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CANADIAN WHEAT BOARD: MARKET POWER OR INSTITUTIONAL FICTION?

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Introduction

The Canadian Wheat Board's (CWB) mandatory acquisition of most of western wheat and some barley from producers is predicated on the premise that the more grain it is able to sell in worldwide markets, the more market power it has; thus compulsory delivery and single desk selling are essential to the existence of the organization. While this may have been true in the past, wheat and feed grain markets have changed significantly and this claim may not be true today. This study analyzes the claimed market power of the CWB and concludes that it has, at most, marginal market power in many of the markets in which it sells, especially for wheat and barley used for feed. As a result, the CWB is itself a "price-taker" in many markets, suggesting that compulsory acquisition on the prairies does not assure price raising capability on CWB sales. In the absence of irrefutable, objective evidence that producer prices on the prairies are higher as a result of compulsory delivery and single desk selling, continuation of the agency in its present form can be justified only on non-market power grounds.

The CWB and Policy Evolution: Retain, Reframe of Remove?

The Canadian Wheat Board (CWB) is a national agency, answerable through the Minister of Agriculture to the Parliament of Canada, vested with authority to receive, assemble and sell all prairie produced wheat and barley for export and domestic human consumption.

For the groups and individuals supportive of the CWB's power to purchase all wheat and barley (known as the single desk), the compulsory characteristics are essential to its operation. On the other side of the debate are producers who see the CWB in its present form as intrusive of individual property rights and obstructive of innovation in prairie agricultural development. They promote reform to a voluntary CWB. There is a third, smaller set of anti-board believers that would have the organization eliminated.

A critical factor in resolution of these polarized views lies in determining, in an objective and convincing fashion, whether the agency does, or does not, possess market power. If the evidence supports that the CWB has sustained the market power that may have existed, then it will have passed the first test – and an absolutely necessary condition – for continued existence provided this form of instrument is among public choice options. Our approach is to go to the heart of the single desk authority for the CWB: that the single desk authority delivers "market power" and higher net prices to producers than a competitive market and that the single desk is essential to the existence of market power. At issue are conventional economic concepts, requiring analysis of the characteristics of the markets in which prairie wheat and barley are traded.

The critical questions in the public debate are: does this agency possess meaningful market power and does it provide significant net benefits to the producers of wheat and barley on the Canadian prairies? This study addresses the market power question.

The CWB is, by law, the sole buyer of prairie wheat and barley that is destined for domestic human consumption and for export. The regulatory mandate includes extensive powers over these grains: delivery of (and timing of) CWB grain into the handling and transportation system; pricing and selling that grain; and setting prices received by producers. Annual pools are available for all classes of wheat and barley handled by the Board, and for a decade or more, cash and contracting options have been made available outside the pools. The CWB is also a significant participant in formulation of agricultural and transportation policy, and in the determination of prairie grain quality standards and seed registration. For example, during the last decade the CWB was a leading advocate against allowing "genetically modified" wheat to be grown in Canada.

The Logic of Producer Market Power

Producer participation of CWB grains is compulsory within the "designated area" which includes the three Prairie Provinces, and two small areas of British Columbia. The CWB claims to be the largest wheat and barley marketer in the world and that:

> As the sole marketer of the high quality wheat and barley grown in Western Canada, the CWB is able to provide marketing clout to individual farmers who benefit from higher returns. By selling together, Western Canadian farmers are able to exert more power in the marketplace than they could if they were competing against each other[1].

The requirement on the prairies that most wheat and some barley by law must be delivered to the CWB is usually interpreted as monopolistic power on sales of the regulated products in export and some domestic markets. That premise (indeed the basic rationale of existence of the CWB as a producer institution in its historic and present form) then leads to the assumptions of market power in sales and financial benefits generated for its producers. Even if the existence of the CWB can be justified by objectives or contributions outside of prairie grain producers, from a producer perspective the existence of market power of the CWB and its use to assure increased producer net returns are the only economic criteria needed to assess the value of the CWB.

