel.

TABLE 5: CURRENT STATUS OF MAJOR DIRECT SALE PRIVATIZATIONS

Federal DSPs	Current Status
Northern Transportation Company Ltd.	A subsidiary of NorTerra Inc.
de Havilland Aircraft Canada Ltd.	Absorbed into Bombardier.
Pêcheries Canada Inc.	Unknown
Canadian Arsenals Ltd.	Absorbed into SNC-Lavalin.
Nanisivik Mines	Absorbed into MRI.
CN Route	Sold to Transport Route Canada Inc., which was bankrupt in 1988
Canadair Ltd.	Absorbed into Bombardier.
Northern Canada Power Commission (Yukon)	Absorbed into Yukon Power.
Teleglobe Canada	A division of Comtech EF Data.
CN Hotels (CN Subsidiary)	Absorbed into Canadian Pacific Railway Ltd
Northwest Tel Inc. (CN Subsidiary)	Absorbed into BCE.
Terra Nova Telecommunications Inc.	Part of Bell Aliant, currently 44% owned by Bell Canada.
CNCP Telecom and Telecom Term Sys	Absorbed into Canadian Pacific
Nordion International Inc.	Became part of MDS Nordion.
Telesat Canada	Absorbed into BCE.
CN Short line in Nova Scotia	Sold to RailTex, a subsidiary of Rail America.
CN Exploration (CN Subsidiary)	Absorbed into Devon Energy.
Canarctic Shipping Company	A subsidiary of Fednav Group
Canada Communication Group	Part of St. Joseph Communications.
National Sea Products Ltd.	Acquired by Highliner.
Theratronics International Ltd.	Became part of MDS Nordion.
AECL's Commercial Division	Absorbed into SNC-Lavalin.
Provincial DSPs	Current Status
Prince Albert Pulp Company	Absorbed into Weyerhaeuser.
Donohue Inc.	Controlled by AbitibiBowater.
SOQUIP Alberta	Absorbed into Canadian Natural Resources.
BC Hydro's mainland natural gas division	Part of Fortis BC.
SaskPower's oil and gas business	Absorbed into SaskOil
Manitoba Forestry Resources Ltd.	Acquired by UPM-Kymmene Corp.
Novatel's systems business	Sold to Nortel, which is in bankruptcy protection.
Novatel's cellular telephone manufacturing	Absorbed into Telexel Holding Ltd
Alberta Liquor Control Board Stores (ALCB)	Sold to owner-licensees.
Syncrude Canada	An on-going joint venture between seven private-sector companies
Vencap Equities Alberta	Absorbed into Onex.
Ontario Power Generation-4 Hydroelectric Stations	Part of Brookfield Asset Management.
Skeena Cellulose	Unknown

One exception is provided by the privatization of (ACLB) retail stores, which West³⁵ has analysed comprehensively, and from which we draw here. Following privatization, consumer surplus increased for three main reasons. First, there was a large increase in the number of liquor stores, which improved accessibility. Second, there was a large increase in warehouse product selection. Third, average real retail prices were lower in December 2000 than prior to privatization, although they rose initially (until about January 1996). Given these changes, one might expect quantities would have increased, but they did not. The change in government surplus (i.e., government revenue) following privatization was small by design: the Alberta government intended that privatization should be revenue-neutral. As part of its privatization, the ACLB released 1,866 employees (of which 1,394 worked in the stores, equivalent to about 950 full-time equivalents (FTEs)), many of whom were earning near the top of the union pay scale rate of \$14.39 per hour. West³⁶ estimates that there were 2,904 FTEs working in liquor stores in early 1996 and that there were possibly 6,000 employees in December 2001. Wages, however, fell considerably following privatization. In February 1996, the average wage paid in a liquor store was \$7.19, much less than the top end of the union pay scale in 1993 of \$14.39 and less than liquor store wages in Ontario or BC, which exceed \$17 per hour. Thus, there was probably some lost employee surplus.

