

►► CHALLENGES FACING THE GRAIN HANDLING AND TRANSPORTATION SYSTEM IN
WESTERN CANADA IN A POST CANADIAN WHEAT BOARD ENVIRONMENT

Working Paper

Murray Fulton
Johnson-Shoyama Graduate School of Public Policy
University of Saskatchewan
E-mail: Murray.Fulton@usask.ca
Website: www.schoolofpublicpolicy.sk.ca/fulton

November 2011
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Contents

Table of Contents	i
Executive Summary	ii
Introduction	1
Markets versus Organizations: A Conceptual Framework	2
Economic Issues in the Post-CWB GHTS	5
Market Norms and Expectations	7
Issues of Market Power	7
Will a voluntary CWB be viable?	9
Will farmers retain access to producer cars & short lines?	11
Will the revenue cap currently in place be sustainable?	13
Concluding thoughts on market power	14
Externalities	14
Quality of exports	15
Provision of Public Goods	16
Trade disputes and level of service complaints	16
R&D levies	17
Winners and Losers	19
References	23
Appendix – Is a Voluntary CWB Viable?	25
The CWB as Marketing Agency	25
The CWB as Grain Company	28
Viability of a Voluntary CWB	30

List of Tables

1	Policy Issues and the Conditions Required for Well-Functioning Markets	6
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Challenges Facing the Grain Handling and Transportation System in Western Canada in a Post Canadian Wheat Board Environment

Murray Fulton
November 2011

Executive Summary

On October 18, 2011 the Government of Canada introduced Bill C-18 to remove the Canadian Wheat Board (CWB) as the sole seller of wheat and barley produced by farmers in Western Canada. On the surface this legislation looks merely to introduce a change in the way that Western Canadian farmers market their grains. Deeper down, however, there is something much more fundamental happening. The changes proposed to the CWB represent a significant regulatory change in which administrative fiat would be replaced by market transactions.

While using market price signals can often be a very effective way of providing goods and services, using markets and prices does not always result in the best outcome. Economists have long recognized that full-scale deregulation is only appropriate when there is a reasonable amount of competition (in this case among the grain companies and among the railways), when externalities are absent and when there are no important public goods that need to be provided. When these elements are not present, however, the market often requires some type of policy intervention to operate efficiently and effectively.

There is considerable evidence that the conditions for a well-functioning market do not exist in the case of the grain handling and transportation system (GHTS). Both the grain handling and railway industries are highly concentrated, with a few large firms dominating the industry. Indeed, high concentration has been an issue since the early days of the GHTS in the late 1800s. Today, this high concentration is linked to problems with the level of service provided by the railways (e.g., failure to deliver the railcars ordered by the shippers) and has resulted in farmers loading their own so-called producer cars to by-pass the higher priced elevator system.

Externalities are important, particular in the case of grain quality. Farmers, and the GHTS in general, also rely on critical public goods, goods that in recent times have been provided by the CWB. At the industry level, access to the U.S. market is critical. Over the past 25 years the CWB has played a key role in successfully defending Canada against trade disputes launched in the United States. The CWB has also played a key role in ensuring that regulatory tools (e.g., a revenue cap, level of service requirements) are in place and are used to address market concentration issues (particularly vis-a-vis the railways).

The removal of the CWB as the sole seller of grain will have a significant impact on the GHTS. Both the railways and the grain companies will have much greater latitude to raise prices. Although much has been made about a voluntary CWB providing marketing choice and competition, in reality the CWB will at worst disappear and at best be reduced to an unimportant player. Even if it is able to line up export sales, it does not own grain-handling facilities with which to acquire farmers' grain. Nor are the private grain companies likely to provide the CWB with access to grain at a reasonable price, since to do so would not make financial sense.

Producer cars, which have served to limit the grain companies' power in raising prices, will be severely stretched financially. In the absence of a viable CWB, they no longer will have a sales outlet for the grain they handle. Nor do they handle a sufficient volume of grain to make a voluntary CWB viable. The lack of viable producer cars will have a negative impact on short line railways, which will also suffer financially.

With multiple sellers in the market, the incentive diminishes for firms to maintain quality and to segment grain into different grades. The result is likely to be a deterioration in quality and a subsequent loss in the price premium that comes with higher quality.

Finally, without the CWB in place, no industry player will have both the financial wherewithal and the desire to supply the public goods required to maintain market access and to deal with market concentration.

The changes that are about to occur in the GHTS are major and will have widespread impacts. Given what is known about how benefits are distributed in concentrated markets that rely on important public goods and are subject to externalities, it is likely that, outside of the railways and the major grain companies, the players in the GHTS will see only marginal benefits at best.

While the shift in the structure of the GHTS is significant, it should not be assumed that this is the end of the changes. As is argued in this paper, there are numerous reasons to believe that the GHTS will suffer from a number of market deficiencies – in particular, high market concentration, externalities and the lack of provision of public goods. If a government's role is to put in place a GHTS that is efficient in its operation and provides widespread benefits to its participants (perhaps at the behest of some of the participants that feel they are not benefitting), then it will be incumbent on policy makers to look at ways at addressing these market deficiencies.

While the upcoming changes to the CWB will mean the end of policy discussions about the CWB, they will not mean the end of policy discussions. The deficiencies that will be present in a market-oriented GHTS are not new. Indeed, they have been an integral part of the industry for over one hundred years and will be the focus of policy discussions for years to come.

Challenges Facing the Grain Handling and Transportation System in Western Canada in a Post Canadian Wheat Board Environment

Introduction

On October 18, 2011 the Government of Canada introduced legislation – Bill C-18 – to remove the Canadian Wheat Board’s single desk marketing power. This change will have a significant structural impact on the grain handling and transportation system (GHTS) in Western Canada, affecting virtually every aspect of the system. The objectives of this paper are to provide a framework for examining the widespread changes that will occur in the GHTS and to examine the impact of these changes on the operation of the system and the welfare of system participants.

The main task of the GHTS is to coordinate the movement of grain from the farm to customers in Canada and around the world. Historically, this coordination was done largely administratively by the CWB through the use of contract calls. With the passage of Bill C-18, this coordination will be done through the use of price – if more grain of a particular type is required, prices will adjust so as to make this grain available.

In general, markets and prices are an efficient and effective way to coordinate grain movements when the market is reasonably competitive, when prices convey all the necessary information about the value of the good to the participants in and outside of the system, and when there are no important public goods that need to be provided. In the specific case of future markets, it is also necessary to have price transparency and to have an adequate volume to ensure liquidity and price discovery. When these elements are not present, the market often requires some sort of policy intervention to operate more efficiently and effectively.

The post-CWB GHTS will suffer from at least some of these market deficiencies. In particular, this paper argues that policy makers need to pay attention to a lack of competition by both the railways and the grain companies, to the presence of externalities in the sourcing and handling of grain, and to the provision of key public goods on which the performance of the system rests.

The remainder of this paper is structured as follows. The next section presents a conceptual framework for understanding the change from a GHTS that has been governed both administratively and through the use of markets to a GHTS that will rely much more extensively on the market for its governance. One of the conclusions of this section is that there exist a number of key market deficiencies that are likely to reduce the efficiency and effectiveness of the

market as a coordinating and governing mechanism. These deficiencies are directly linked to the issues that have been identified as being important in the new GHTS; these issues include producer cars, producer-owned inland terminals, grain companies without port terminals, short line railways, the export quality of Canadian grain, and the producer funding of R&D. The paper argues that unless these market deficiencies are addressed, the GHTS will not operate in the most effective and efficient fashion. Moreover, the changes that have been proposed are likely to benefit only a portion of the players in the system, most notably the grain companies and the railways.