The Role and Importance of the Canadian Wheat Board in Western Canada

For most of the first half of the 75 year history of the CWB, the organization enjoyed broad support. However, the 1970s ushered in a prolonged period of challenges to the role, value, legality and existence of the CWB. There is, for example, evidence that on most days of most years individuals who chose to sell (if they could) their wheat or barley at U.S. border elevator points would receive greater revenue.[2] The CWB is

[1] CWB website, "Hot Topics, the power of the Single Desk" retrieved 7/8/10. http://www.cwb.ca/public/en/hot/choice/power/

[2] See, for example, Charlebois, Sylvain and Richard Pedde. 2008. "A Bushel Half Full: Reforming the Canadian Wheat Board." C.D. Howe Institute ebrief 68. November.

important. It has direct influence on a large share of prairie farm income – it controls up to $8 billion of farm sales representing over 50 percent of total crop income, and over a third of crop and livestock income in Western Canada[3]. Indirectly, the CWB mandate assures that it is a dominant player in many aspects of the grain handling and transportation system and in policy initiatives affecting that part of the industry. Finally, as a state trading agency, it shares with supply management a position of conflict in Canadian trade policy reform[4].

The creation of a more robust literature on CWB operation, performance and impacts, if anything, has heightened differences among farm groups, industry groups and politicians. At all levels, views of how to deal with this agency have become more, not less polarized. Without doubt, much of the disagreement is ideologically based, and in Parliament when the legislative changes are under review, opinions are highly partisan.

Resolving the polarized differences in evidence and position on the CWB is complicated by the positions the organization takes publicly through its communications division. Reports targeted at prairie producers and the domestic audience claim that the agency has the power to separate markets, charge differential prices and raise producer returns. When the audience is external and in trade negotiations or in defense against formal trade disputes, the CWB takes the position that it does not exercise such power and is a "fair" trader[5]. But control over the essential data (actual selling prices) rests in the agency's hands. In the absence of the actual price data associated with CWB sales, whether or not there is such market power, hence benefits from the single desk feature, can be known only inside the organization.

More information, analysis, evaluation and consideration of policy options are required, a proposition that has been made for decades. This study of the existence and the nature of CWB "market power", while only one of several analyses that might be conducted, is at the very heart of any legislative debate or consideration for change in CWB role and powers.

Changes to the Canadian Wheat Board's Market Power

There have been a number of important changes in the characteristics of the world wheat market which we suggest are critical to the existence of CWB market power. In economic language, these are described as (market) structure changes. The first important change in the global wheat trade over the past four decades is the change from domination by four countries to participation today by several countries (Figure 1, Table 1, below).

In the early 1970s the United States, Canada and Australia were the dominant exporters with Argentina as a smaller exporter. China, Russia, the EU and India were

[3] Statistics Canada. Farm cash receipts, annual dollars, CANSIM (database), accessed 6/29/10.

[4] William B.P. Robson & Colin Busby, 2010. "Freeing up Food: The Ongoing Cost, and Potential Reform, of Supply Management," C.D. Howe Institute Backgrounder.

[5] *Anatomy of the Global Wheat Market, and the Role of the Canadian Wheat Board. Sumner,* Daniel A. and Richard D. Bgoltuck, 2001.
http://www.cwb.ca/en/topics/trade issues/pdf/2001-02 economist-report.pdf. Retrieved 5/1/08. No longer available from the CWB.

major net importers. As well, in the early 1970s, much of the trade in wheat was comprised of the "higher quality wheat" for which Canada was well known. In the 1970s, wheat trade began to change in two ways. First, the "green revolution" crept into India and then spread to other countries, especially the United States, the EU and China. Changes in technology allowed several other countries to increase their own production of wheat, and yet others, notably the EU, to become significant exporters, albeit heavily subsidized.

The commercialization of agriculture in the Former Soviet Union (FSU) following the political changes in that area in the late 1980s have also had a profound impact on world trade. The FSU as a region contains, like Canada, significant natural wheat growing areas which have achieved greater output, ultimately leading to exports. The FSU is now a new player in the world wheat market with limited but real capability to compete with some of Canada's best wheat.

As a consequence of these global shifts in demand and supply characteristics over the past four decades, the traditional exporters face greater competition in many markets, and their market shares have declined. These changes imply market power formerly held by any of the U.S., Canadian, Australian and Argentine exporting countries will have declined simply because there are more suppliers in trade and (as in the cases of China and India) domestic production has increased relative to consumption.