Overall Conclusion on Performance Following Privatization

Our overall conclusion is that the privatization of entities operating in competitive markets has been social welfare-improving. Indeed, our major policy conclusion is that this kind of privatization is a no-brainer. The evidence for this conclusion is clear, strong and convincing in the case of SIPs, while it is mostly inferential in the case of DSPs. Most SIPs did well in terms of operational efficiency improvement and increase in profitability, and also paid significant taxes. The only two privatized entities that might be considered as failures are FPI and Air Canada. FPI obviously suffered with the collapse of the cod fishery. Air Canada operates in a cyclical and often unprofitable industry. Due to structural conditions, it was hard to effect efficiencies following privatization. If it had remained as a crown corporation it might have performed worse.

In no case did the government end-up renationalizing a privatized entity. The only corporation that was partially re-acquired by government was de Havilland Aircraft Canada, which was sold by the federal government to Boeing in 1986 and was jointly bought by the Ontario government and Bombardier in early 1992. However, the Ontario government did not maintain its ownership for long and it was fully sold to Bombardier later in 1992.

³⁵ West, D., 2003, *The Privatization of Liquor Retailing in Alberta*, Vancouver, B.C.: The Fraser Institute Digital Publication available at <http://www.fraserinstitute.org/research-news/display.aspx?id=13530>, accessed 15 Nov 2011.

³⁶ Op. cit.

5. POTENTIAL FUTURE PRIVATIZATIONS

Despite the overall success of Canadian privatizations, much of the Canadian economy remains in state hands. There are still many federal and provincial crown corporations.³⁷ In addition, health care, water, sewage treatment and many other municipal services are still provided by government. These sectors contain potential candidates for privatization.

Table 6 contains a list of federal crown corporations that might be privatized in whole or in part. It also provides some information about these corporations' commercial revenues, net income, parliamentary appropriations, expenses, debt obligations, total assets, total liabilities and a categorization variable, NSSB. As mentioned in the introduction, the Harper minority government mooted the possibility of privatizing the seven crown corporations from this list as indicated by the last column (AECL was an eighth). However, at the same time, the government characterized these crown corporations as "not self-sustaining" (NSSB).

TABLE 6: FEDERAL CROWN CORPORATIONS THAT MIGHT BE PRIVATIZED, 2009

Crown Corporation	Commercial Revenues	Net Income	Parliamentary Appropriation	Expenses	Debt	Total Assets	Liabilities	NSSB
Business Development Bank of Canada		6	0		13,732	17,680	14,037	No
Canada Deposit Insurance Corporation		-102				1,965	1,108	No
Canada Development Investment Corporation		70				3,546	121	No
Canada Mortgage and Housing Corporation		931	2,613		252,047	272,821	263,558	No
Canada Post Corporation		281	23			6,029	4,213	No
Canadian Broadcasting Corporation	566		1,143	1,700				Yes
Cape Breton Development Corp.	5		60	94				Yes
Export Development Canada		258			24,447	32,898	26,310	No
Federal Bridge Corp. Ltd.	15		31	43				Yes
National Arts Centre Corp.	26		41	66				Yes
Old Port of Montreal Corp.	17		15	32				Yes
Parc Downsview Park Inc.	N/A		N/A	N/A				Yes
Public Sector Pension Investment Board		7,513				49,037	2,768	No
VIA Rail Canada Inc.	294	3	338	506		997	222	Yes
TOTAL (all crown corporations)		6,666						

All figures in \$ millions

Source: *Treasury Board of Canada Secretariat, 2010, Annual Report to Parliament: Crown Corporations and Other Corporate Interests of Canada 2010* (available at <http://www.tbs-sct.gc.ca/reports-rapports/cc-se/2010/cc-setb-eng.asp>) p. 21, 22, 23, 26, 28, 29 and Mayeda, A., "Major Canadian Government Assets could be Sold," *Canwest News Service*, February 17, 2009.

NSSB identified as "not self-sustaining" business

We have not compiled a similar table for provincial crown corporations, although there are some obvious potential privatization candidates. Some sectors that might be privatized in whole or in part include the electric power transmission and distribution providers (e.g., BC Hydro), insurance companies (e.g., Insurance Corporation of BC, Manitoba Public Insurance, Saskatchewan Public Insurance), financial services (e.g., ATB Financial), liquor retail outlets and distribution (e.g., Liquor Control Board of Ontario (LCBO), BC Liquor Stores, Saskatchewan Liquor and Gaming), lottery corporations (e.g., Manitoba Lotteries Corporation, BC Liquor Corporation) and ferry corporations (e.g., BC Ferries). Many of these organizations are large and profitable.