Markets versus Organizations: A Conceptual Framework

The key issue facing any economic system – whether it is an organization, an industry, a national economy, or the world economy – is how to get the many (and typically highly diverse) players in the system to coordinate their activities and to co-operate in their behavior so that the system operates efficiently and effectively. This view of the so-called “economic problem” is of course applicable to the GHTS. To ensure that Canadians pay a reasonable price for food and that Canadian grain exports are competitive on world markets, the GHTS needs to operate efficiently. It also needs to operate effectively, so that all players in the system – be they farmers, grain handlers, railways, seed producers, insurance companies, or trucking firms – earn sufficient returns so that they can stay financially healthy and so that they have the incentive to produce and deliver high quality food and to make investments that will ensure the future health of the industry.

There are two main ways of achieving coordination and cooperation in an economic system. The first is through the use of markets, while the second is through the use of organization (and its accompanying elements of hierarchy, administration and authority). Economists have long been interested in when and under what conditions each of these two approaches is most appropriate – i.e., most likely to produce the coordination and cooperation required for an efficient and effective system. Ronald Coase, in his 1937 article “The Nature of the Firm,” provides the classic examination of this problem.

The current system, with the Canadian Wheat Board (CWB) in place, can be described as a mixed system of organization and market, with the emphasis on organization. As a consequence of its single-desk selling authority, the CWB administratively coordinates the grain movement required to meet customer agreements and contracts. Specifically, the CWB sources virtually all of its grain by making contract calls on grain that farmers have contracted to deliver to the CWB. The use of a pooled price is very important in this process. Since farmers receive the

same pooled price regardless of when they deliver (the only exception is when a farmer chooses one of the alternative payment options), there is no incentive not to deliver when a contract call occurs.

While the “calling in of grain” is done administratively and without the use of market signals, a market-based system is used to determine how the farmers get the grain into the system. To handle specific grain delivery requirements, the CWB asks for tenders from the grain companies; these companies then bid on the right to deliver a given quality and quantity of grain to a specific port. An elevator company in turn uses market signals (e.g., handling fees, trucking premiums, grade) as incentives to get farmers to deliver their contracted grain through its facilities. The final step in the process, namely the allocation of railcars to the shippers, is done administratively, with grain cars allocated based on where farmers deliver their grain.

The removal of the single-desk selling powers of the CWB will have the effect of making this mixed system much more reliant on market and price signals rather than administrative fiat. Grain companies will now be responsible for the “calling in of grain” to meet their sales requirements. Price and other market signals (e.g., trucking premiums, grade offered) will now be used both to entice farmers to deliver grain to a particular grain company and to deliver grain at a particular point in time. To get their grain to port, the grain companies will need to contract with the railways for the necessary railcars. This allocation is likely to take place via market mechanisms – i.e., the railways will use price to allocate railcars across different commodities (e.g., grain, potash, coal) at different points in time and in different configurations (e.g., 110 car unit trains).

Under the right conditions, markets can be an extremely effective way of achieving coordination among a large group of people. As Hayek (1945) outlines, the players in a market system only need to observe prices in order to determine what they should do: “Assume that somewhere in the world a new opportunity for the use of some raw material, say tin, has arisen, or that one of the sources of supply of tin has been eliminated. It does not matter for our purpose—and it is very significant that it does not matter—which of these two causes has made tin more scarce. All that the users of tin need to know is that some of the tin they used to consume is now more profitably employed elsewhere, and that in consequence they must economize tin. There is no need for the great majority of them even to know where the more urgent need has arisen, or in favor of what other needs they ought to husband the supply” [p. 526].

As Hayek’s quote demonstrates, prices work well as a coordinating mechanism when they convey all the necessary information about the value of the good to the participants in and outside of the system – in short, the price paid by consumers for an extra unit closely matches the cost of producing that extra unit. As economists have noted, this condition is met when: (a)

there is lots of competition; (b) there are no (or few) externalities; (c) there are no important information asymmetries; and (d) there are no public goods (Rosen, Wen, Snoddon, Dahlby, and Smith, 2008).

If any of these conditions do not hold, then market forces cannot typically be counted on to provide the most efficient outcome – i.e., to match the price paid with the cost of production. For instance, when there is a lack of competition, the price paid by consumers typically rises above the cost of producing an extra unit. If externalities are present – i.e., if the producer of the good does not realize all the costs associated with production (a good example is pollution that causes health or environmental problems to people downwind) then the true cost of the good differs from the cost of production. If there are information asymmetries – i.e., there are fundamental differences between what the buyer and the seller know about the good (a good example is quality attributes that cannot easily be measured) – then the value to the buyer and the seller differ. And finally, if the good in question is a public good – i.e., it is available to everyone regardless of whether they contribute to its provision – then the cost of supplying the good (which is positive) clearly differs from the perceived benefit of contributing (which is zero).

There are a number of other features that must also be in place in order to have markets work well. The first is that prices need to generate negative feedback – e.g., an increase in price has to cause a reduction in demand and/or an increase in supply so as to bring the market back to equilibrium. If there is positive feedback or no feedback, then the market cannot be brought back to equilibrium through price changes. While not usually a factor in commodity markets, the lack of negative feedback does occur in some markets and can have important consequences. For instance, in the so-called liquidity trap, where interest rates can no longer be lowered because they are already at zero (which in turn implies that there is no feedback), monetary policy is ineffective at increasing national income.

Markets also require a high degree of economic stability, a reasonably trustworthy government to intervene, when required, to enforce contracts and agreements, and an agreed upon set of norms – e.g., expectations about how other participants will behave. As will be discussed later, this last condition – the agreed upon set of norms – may have particular relevance for the conversion to a post-CWB system.

The organization, of course, also has its pluses and minuses as a way of achieving coordination. While an administrative approach can internalize externalities, make information more symmetric, dictate the provision of public goods, operate more efficiently as a monopoly when proper objectives are in place and be aware of interdependencies, it also has its downsides. Among these problems are so-called agency problems (where people shirk or fail to properly

perform the task they have been given), lack of co-operation, a slowness to incorporate new ideas, a lack of access to “local” knowledge and a susceptibility to lobbying and influence that generates improper objectives and decisions. The organization mode also assumes a power structure (hierarchy), someone in control (authority) and a plan for how decisions will be made (administration). For some people, the presence of hierarchy and authority is anathema and hence to be avoided at all costs.

Although markets work very well in many situations and have been extremely important in creating the society that we live in today, the modern world is governed to a large extent by organizations. As Simon (2000) notes: “Today . . . we do not live in a market economy, but in an organization economy, or at most, in an organization/market economy, with a predominance of organizational over market activity. It is ironic that one of the first industries to move toward this new kind of organizational society was transportation, where the railroads enabled an enormous rise of market exchanges over long distances, with correspondingly large factories to produce the goods that were exchanged. Electronics is now completing the comparable transformation of communication” [p. 751].

Economic Issues in the Post-CWB GHTS

As outlined above, the removal of the CWB’s single desk selling powers will have the effect of transforming a mixed administrative and market system to a system governed much more by market mechanisms. This change will have an impact on a number of elements of the GHTS. The following list presents some of the major issues that have been raised regarding the impact of the removal of the CWB (some of these issues, for instance, were discussed in the recent *Report of the Working Group on Marketing Freedom*).

- How soon will the required norms and expectations necessary for the efficient operation of the GHTS be developed?
- Will a voluntary CWB be viable?
- Will farmers retain access to producer cars and short line railways?
- Will the revenue cap currently in place be sustainable?
- What will happen to the quality of grain exports?
- Who will take the lead in dealing with trade disputes?
- Who will launch complaints to the CTA in the event of level of service complaints against the railways?

- How will producer R&D levies be collected?
- Who will be the winners and losers?