Figure 1: World Wheat Exports

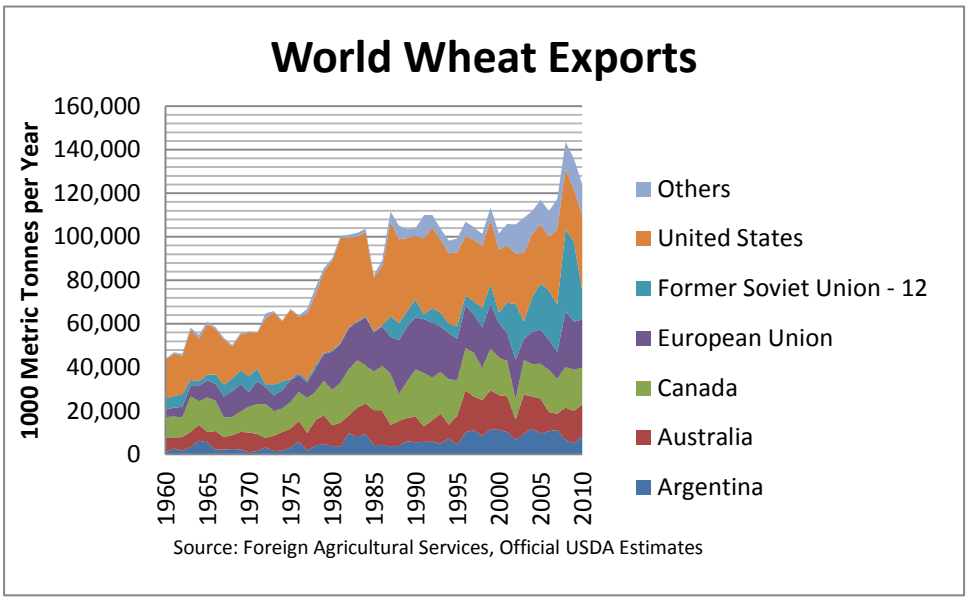


Table 1: World Wheat Export Market Shares

	Share of World Export Market	
	1960-2000	2001-2010
Argentina	6%	8%
Australia	13%	11%
Canada	20%	14%
European Union	17%	14%
Former Soviet Union	5%	18%
United States	37%	24%
Others	3%	11%

Source: Foreign Agricultural Services, Official USDA Estimates

At the same time as the domination of a few wheat exporting countries has changed, the composition of the wheat importing countries has also changed. Figure 2, below, shows the imports by countries such as Japan, an importer of high quality wheat, has stayed relatively constant in total tonnes but, as a percentage of wheat imports, continues to decline. Imports into lower income regions (North Africa / Mid East, Asia ex-India/China/Japan and Sub-Saharan Africa) have steadily increased from 23% of world imports to 60%, an increase from 11.5 million tonnes to over 68 million tonnes per year. Because of relatively lower income levels in these countries, this rapidly growing market segment is price sensitive.

As previously mentioned, major importers - of at times of high quality wheat - from the 1960s through 1980s have become exporters. The EU and the FSU are the most pronounced examples. These countries most often now mostly export lower quality wheat.

These particular global changes have found reflection in Canadian wheat production and marketing as well. Over the past four decades, there has been a gradual decline in cereal crops relative to special crops, particularly canola and pulses (Figure 3, below). In relative terms, wheat and barley deliveries have decreased in both Canada and the U.S. over this period. As a result, the share of CWB crops coming off prairie farms has fallen. Barley, except for malting barley, has been a small and declining commodity for the CWB over the past decade.

The other important structural change is the evolution that has occurred in marketing "chains" that source a growing share of grain through forward contracting and quality "specification". Specifications represent particular buyer processing/manufacturing requirements for their end products. Specification buying represents a measure of market power held by buyers. Suppliers may select and segregate for the specifications within an established marketing system, but increasingly arrangements are becoming contracted at raw-product source.[6]

[6] The best, but certainly not the only example in Canada, is the Warburton wheat contracts. These contracts, initiated by Warburton, a UK based milling and baking company, through the CWB, deliver almost-branded wheat flour to its chain. Since this program was initiated in Canada almost two decades ago, U.S. exporters have also had access to Warburton contracts as well. See Carter, Berwald and Loyns, *The Economics of Genetically Modified Wheat*. Donner Canadian Foundation, 2005. pp.94-96.