³⁷ McKenzie, K. and D. Crisan, 2011, "An Inventory and Database of Crown Corporations in Canada: Federal, Provincial and Municipal," Paper Presented at Public Performance and Privatization Roundtable, University of Calgary.

There are, of course, many barriers to privatization.³⁸ In addition to political and bureaucratic barriers, tax implications are sometimes a deterrent for provincial privatizations. First, crown corporations cannot carry forward tax losses, which will reduce the sale price. Second, privatized companies will pay taxes to the federal government, thereby reducing the aggregate funds that will remain in the province.

Corporations often have a portfolio of different businesses. For example, Canada Post Corporation (CPC) is in the businesses of both delivering regular mail and delivering packages (it owns Purolator). These businesses operate in different markets (industries) with different competitors and different structural conditions. Also, the socio-political mandates may differ by business. The potential for privatization must be assessed for each business, not the corporation as a whole. It might make sense to privatize some businesses operated by a particular crown corporation, but not others.

Rather than analyzing each potential privatization, we think it makes more sense to develop some general principles about their privatization. To begin, it is useful to categorize these businesses (*not* crown corporations) into one of three groups: (1) those businesses that would operate in competitive markets following privatization (competitive business: CB); (2) those businesses that would have significant market power following privatization (market power business: MPB); and (3) those businesses that would have significant revenue following privatization, but which would not have positive cash flow if they are required to maintain their public-purpose mandate after privatization, for example, a universal service mandate (non-viable businesses: NVB).³⁹

Crown corporations with little or no revenue would require on-going subsidies from government for them to perform their current activities or mandate. They can be thought of as belonging in a fourth category (uncompetitive businesses requiring subsidy). For reasons explained earlier, these businesses might be corporatized. However, they would never be privatized and would always be instruments of government policy, ultimately subject to political direction.

It is beyond our scope to categorize the crown corporations in Table 6 into CBs, MPBs or NVBs. That would require a detailed analysis of each corporation and the businesses within it. As mentioned above, different businesses within each corporation may fit in different categories.

It is also beyond our scope to determine which businesses should be privatized. It would require a case-by-case analysis to make such a determination, including a consideration of the post-privatization regulatory and legislative framework. Instead, we propose some general principles.

³⁸ See Bird, Malcolm, 2011, "The Residual Crowns: Institutional Change in the Post-Neoliberal Era," Working paper, Department of Politics, University of Winnipeg, for an analysis of four of these residual crown corporations (LCBO, ATB Financial, VIA Rail and CPC) and an explanation of why they remained in the public sphere.

³⁹ Crew, M.A. and P.R. Kleindorfer, 1998, "Efficient Entry, Monopoly, and the Universal Service Obligation in Postal Service," *Journal of Regulatory Economics*, 14, 1998, 103-125; 2002, "Multi-National Policies for the Universal Service Obligation in the Postal Sector under Entry," *Review of Network Economics*, 7(2), 188-206.

Meta-Rules for Future Canadian Privatizations

As far as we are aware, no Canadian government has formulated a framework to guide its privatization regime. A clear normative framework is an important part of a privatization program because the way in which an entity is privatized, and the nature of the post-privatization regulatory environment, is likely to play an important role in determining the social welfare consequences of its privatization. Based on the above considerations, we propose some rules for government that are intended to maximize the probability that social welfare will be maximized in each categorical situation. In this optimistic (naïve?) spirit, we propose the following meta-rules:

1. If a crown corporation has multiple businesses, it should be broken up into separate, corporatized businesses prior to privatization.
2. Government should privatize CBs.
3. Direct or indirect subsidies or benefits resulting from entry restrictions and regulations that had been received by CBs prior to privatization should be explicitly removed at the time of privatization. This policy should be made transparent to potential purchasers.
4. MPBs could reasonably be privatized under an appropriate post-privatization regulatory regime. However, governments should put the regulatory framework in place prior to privatization.⁴⁰ Ideally, this regulatory regime would encourage competition, reduce inefficiencies in the privatized entity and be transparent on potential windfall taxes.
5. CBs and MPBs with an appropriate regulatory regime in place should be completely privatized unless, and this is very unlikely, the company is too large relative to the equity market. Partial privatization (mixed enterprise) is often the worst of both worlds.
6. In general, NVBs should not be privatized. If a government does want to privatize a NVB, it should clarify its policy agenda going forward prior to any sale. This should include clarification about whether the NVB will be required to pursue an ongoing public purpose and, if so, it should specify the nature, use and extent of subsidies to achieve these purposes (for example, for the subsidization of rural consumers).
7. Governments that dispose of businesses through share issues should sell them at the revenue-maximizing price rather than giving them away or selling them at a reduced price. Obviously, giving shares away reduces total privatization proceeds. It also means that government will have to recoup these foregone proceeds through taxes, which has a deadweight loss.⁴¹ Furthermore, giveaways lead to wide share dispersion, which might entrench poor management and inhibit efficiency improvements.

⁴⁰ The privatization of Telstra, the Australian telecommunications company and Eircom, the Irish telecommunications company, illustrate the problems of not having an appropriate regulatory regime in place prior to privatization. For more information about the privatization failure of Eircom see Palcic, D and E. Reeves, 2011, *Privatisation in Ireland: Lessons from a European Economy*, New York, NY: Palgrave Macmillan.

⁴¹ Boardman, A.E., M.A. Moore and A.R. Vining, 2010, op. cit.

Of course, governments will be tempted to break these rules when it is politically beneficial to do so. Credible commitment by governments is notoriously difficult, especially in parliamentary systems that lack numerous veto points.⁴² Politicians tend to revert to either maximizing revenue (for example, by selling enterprises with currently legislated monopoly power as is, rather than creating a more competitive environment), or by maximizing interest group support (for example, by providing direct or indirect ongoing subsidies to privatized entities) or by maximizing votes (for example, by under-pricing IPO shares), rather than by maximizing long-run social welfare. However, promulgating clear ex ante privatization rules that would essentially be enforced by the administrative state raises the cost of renegeing somewhat, as it provides a quasi-veto point.

The political cost of actual or attempted privatization can be high, as illustrated by the attempted privatization of NB Power (formerly the New Brunswick Power Corporation and the New Brunswick Electric Power Commission) in 2009/10 via a proposed sale of most of its assets to Hydro-Quebec. Even after the scope of the sale was reduced in 2010, it faced intense opposition within the province, as well as from the province of Newfoundland and Labrador. As a result, the sale was eventually abandoned.⁴³ Former New Brunswick premier Shawn Graham's Liberal government almost certainly lost a subsequent provincial election because of his initiation of this attempted sale.

It is encouraging that the federal government has broadly followed the spirit of these rules in the announced privatization of AECL's Commercial Division to SNC-Lavalin, while retaining ownership of the Research Division. The federal government has spent \$2 billion on AECL over the last three years and over \$21 billion in total. It will spend another \$75 million to complete the development of the enhanced Candu 6 reactor and will be liable for cost overruns on existing projects. However, the Commercial Division is potentially profitable. It operates in a globally competitive industry and competes against GE Hitachi Nuclear, Areva Group and Toshiba Westinghouse. It is close to being a CB. The federal government maintains that it will not provide further subsidies beyond those listed above. Importantly, it is not requiring guarantees concerning the future scope and nature of the business. If SNC-Lavalin cannot make money from designing and selling the new Candu 6 reactors, it would almost certainly reduce the scope of the business, withdraw from the design and construction of new nuclear electrical power plants, and focus on the profitable business of servicing and refurbishing the existing Candu reactors. There will probably be significant job losses, but the government has eliminated a significant contingent liability.

⁴² North, D. and B. Weingast, 1989, "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England," *Journal of Economic History*, 49(4), 803-32; Miller, G., 2000, "Above Politics: Credible Commitment and Efficiency in the Design of Public Agencies," *Journal of Public Administration, Research and Theory*, 10(2), 289-327.

⁴³ Timm, J., 2010 "Power Failure in New Brunswick," *Canadian Business*, 83(6), 17-18.

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