With the exception of the last issue, the issues listed above can all be mapped directly onto the conditions (discussed earlier) that are required for a well functioning market. As table 1 outlines, a well-functioning market requires, first and foremost, an agreed upon set of norms and expectations. Questions of market power are clearly important – the viability of the CWB, the access of farmers to producer cars and short line railways, and the future of the rail cap are all examples of cases where the extent to which the market will be able to perform efficiently and effectively depends on the market power possessed by the railways and the grain companies. Questions about the quality of Canadian exports in the future are linked to questions about externalities and how they are addressed. Similarly, questions about who will take the lead in trade disputes, launch level of service complaints and collect R&D levies are ultimately questions about public goods and how they are provided.

Table 1: Policy Issues and the Conditions Required for Well-Functioning Markets

Conditions Associated With Well-Functioning Markets	Policy Issue
Agreed Upon Norms	Development of required norms and expectations
Lack of Market Power	Viability of voluntary CWB Access to producer cars & short line railways Future of revenue cap
Lack of Externalities	Quality of exports
No Significant Public Goods	Take lead in trade disputes Launch level of service complaints Collection of R&D levies

The remainder of this section examines each of the issues listed in table 1 and provides an analysis of how important each issue is likely to be in the post-CWB world. It is important to note that these issues are not just short-run issues that will emerge in the immediate aftermath of the removal of the CWB’s single-desk selling powers (and the movement from organization to market). Rather, these issues are ones that can be expected to exist well into the future. Indeed, since these issues are linked to fundamental conditions required for markets to function well, these issues are inexorably linked to the use of the market as the coordinating mechanism for the GHTS.

Market Norms and Expectations

Markets cannot exist in a vacuum – they require the proper legal and social environment in which to operate effectively. A good example of this was the events that occurred in Russia and Eastern Europe in the aftermath of the breakdown of the Soviet system in the early 1990s. Many observers at the time expected the immediate development of a market economy – i.e., in response to the removal of government constraints, people and companies would automatically begin to trade, make investments, hire labour and so forth. Of course, this did not happen – while markets did emerge, they often did not function well, and indeed in some cases do not operate well today (see Hoff and Stiglitz (2008) for a good discussion of how the failure of the rule of law to develop has affected economic performance in Russia).

Another factor required for markets to emerge and to function well is a set of norms and expectations that are shared by the market participants. These shared norms and expectations are critical, since they allow market participants to make trades without having to specify all the contract conditions, thus reducing the cost associated with making trades. Although the firms and companies that will be involved in the handling, transportation and marketing of wheat and barley for human consumption have had a great deal of experience with markets generally (for instance, in feed grains, or in the so-called non-board grains like canola), they will not have the specific experience in wheat, barley and durum. While it can be expected that norms and expectations will be developed, full development may take a number of years. During this period it can be expected that transaction costs will be higher than expected, with the result that the surplus available to the market participants will be lower. This lower surplus will likely take the form of a higher basis – i.e., a larger gap between the price received at port position and the price received by farmers. It may also take the form of lost sales because of uncertainty over grain deliveries.

Well functioning markets are, of course, constantly updating their norms and expectations. Although there may be conditions under which this issue becomes important in the future and needs to be addressed, it is most likely that this issue will be of particular importance during an initial transitional period.

Issues of Market Power

The grain handling and transportation industries in Western Canada are highly concentrated. Currently, the top four grain handling companies (Viterra, Richardson Pioneer Limited, Cargill Limited and Louis Dreyfus Canada Limited) have 72 per cent of the primary grain handling capacity in Western Canada. The commonly used measure of market concentration, the Herfindahl

H index, is currently 1805 (up from 1415 ten years ago), just above the threshold where an industry typically ceases to be competitive (Rhoades, 1993). In short, the primary grain handling industry on the Prairies can be labelled as a concentrated oligopoly.

At port position, the concentration is even higher. At Vancouver and Thunder Bay, the two main ports, the top four grain handling firms have 97 and 94 percent of the capacity, respectively. The corresponding H indices are 3418 and 3628. At Churchill, one firm owns all the capacity, while at Prince Rupert, three firms (Cargill, Viterra and Richardsons) share the terminal capacity – if this capacity is allocated equally between the three companies, then the H index is 3333. As with the primary grain handling segment, port handling is also a concentrated oligopoly.

The railway industry is properly described as a duopoly – that is, there are only two main firms that compete in the provision of transportation services. Together, these two firms own 86 percent of the total rail trackage, while the H index for the industry is 3896. These measures indicate a very high level of concentration, well above the level where an industry ceases to be competitive. Moreover, these numbers understate the concentration in the industry. With the exception of a few delivery points, the two railways are located in different geographical regions. This geographical separation means the railways often possess spatial monopoly power. This market power arises because a large percentage of customers are essentially captive. If market forces were relied upon to establish freight rates, both railways would know they could raise their freight rates without losing too many customers to their competitor. There would also be no incentive for any railway to lower freight rates, since lower rates would be unlikely to attract many new customers, particularly if their competitor were to lower its rates at the same time.

The railways operate a transportation system that is often pushed to capacity. When this occurs, the railways have an incentive to move goods that have a high value rather than those that have a low value, since they will be able to charge higher rates for the movement of higher valued goods. Since grain is not a highly valued product from the railway's perspective, it is often pushed aside when rail capacity gets tight. Indeed, the level of service complaints that have been raised during the last decade can be interpreted as the railways using physical rationing to allocate rail capacity among grain users; this rationing is used because the freight rate cap precludes the use of price as a way of allocating scarce capacity (see Fulton and Lisitza (2011) for the formal development of this argument).

Market concentration in the GHTS raises two concerns. With market power, the railways and grain companies are able to raise the price they charge for their services above the (marginal) cost of producing the service. In response, farmers reduce the amount of the service they demand, which in turn creates inefficiencies. Market power also adversely affects market effective-

ness, since greater market power typically jeopardizes the profitability of one or more players in the market; the result is an industry that is less healthy and less able to innovate and to meet the demands being placed on it domestically and internationally.

The significant concentration in the GHTS suggests that market power issues need to be examined in the post-CWB environment. From a policy perspective, one way of alleviating concerns about market concentration is through the introduction of competition. One potential source of competition is a voluntary CWB, combined with producer cars and short line railways. As the discussion below argues, however, a voluntary CWB will not be viable, in part because of market concentration issues. The non viability of a voluntary CWB, in turn, will create significant problems for farmers who wish to load producer cars and who wish to use the services of short line railways. Indeed, both producer cars and short line railways are unlikely to be sustainable on any significant basis, which in turn reduces contestability in the market and results in farmers paying higher prices for grain handling and transportation services.

Will a voluntary CWB be viable?

The presumption by those that have been calling for marketing freedom is that a voluntary CWB is viable. Indeed, the conclusions of the *Report of the Working Group on Marketing Freedom* rely heavily on the assumption that a voluntary CWB would provide competition and a voluntary CWB was provided for in Bill C-18 that was introduced in Parliament on October 18, 2011.

Although many farmers have indicated that they would like the option of marketing to either the CWB or to other buyers, the reality is that – at this point in time, at least – this is unlikely to happen. Once its single-desk selling powers are removed, the CWB will be unable to operate effectively and will either cease operations or operate at such a small scale that it will be largely ineffective. This inability to operate is not a function of insufficient desire or poor management. Rather, the inability for the CWB to operate in a so-called “marketing choice” environment is a direct consequence of the nature of pooling and of the structural realities of the grain industry.