Figure 2: Average Annual Wheat Imports (tonnes thousands)

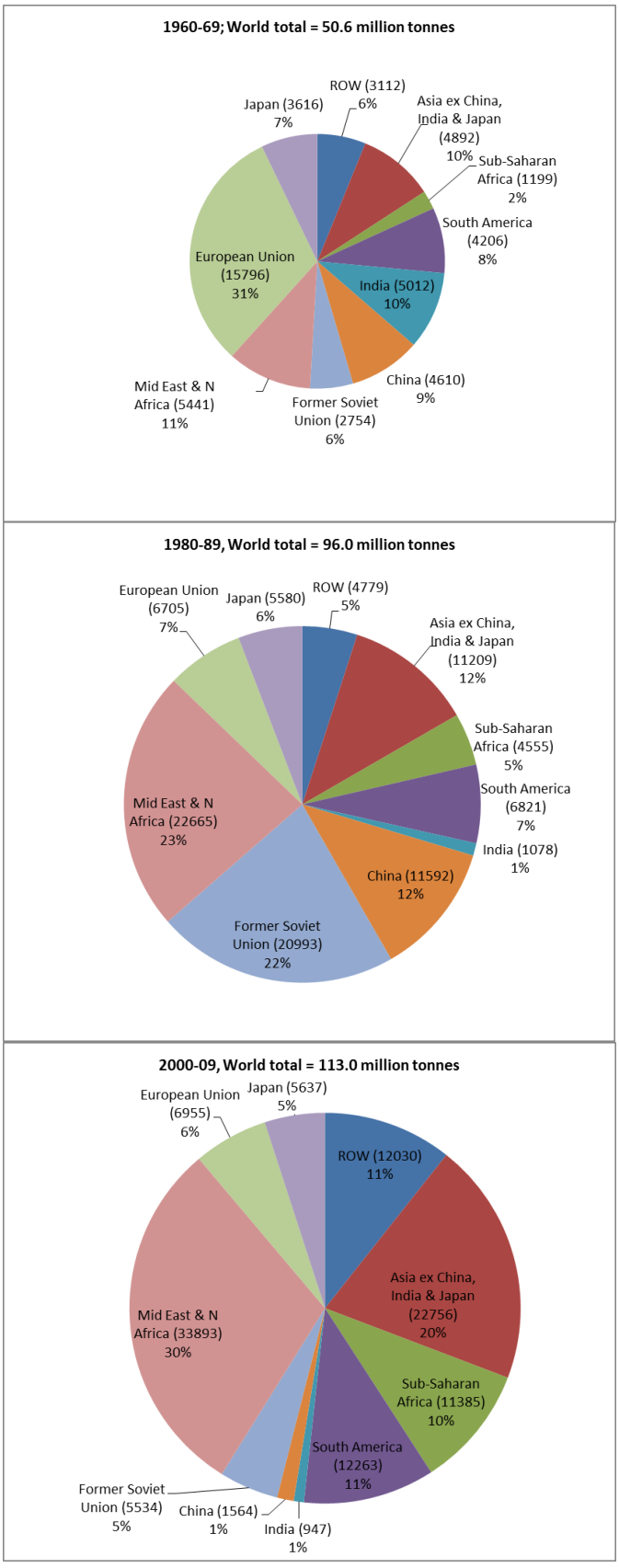
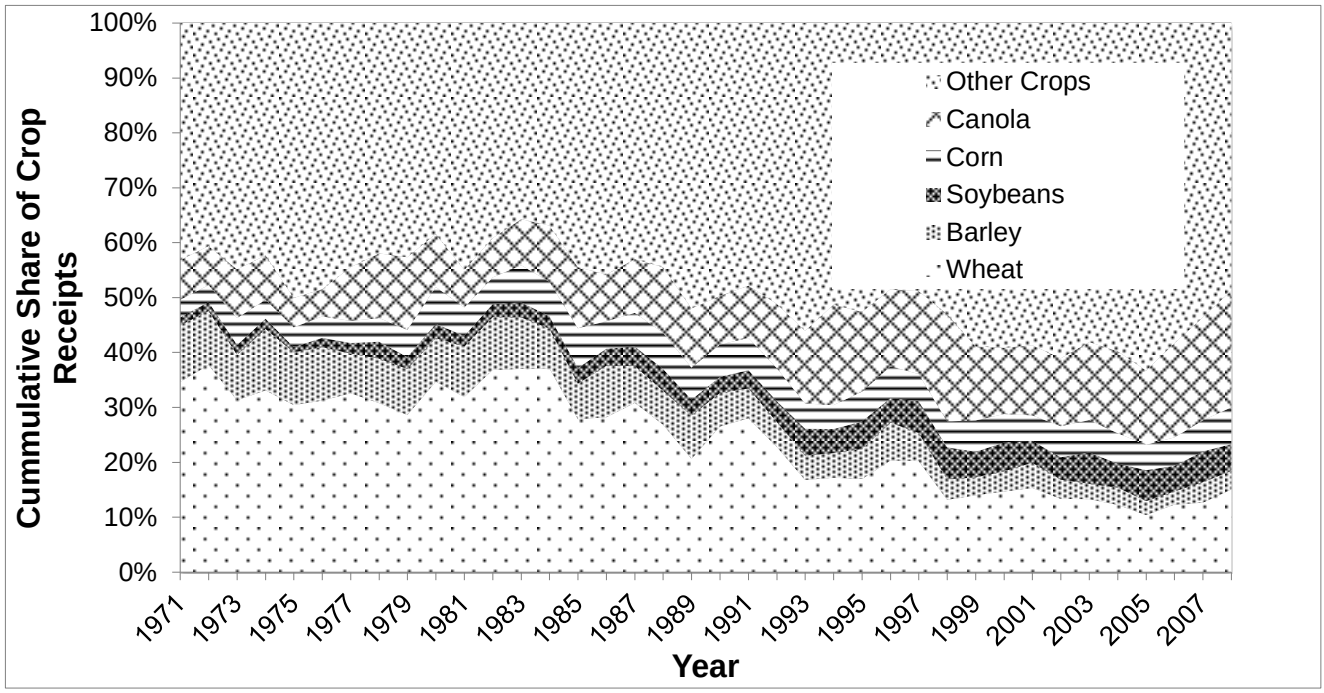