As is argued in the Appendix, the CWB’s lack of grain handling facilities, either on the Prairies or at port position, makes it highly unlikely that it can survive. And it does not possess any intrinsic advantages when it comes to marketing. For instance, the best marketing and management personnel are likely to be hired by other grain companies as they position themselves for a new marketing environment. Nor is the operation of a price pooling system an advantage – not only are they not viable (they do they not exist in other grain markets – e.g., the United

States), but if they were viable this strategy would be available to all the firms in the industry, not just the CWB.

More importantly, perhaps, without the single desk, the CWB will not have the advantage it used to possess of knowing what grain it had available and being able to access it at low cost. As a result, a voluntary CWB simply would not have the ability to make marketing commitments to customers – without this ability, it will not be able to profitably operate.

A successful voluntary CWB needs more than just facilities and top-notch marketing personnel. It also needs farmer support. This support requires that: (a) farmers must be able to express their views on the CWB with some chance that these views will be listened to; and (b) farmers' representatives must have effective control over the CWB's policies and operations. If farmers are not provided with both voice and control, they will be unwilling to market their grain through the organization. The reasoning is simple – organizations only work if the people they deal with have confidence that the organization is managing its affairs with proper due diligence and that the organization is a going commercial concern (witness what happened to the investment banks in the United States in the summer of 2008 when this confidence was lost). In the case of farmer-owned organizations, farmers doing business with the organization have to know that the organization is well run and operating in their best interests. This knowledge can only be achieved if farmers have the ability to observe, influence and direct the CWB's operations (Fulton and Giannakas (2001), Fulton (1996)).

Providing farmers with voice and control is not something that can be imposed – it is something that farmers must develop and agree to themselves. Thus, while Bill C-18 can legally specify that the board of directors of the CWB will be appointed by government, such a governance structure will not produce the producer buy-in that is required to produce farmer loyalty. Instead, producer buy-in has to emerge from the farmers themselves.

On this score, there does not appear to be any indication by farmers (or farmer groups) that they wish to take on the task of creating a voluntary CWB. With the collapse of the grain handling co-operatives ten years ago, there does not appear to be much appetite currently for another “co-op” – which is what a voluntary CWB would essentially be. Without this willingness to actually develop the organization – both its governance rules and its operating activities – a voluntary CWB will not emerge.

The presence of a viable voluntary CWB is critical for the performance of the GHTS, since its presence or absence determines the amount of competition that can be expected in the industry. As will be argued below, it is precisely the kind of competition that a voluntary CWB could provide that is needed to allow the market to work efficiently and effectively. However, since a voluntary CWB is not viable, this competition will not emerge.

Will farmers retain access to producer cars & short lines?

One area where a viable voluntary CWB would be particularly important is in the area of producer cars and short line railways. The right of producers to load producer cars was first provided for in the Manitoba Grain Act of 1900 and has been a feature of the Canadian GHTS ever since (under the Canada Grain Act the Canadian Grain Commission is responsible for this provision). It is important to note that producer cars were introduced as a response to farmers' complaints about lack of competition among grain elevator companies; in economic terms, they were designed to provide some degree of "contestability" to the market.

Farmers' use of producer cars has ebbed and flowed over the years in response to market and policy conditions. After moving up sharply in the period of low grain prices in the late 1980s and early 1990s, producer car shipments fell through most of the 1990s. Since 2000, however, they have risen dramatically. This rise is due to a number of factors, including increased freight rates, lower grain prices in the early 2000s, the abandonment of branch lines, and the consolidation of the grain elevator industry. Despite this increase, producer cars still make up less than five percent of the grain that is exported. It is also important to note that only about three percent of producer cars are for non-board grains.

While the right of farmers to order producer cars is entrenched in the Canada Grain Act, doing so is only feasible if farmers have sales lined up for their grain. This requirement, in turn, raises questions of whether: (a) the owners of producer car facilities both own elevator capacity at port position and have developed an international sales arm to line up export grain sales; or (b) the existing grain elevator companies would market the grain sourced through producer cars, and if so at what price?

The first of the two questions posed above was addressed earlier in the context of a voluntary CWB. As was argued, it is unlikely that a farmer-owned and operated grain company can operate at sufficient scale to be viable at the current time. As for the second question, given the significant concentration in the grain handling industry, it is unlikely that sufficient competition exists between the major companies to have them actively competing for grain from producer cars.

The reasoning behind this conclusion is straight forward. For the grain companies, reliable access to grain at a relatively low cost is the name of the game, since without this it is difficult to attract customers. At the same time, the grain companies wish to bring the grain through their own facilities so that they can earn a spread on the storage and handling. The way to accomplish both objectives is to play hard with farmers loading producer cars – by charging them a high price to market grain sourced through producer car facilities, the elevator companies can deter

farmers from delivering through grain in this manner, all the while knowing that they will have a very good shot at obtaining access to the grain through their own elevator system.

The railways can also be expected to contribute to the non-viability of producer cars. Whether the grain is sourced through producer cars or through the major grain companies, the railways know that they are going to handle the grain. Since dealing with the grain companies is likely to involve less transaction costs, the railways can be expected to set pricing terms so that the grain is sourced through the major elevator companies.

In summary, in the absence of a viable voluntary CWB, the outlook for producer cars is poor. Indeed, this non-viability is evident at the current time in the non-board grains area, which accounts for only three percent of producer cars. If this same percentage were to apply to wheat and barley, the use of producer cars will virtually disappear.

The outlook for short line railways is also poor, in part because of the decisions that will be made by the railways and in part because of decisions made by the grain companies. The change in the railcar allocation mechanism that will occur with the removal of the CWB would affect short line railways, in part through its impact on producer cars, which make up an important part of the volume carried on short lines, and in part because the railways would ensure through their pricing that they get the rail traffic – and hence the revenue – on their lines.

The growth in short line railways in the early 2000s was dramatic, largely a result of rail industry deregulation which allowed the railways to abandon branch lines. In recent years, however, short line railways share of the total grain origination has fallen. Short lines carry a very small fraction of the grain produced in Western Canada. However, by their very nature, they are typically located in areas that have no other rail service – thus, they play a very important role for a select group of producers. Short lines often rely quite extensively on producer cars for their volume; producer cars in 2009-10 accounted for 47.5 percent of the grain originating on short lines, up from 14.8 percent in 1999-2000 (Quorum Corporation, 2010). Thus, if producer cars become non-viable, so too will short line railways. This is particularly the case because the profit margin for short lines is very small, and profitability is highly dependent on the volume of grain handled.

Short lines are also affected by the behaviour of the grain companies. As Quorum notes in its 2009-10 Annual Report, the grain companies have invested in facilities served by CN and CP rather than the short lines – e.g., virtually all of the high-throughput elevators are located along the primary routes of the two major railways. Thus, short lines do not have access to the major source of grain on the prairies.

As can be seen from the above, the existence of a viable voluntary CWB would facilitate the use of both producer cars and short lines, which in turn would bring much needed contestability

to the GHTS. In the absence of a viable voluntary CWB, however, this contestability is unlikely to exist. While the solution to greater contestability and competition would appear to be the creation of a voluntary CWB, such an outcome cannot be ordained or legislated. Nor can it be obtained through wishful thinking. Even if farmers wanted to create a new CWB, doing so would not make it viable. As outlined in the previous section, significant obstacles stand in the way of creating a viable voluntary CWB – market concentration, lack of capital, lack of marketing advantages and lack of farmer interest. At the current time, this lack of farmer interest is a perfectly rational response to the situation they face.

Will the revenue cap currently in place be sustainable?

One of the distinctive features of the grain handling and transportation system in Canada is the presence of a freight revenue cap on railway grain shipments. Under the cap, the average freight rate paid for grain shipments cannot exceed a specified amount. This cap was put in place in August 2000 because of concerns about the market power of the railways and the upward pressure on freight rates that would occur if the railways were not regulated in some way.

There will be significant pressure to remove the revenue cap so that market forces can work in allocating grain cars. As noted earlier, rail capacity is limited. In a post-CWB world, the railways can be expected to use price to allocate this limited capacity among shippers and among different grains. With the revenue cap in place, this ability to allocate capacity will be significantly constrained. However, allocation will still have to occur. One way is through simple rationing – shippers would get only a fraction of the cars that they order, for instance. In such a scenario, level of service complaints are likely to once again emerge as an important issue in the sector. This dissatisfaction with the performance of the system, along with lobbying from the railways for the removal of the cap (which will benefit them directly), can be expected to lead to the cap's removal. Indeed, the Agriculture Minister, the Honourable Gerry Ritz, indicated in May 2011 that the revenue cap is problematic and that farmers might need to pay more to access better rail service.

The removal of the revenue cap is all the more likely given that there would be significant pressure on the Canadian government generally to harmonize policies with the United States in the area of grain handling and transportation. Indeed, since the elimination of the CWB's single-desk selling powers would create very similar marketing systems in both countries, the major players in the grain and transportation industry can be expected to lobby for rules that would eliminate any remaining differences. Removal of the freight cap would be an important element of this harmonization.

Concluding thoughts on market power

As the above discussion highlights, market power is likely to be an issue in the post-CWB GHTS. Although market concentration is difficult to address using policy and regulatory tools, it is important that attention be brought to bear on this issue. Failure to do so will disadvantage numerous groups – most importantly those farmers that are located far away from the main lines of the two major railways or are captive to one of the major grain companies/railways.

Externalities

Externalities exist in a market when the decisions made by one player have an impact on the costs or benefits of other players (but are not felt by the player making the decision). The text book example of an externality is air pollution – a polluting firm imposes costs on individuals that live downwind and have to breathe the polluted air. Since the polluting firm does not bear this pollution cost (i.e., the cost is external to the player making the decision), the result is termed an externality.

Externalities can be positive or negative, and they can apply to production or consumption. Pollution is an example of a negative production externality, since as a result of the production of a good an additional cost is created that is borne by someone else. Farmers growing alfalfa create a positive production externality, since the growth of their crop creates a benefit for bee keepers. Getting a flu shot creates a positive consumption externality, since not only does the flu shot create protection from the flu for the person getting the shot, but it also makes it more difficult for the flu to spread in the population. Sending text messages while driving creates negative consumption externalities, since engaging in this activity increases the risk of accidents, thus putting other people at risk.

The efficiency and effectiveness of a market falls when externalities are present. Since people do not incur the full costs (or benefits) of their actions, they typically tend to over produce (or over consume) things that have negative externalities and to under produce (or under consume) things that have positive externalities. Such actions are both inefficient (resources could be used more efficiently) and ineffective (the industry fails to take full advantage of the opportunities that are available).

As will be argued below, grain markets are increasingly focused on quality. Quality depends on the actions of all the players in the supply chain, from the farmer to the elevator company to the railway to the miller. In this system, decisions by players at each stage determine not only the returns they receive, but the returns that the other players receive. As will be seen, these interdependencies give rise to negative production externalities in the area of quality.

Quality of exports

Quality is becoming an increasingly important factor in the production of agricultural products, with consumers looking for greater consistency, more variety and tighter control on health and safety attributes (Boehlje, 1996). Grain is no exception to this pattern (Kennett, Fulton, Molder, and Brooks (1998), Dahl and Wilson (2000)). Canada has long prided itself on the high quality of its grain exports and the higher price that results from this quality.

It is typically presumed that this high quality will remain with the removal of the CWB's single-desk powers. Such a presumption is problematic. For instance, over the years the United States system – with its emphasis on the market – has not been able to produce the consistency in grain quality that the Canadian system has been able to produce. Moreover, U.S. exports of hard red spring wheat are predominately No. 2 grade, while exports from Canada are predominately No. 1 (Dahl and Wilson, 2000).

Externalities are one reason why the U.S. system has not been able to generate quality consistency. The final quality of the product depends on the manner in which the grain is handled and stored as it moves through the marketing system from the farmer to the miller. For instance, a high quality grain shipment can easily become contaminated or have its quality lowered if sufficient care and attention are not provided at each and all stages of the process (Hennessy, Roosen, and Miranowski, 2001). Since the final shipment of grain is a mix of grain from numerous locations that have been handled by many players, each player has the potential to negatively or positively affect the quality – i.e., each player can create costs or benefits that fall on others and not on them.

The incentive facing multiple grain firms involved in a market-based GHTS means that each firm is only interested in the net revenue that it is able to obtain and it does not feel the effect of the costs that its decisions generate elsewhere in the system. The consequence of not recognizing these costs is that the incentive to maintain quality at all steps along the process diminishes. The lower quality emerging from the GHTS in the United States is in part due to fact that the various players in the system do not endogenize the externalities.

In addition to lacking an incentive to maintain quality, multiple sellers also each lack the incentive to segment grain into different grades. For an individual seller, the margin obtained from selling grain as No. 1 or as No. 2 is very similar; thus, the firm has little incentive to try and sell grain as No. 1 – instead, sales can often be more easily made (and a margin earned) by lowering the grade, and the price, to No. 2. Yet selling grain at this lower grade lowers the total revenue that is earned. In short, each firm fails to take account of the full benefit and cost associated with selling grain of different grades.

If Canada wishes to maintain its reputation for quality – and the price premia that come with it – then attention will have to be paid to the incentives that the players within the GHTS have to maintain this quality. Failure to address this question can be expected to result in either lower overall quality and hence lower prices, or a move to greater vertical integration where one of the players (e.g. the railways, the grain companies or the millers) take a lead role in maintaining quality.

Provision of Public Goods

Public goods have two key characteristics. They are nonrival – i.e., their use by one person does not preclude their use by others. And they are non-excludable – i.e., there is no way to preclude or exclude others from using them. A radio signal is a good example of a public good – any number of people can obtain the signal at the same time and there is no way to exclude anyone from accessing the signal at any given time.

The nature of public goods means that they cannot be supplied by a market. To see this, suppose a company wishing to make a profitable investment were to produce a public good. Once the good has been produced and introduced to the market, it would be possible for everyone to access it for free – after all, the good is non-rival and non-excludable. But if everyone can get the good for free, the company will not be able to earn sufficient revenue to cover the costs of producing the good. Knowing this, the company will not produce the good in the first place and the system will operate less effectively and efficiently.

There are a number of public goods that are important to the efficient and effective operation of the GHTS. The following sections examine the issues of trade disputes, level of service complaints and the collection of R&D levies.

Trade disputes and level of service complaints

Over the last fifteen years, the CWB has increasingly played an advocacy role, a development that can be directly linked to the new governance structure that was introduced in the late 1990s. With ten of the fifteen CWB directors elected by farmers, the CWB has become much more vocal and involved in policy issues that are of concern to grain farmers. Among the items with which the CWB has been involved are the rail revenue cap, railway service issues, and U.S and international trade challenges.

The CWB was well positioned to play a role in these policy issues historically. To be effective at policy intervention, organizations require the technical capacity to engage in analysis and to fully understand the issues (e.g., the ability to hire trade lawyers), enough resources to

be able to engage in policy debates over an extended period of time, and the ability to network with other groups to bring them on side (Wilson, Laycock, and Fulton, 1988). The CWB possessed all three of these aspects. A good example is the discussions around the revenue cap. The CWB was successful in reducing the revenue cap on rail shipments when this policy was first introduced because it had the ability to research the question, to engage the policy makers on the issue over a period of time, and to bring other farm organizations on side to support a policy position. The CWB's role in level of service complaints and in trade disputes also represent good examples of how, to be effective, an organization needs to have access to legal resources and expert opinion.

The activities described above all produce public goods. A ruling on level of service, for instance, is something that can be used by all shippers (i.e., it is a non-rival good) and there is no way to exclude particular shippers – the ruling applies to everyone. Similarly, the successful resolution of a trade dispute creates a public good.

The CWB's elimination would mean an end to its advocacy activities. While a large farmer-owned grain company with substantial market share and size can play an important policy role (witness the success of the Saskatchewan Wheat Pool in policy during the early 1980s), for the reasons presented above it is unlikely that a new CWB would ever be able to reach the size required to be effectively involved in policy and advocacy. Moreover, a number of the situations where the CWB has been effective are ones where its single-desk selling power played an important role. For instance, the fact that the CWB was the sole exporter of Canadian wheat and barley gave its position on railway service added weight.

The efficiency and effectiveness of the GHTS will be adversely affected by the absence of these public goods. Abuses of market power (as was ruled in a number of level of service cases) would go untouched. Failure to intervene in trade disputes could mean the loss of market access to key markets such as the United States. Thus, one of the challenges in the future is to develop the capacity in the GHTS to provide these kinds of public goods. This will be difficult, however, since there are vested interests (e.g., the railways in the case of level of service complaints) that will resist the provision of these public goods. However, these goods are critical for the health and competitiveness of the entire GHTS.

R&D levies

The removal of the CWB's single-desk selling powers would also have effects on research and development (R&D) activities. Because wheat and barley are open-pollinated crops that can reproduce each year, private seed companies have little incentive to develop private varieties.

As a result, public and producer funding of R&D for new varieties is critical. As a major player with a view of the entire system, the CWB has historically been in a position to influence the magnitude and the direction of the research that is undertaken. The removal of the single-desk selling powers would leave the industry without a body that would have the overview the CWB currently provides.

More generally, the removal of the CWB would create a vacuum of leadership in the Canadian grains industry, at least in the short run. While a body such as the U.S. Wheat Associates could be developed in Canada to coordinate R&D and market development activities, such a body does not exist today.

One of the outcomes of the CWB's removal could well be less R&D. More likely and more importantly, however, the main impact might be that R&D is directed to only to those issues that clearly have widespread support throughout the industry, and particularly among the players with influence, namely the railways and the grain companies. Since R&D that benefits farmers might not benefit these players, the result will be redirection of research away from activities that benefit farmers.

There is also a very specific ramification of the removal of the CWB's single desk powers. Currently the CWB collects the producer R&D levy on grains on behalf of the Canadian Grains Research Foundation. With the removal of the CWB in its current form, a vacuum will exist regarding how levies can be collected. While an interim procedure for collecting the levies has been found, what is critical is that a long term solution be developed that allows the grain industry to carry out an appropriate level of research.

Studies have routinely demonstrated that the return to producer-funded R&D (and to public sector R&D) has been comparatively large for the grains, oilseeds, and pulse crops produced on the Canadian prairies. For example, estimates from a 2003 study suggest that, in the long-term, Saskatchewan pulse growers receive approximately \$15.60 for every R&D dollar they contribute through a producer check-off (Gray and Scott, 2003).

Despite these high rates of return and the fact that research expenditures are typically matched at least once with government contributions, the level of producer research funding remains relatively small as a percent of sales. For example, average annual R&D expenditures per producer per year over the period 2000-2004 are equal to \$177 for alfalfa, \$11 for flax, \$12 for canola, \$712 for pork, \$89 for pulse crops, and \$86 for sheep. Relative to expenditures on farm inputs such as fuel, fertilizer, and feed, these values are very small.

The levies for wheat and barley are in a similar range to those for other grains. The current wheat levy is \$0.30 per tonne, while the barley levy is \$0.50 per tonne (CWB deliveries only).

Translated into a per producer basis, the levy on wheat is about \$100 per producer; barley is less because of the non-CWB share.

As the GHTS transitions to a new structure, it is critical that a mechanism be found that provides farmers with sufficient incentives to invest in R&D at a level that will provide maximum benefits to themselves and to the industry. While the change in GHTS structure provides a good opportunity for the introduction of such a mechanism, there is a real risk that the upheaval will put issues like R&D funding on the back burner. In addition, it is hoped that the focus on the use of the market as a mechanism for coordinating activities is not extended to the R&D area, since as a quintessential public good, R&D would be vastly under provided were the market mechanism relied upon.

Winners and Losers

Changes to economic systems, and particularly major changes such as the removal of the CWB's single desk selling powers, inevitably result in some individuals and groups benefiting, while others lose. Making changes to the mechanism that is used to coordinate activity in the GHTS is equivalent to changing the rules of the game. Since different rules provide different people with a comparative advantage, there will be winners and there will be losers. To use an analogy, consider what would happen if basketball nets were lowered from their current ten feet to five feet. Instead of very large players with great vertical jumps having a comparative advantage and receiving the highest salaries, the advantage – and the larger salaries – would now go to players that are supple and quick.

The players with the comparative advantage in the post-CWB GHTS will be the railways and the grain companies. Given that they have been lobbying hard for the removal of the CWB's powers, it stands to reason that they will gain significantly from the change (or at least that they believe that they will). This gain will occur in large part because they will be able to exert their market power more effectively than has historically been the case.

The CWB has provided significant countervailing power to both the railways and the grain companies. Through its tendering system with the grain companies, for instance, the CWB has been able to provide significant savings to farmers (one measure of this benefit is the amount that was transferred into the CWB's pool account; in 2009-10 this value was just over \$40 million dollars). The CWB has also been able to get the railways to honour their level of service obligations under the Canadian Transportation Act by successfully launching level of service complaints with the regulator. With the removal of the CWB, this countervailing power will no longer be present.

In contrast, the market system that will emerge in August 2012 will provide the railways and grain companies with significant new opportunities for exercising their market influence. Since the railways have to deal with a revenue cap, the major grain companies are likely to be the more significant winners in the short run. In addition to being in a position to raise their storage and handling charges, they may also be able to capture part of the benefit that is now accruing to farmers because of the revenue cap in the rail industry. Since it is unlikely that a voluntary CWB will be viable on any significant scale, and hence with it producer cars and short lines, the grain companies will face little competition.

In the longer term, it is expected that the railways will be the bigger winners, since they have a spatial monopoly over a key input – namely transportation – that is required to get grain to port position. For them to be able to use this market power, however, the revenue cap would need to be removed. As argued above, there is a strong possibility that this policy outcome will occur. If this occurs, the railways will occupy the key position within the GHTS.

Unless the removal of the CWB can significantly increase the size of the economic surplus that is available to all the GHTS participants, it is likely that farmers as a group will not benefit from the change to the CWB. To see this, consider first what would happen if the change to the CWB generates no additional economic surplus – i.e., the size of the pie remains the same. Since the railways and grain companies believe they will gain (why else would they be lobbying for this change?), it follows that the rest of the participants must lose (since the pie remains the same size, if one person gets a bigger piece, another person must get a smaller piece).

If the size of the pie can be increased, there is a possibility that everyone can get a bigger amount. In the case of the GHTS, the pie would get bigger if the removal of the CWB had the effect of reducing costs or increasing innovation in the various marketing stages because of the incentives provided by the market. However, simply making the pie bigger is not enough. For everyone to benefit, the rules would have to be such that all players would get a significantly large enough piece of the pie so that they would end up benefitting.

Will the rules be such that both the size of the pie can be increased and everyone can get a sufficiently large piece of the pie? While the answer will not be known for a number of years, economic theory and past experience suggests that not all the players in the GHTS will benefit from this change. On the theory side, the replacement of a single organization (the CWB) that returned all grain revenue back to farmers with a small number of companies (the railways and the grain companies) that have as their aim the maximization of profit and the power to do so is almost certainly going to result in lower returns for farmers as a group. Of course, some farmers will benefit. Those that can be expected to benefit are those with large volumes of grain, that are close to the main line, are fortunate enough to have some competition at their local delivery

point, and/or have a value-added processor nearby. Overall, however, the new rules of the game provide many farmers – specifically those without the above attributed – with a comparative disadvantage rather than a comparative advantage.

Although not discussed in this paper, the loss of the CWB will also mean the loss of the premiums that the CWB has been able to generate in export markets because of its ability to price discriminate (for the initial study on this issue, see Kraft, Furtan, and Tyrchniewicz (1996)). With the removal of the single desk, the ability for Canadian exporters to maintain higher prices in high value markets will be reduced. These smaller returns will also mean that the pie shrinks rather than expands.

The fall in quality that is likely to occur because of production externalities could also lead to smaller returns for farmers, since lower quality can be expected to result in lower prices. More importantly, however, the lack of provision of a number of key public goods such as advocacy and R&D can be expected to have significant repercussions for farmers and ultimately for the industry at large.

The magnitude of the expected benefits of the CWB's removal can also be gauged by looking at past experience. When the Crow Rate payment was removed in 1995, the prediction at the time was that the lower grain prices that would result would spur economic development and value-added activity. While some such activity did occur (e.g., there was an expansion of the hog industry in Saskatchewan and Manitoba), the actual growth in the size of the pie was much smaller than what was suggested. A similar outcome is likely in the case of the CWB's removal.

There is a good reason for why the actual benefits never match the predictions. Proponents of a change are almost always overconfident and hence unrealistic in their predictions. Over-optimism is derived directly from the manner in which policy changes are introduced and sold. Most policy changes start with a proposal of some sort. By their very nature, proposals accentuate the positive. However, starting with a proposal that is tilted towards the positive virtually ensures that the final proposal shares the same tilt. The reasoning for this is anchoring, the cognitive tendency to put too much emphasis on initial positions and not enough on subsequent information. Furthermore, information acquired to test the assumptions and claims in the proposal will often be chosen to support the initial beliefs that underlie the proposal, a result of the so-called confirmation bias (Lovallo, Viguerie, Uhlaner, and Horn, 2007).

As a result of the over-optimism bias (i.e., the pie is unlikely to expand as much as is suggested), and given what is known about how benefits are distributed in concentrated markets that rely on important public goods and are subject to externalities, it is therefore likely that, outside of the railways and grain companies, players in the GHTS will see only marginal benefits at

best. Indeed, a quite likely outcome is that many players – and this includes a good number of farmers, along with some of the smaller grain companies – will end up being worse off.

Policy intervention, however, could alter this outcome. Indeed, one of the conclusions of this paper is that policy intervention will be necessary to make the GHTS in Western Canada operate efficiently and effectively. This need for intervention by government to improve the operation of the GHTS is not new. Looking at the history of the CWB over the past 30 or 40 years, a number of significant changes were introduced by government to ensure that the CWB was operating effectively and efficiently. For instance, the government moved in the late 1970s to introduce protein grading and again in the late 1990s to introduce an elected board of directors for the CWB. Both interventions had the effect of making the CWB much more responsive to the needs of farmers, and much more efficient and effective.

The changes that are about to occur in the GHTS are major and will have widespread impacts. While shifts in structure of this magnitude rarely occur, it should not be assumed that this is the end of the changes. As this paper has argued, there are numerous reasons to believe that the GHTS will suffer from a number of market deficiencies – in particular, high market concentration, externalities and the lack of provision of public goods. If a government's role is to put in place a GHTS that is efficient in its operation and provides widespread benefits to its participants (perhaps at the behest of some of the participants that feel they are not benefitting), then it will be incumbent on policy makers to look at ways at addressing these market deficiencies.

While the upcoming changes to the CWB will mean the end of policy discussions about the CWB, they will not mean the end of policy discussions. The deficiencies that will be present in a market-oriented GHTS are not new. Indeed, they have been an integral part of the industry for over one hundred years and will be the focus of policy discussions for years to come.

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Appendix – Is a Voluntary CWB Viable?

There are two potential options that can be considered for how the CWB would operate when its single-desk selling powers are removed. One option would be to operate as a marketing agency – contracting grain from farmers and selling to end-use customers, and doing so without any grain handling facilities of its own. The other option would be to become a full-fledged grain company that would purchase grain from farmers, move it through a grain handling system that the CWB owned and controlled, and sell it to end-use customers.

The next sections examine these two options. In each case, a number of barriers are identified that make a voluntary CWB non-viable. For an additional analysis of the problems facing a voluntary CWB, see Fulton (2006) and Boyd (2011).

The CWB as Marketing Agency

Operation as a marketing agency without single-desk selling powers is almost certainly not sustainable. There are at least three reasons: (1) the CWB does not own elevator facilities, particularly at port position; (2) the CWB would be unable to retain key personnel; and (3) the CWB would be unable to offer any unique marketing opportunities. Each of these reasons will be examined in turn.

Lack of grain handling facilities

Without its own grain handling system, a marketing agency would be able to source grain only at the pleasure of the existing companies that own the grain handling system. While some grain could be sourced through producer cars, this volume would not currently be sufficient to achieve the economies of scale required for a marketing agency to operate efficiently. In most cases the grain companies would benefit from supplying the grain directly to the same customers that the CWB was attempting to serve, rather than providing grain handling opportunities to the CWB. Thus, a new CWB structured as a marketing agency would find it difficult, if not impossible, to source grain from the farmers in a predictable and sustainable way, and hence would be unable to set up long term contracts with major buyers. The situation that the CWB would be in is similar to what would happen if Ford, for instance, were to rely on General Motors dealerships to sell its line of automobiles.

It may be argued that the CWB might be able to obtain access to grain handling facilities owned by the grain companies if excess country elevator capacity existed on the Prairies. With excess capacity, the grain companies could be expected to compete aggressively for grain; one

way of competing for tonnage would be to allow the CWB to move grain through their facilities. However, excess capacity is unlikely to exist in the Prairie grain handling industry in the foreseeable future. In 2006, the Dominion Bond Rating Service (DBRS) indicated that the period of large-scale elevator abandonment is over and that there is little excess capacity in the industry. DBRS also indicated at that time that the one factor that would prompt further consolidation would be deregulation of the grain marketing system – the implication is that grain companies would be particularly concerned about extra capacity if the CWB were removed and would take steps to make sure that it did not exist.

It is instructive to note that farmer-owned marketing agencies without grain handling facilities do not exist in the U.S. grain marketing system; this is a further indication that a farmer-owned marketing agency is not a sustainable option.

Lack of key personnel

It is often argued that the CWB would be able to use the marketing expertise that currently exists in the organization to line up long-term contracts with domestic and international buyers, and that the CWB has an advantage over other companies because of this marketing expertise. While the CWB does indeed currently have a great deal of marketing expertise, the argument that this creates an advantage, however, is faulty. The reason is that a restructured CWB would be unlikely to have access to the people and expertise that exist in the current CWB.

Once it is clear that the current form of the CWB is going to be dissolved, CWB employees would immediately start looking for other jobs (if they had not already done so). They would be especially sensitive to the uncertainty and high risk of the CWB being able to continue operations without its single-desk selling powers. Other players in the grain industry would very quickly hire the most talented of the CWB staff as these players prepare for a system where they now require domestic and international marketing and logistics expertise. A new CWB would have to compete directly for the former CWB personnel; by virtue of their size and presence, the other industry players would be in a position to bid aggressively to ensure that key personnel were enticed to join their companies.

Lack of unique marketing opportunities

It has also been suggested that the CWB could survive without its single desk selling powers by providing farmers with unique marketing options such as pooling deliveries and receipts across clients and over a period of time. One obvious problem with this argument is that if

farmers really desire these services, then the CWB competitors could use the same strategies – the CWB would hardly be able to offer a unique marketing opportunity.

A more fundamental problem, however, is that an effective pooling system is virtually impossible to operate without single-desk selling powers – i.e., in an open market. This is why there are no pools in the grain sector in the U.S. and why we do not see pooled contracts in canola. And although the Ontario Wheat Producers' Marketing Board (OWPMB) did operate wheat pools, these pools accounted for less than five per cent of total grain sales.

Operating pooling accounts is not viable because of the incentives that are created as a consequence of pooling. With pooling, high and low prices – prices received at different times of the crop year and in different markets – are weighted according to the quantity of sales to give a pooled price. The consequence of the averaging process is that when market prices are rising, the pool price will lag behind. Under a voluntary pooling arrangement, the lower price for the pool will result in farmers opting out of the pool and delivering to the cash market. In contrast, when prices are falling, the pool price will generally be above the cash price. This will provide an incentive for producers to deliver to the pool. The consequence of this behaviour is that the voluntary pool experiences either relatively small volumes being pooled during rising prices or substantial losses in the pool during falling prices if guaranteed initial payments are present.

Contractual pools theoretically do not suffer from the problem of producers moving in and out of the pool. However, contractual pools experience problems with delivery enforcement as delivery contracts are not ironclad and cannot be made so. The experience of the OWPMB indicates that farmers often reneged on contracts when the price outside the pool was better. The result was a substantial contract default under conditions of rapidly rising prices.

Pools may also be subject to the strategic behaviour by the other grain companies in the industry, who may set prices in such a fashion that the pool suffers large losses. While such a strategy may temporarily lower the profits of the grain companies, it may return long-term benefits if the pool is unsuccessful, as the competitors then gain market share.

The real source of the CWB's advantage

The fundamental problem with the argument that a voluntary CWB would have a marketing advantage is that the current advantage possessed by the CWB is derived directly from its single desk selling powers. For instance, as Otto Lang recently remarked, the single desk gives the CWB full knowledge of the grain that it has available to sell and full access to this grain (White, 2011). Take away the single desk and the CWB is just another seller – but in this case a seller

that is very unsure of how much grain it can source and when, particularly since it does not have its own elevator facilities and thus does not have the tools available to it to source grain to meet customer demands.

The CWB as Grain Company

Given that the CWB would not be able to operate as a marketing agency without its own grain handling facilities, could it be successful without its single-desk powers if it were a full-fledged grain company with grain handling facilities?

Ownership of grain handling facilities would allow the CWB to be able to compete directly with the other grain companies for farmers' grain. It is important to note that such a CWB would have to own port facilities to be involved in the export trade, since most of the export grain moves through one of the three main ports (Thunder Bay, Prince Rupert and Vancouver). Without terminal facilities, a new CWB would be in much the same position in international trade as if it owned no country elevators.

Given the importance of the ownership of grain handling facilities, a key question is whether the CWB would be able to actually acquire them. The current economic environment in the Western Canadian grain industry would make the acquisition of facilities very difficult. There are at least three reasons: lack of capital; lack of merger or acquisition targets; and the costliness of building new facilities. Each of these reasons will be examined in turn.

Lack of capital

The most obvious problem is a lack of capital. Unlike the Australian Wheat Board, which was allowed to build up a significant investment fund over a substantial period of time, a voluntary CWB would have no capital. Without capital, acquiring grain handling facilities is simply not possible. For instance, a government task force in 2006 envisaged the CWB selling shares to farmers; this share offering would have provided the CWB with \$110 million in assets (valued in 2006 dollars). This amount was wholly inadequate to purchase grain handling facilities at the time. As a case in point, the Saskatchewan Wheat Pool's bid for Agricore United during that same period was valued at \$1.8 billion; as part of that deal, JRI purchased 15 grain elevators (13 of which are high-throughput facilities) and 9 input sales facilities for \$255 million. [It is also interesting to note that as part of the deal, JRI will be provided with a throughput agreement at the Cascadia Terminal on the west coast, an indication that access to terminal services is something that is valuable and cannot be assumed to exist.] Given the increase in the value of

the grain companies that has been occasioned by the change to the CWB, the problem facing a voluntary CWB in acquiring facilities would be even greater today.

Lack of merger partners

Even if the CWB had a very large capital fund, acquiring grain handling facilities would be difficult today. A voluntary CWB could in many ways be thought of as a farmer-owned entity – a co-operative. One obvious way for a new farmer-owned entity to acquire facilities would be to merge with existing farmer-owned entities that already own grain handling facilities. With the conversion of the three prairie Pools to business corporations over the last ten years (and their subsequent transformation into Viterra), the option to merge with co-operatively-owned grain handling firms is no longer available. A number of independent farmer-owned inland terminals do exist, as do a number of producer-owned loading facilities. However, the volume of grain handled by these facilities is not large enough to result in sufficient market presence to operate across all of Western Canada and to provide the CWB with sufficient access to grain on a regular basis that they could be competitive in the market place. Moreover, agreement would have to be reached with the owners of these facilities for their purchase. Given the diversity of interests in place, reaching this agreement would be difficult.

Another option for acquiring grain handling facilities would be to purchase them from existing industry players. While some of the grain companies might be willing to off-load some of their more poorly situated elevators to a new competitor, in general the existing players will not want to see a new competitor come into the market and thus will not be willing to sell their elevators. This is particularly the case at port position, where ownership of terminal capacity provides grain companies with significant market influence. Thus, a situation where one or more of the existing companies sell off a significant portion of their grain handling system is very unlikely, except at a very high price. This is particularly the case given the concentrated nature of the grain handling industry. While the opportunity to pick up grain elevators may have existed at times during the past decade, the possibility of a major acquisition (short of purchasing one of the major firms) no longer exists.

Costliness of building new facilities

A third option for acquiring elevator and terminal facilities would be to build new ones. While this would have been a viable option at the country level a decade ago when much of the elevator capacity needed rebuilding, this option is not viable today given the overcapacity that would result from such a move. Bringing on new capacity today would likely trigger very intense price

competition by the existing firms in the industry as they try to retain market share and drive out the new player. While it might be possible to expand somewhat the network of producer loading facilities, the most obvious locations for this expansion (e.g., the more geographically isolated areas that rely on short-lines) have already been developed.

More importantly, sourcing grain on the Prairies is not sufficient to support export sales, while constitute a large part of total sales. Export sales also require access to port facilities. The cost of building new port facilities is enormously high and clearly beyond the ability of a voluntary CWB.

The bottom line

While ownership of grain handling facilities would be highly beneficial to the successful operation of the CWB, the likelihood of the CWB acquiring these facilities is virtually zero. And even as a full-fledged grain company, the CWB would still face the other problems outlined in the previous section. Specifically, there is no reason to believe the CWB would have any advantage in marketing personnel and expertise. Nor should it be expected that the CWB would offer any unique marketing options.

Viability of a Voluntary CWB

The removal of the CWB's single desk selling powers will almost inevitably result in either the disappearance of the CWB or the diminution of its scope and volume to the point where it is not a serious player in the market. Although farmers have indicated that they would like the option of marketing to either the CWB or to other buyers, in reality this choice is highly unlikely to ever exist. Once its single-desk selling powers are removed, the CWB will not be a viable alternative. This non-viability is not a function of insufficient desire or poor management. Rather, the inability for the CWB to operate in a so-called "marketing choice" environment is a direct consequence of the nature of pooling and of the structural realities of the grain industry at this point in time.