Figure 3. Selected Prairie Farmer Crop Sales (Share of crop receipts)



Source: Veeman and Gray (2010).[7]

[7] Terrence S. Veeman and Richard Gray. 2010. "The Shifting Patterns of Agricultural Production and Productivity in Canada." in *The Shifting Patterns of Agricultural Production and Productivity Worldwide*. The Midwest Agribusiness Trade Research and Information Center, Iowa State University, Ames, Iowa. http://www.card.iastate.edu/books/shifting_patterns/pdfs/chapter6.pdf Retrieved April 4, 2011.

Market Power as a Policy Variable in Agricultural Markets

Agricultural producers in most of the western world face business risks and conditions not experienced by industrial sectors. The structure of the primary production sector (large number of small producers) facing suppliers and buyers that are sometimes few and very large has been recognized in policy initiatives to shift the balance of "market power" by awarding primary producers "countervailing power". There are still government policies nurturing cooperatives through legislation and special taxation allowances.

Evaluating Market Power with Limited Information

This proposition is fundamentally important to the evaluation of marketing boards as policy instruments: improved financial status (higher net returns than would exist without the regulation) is, in principle, a relatively simple proposition testable by straight forward economic or financial analysis.

The difficulty in conducting the relatively simple evaluation to determine CWB performance on behalf of producers is that the CWB price information is not available in a form or time frame that allows the analysis to be done directly. The CWB "pools" revenues and reports pooled prices across the prairie delivery and world sales areas. Even though the pooled results are reported by most categories of sales (there are almost 100 Canadian wheat "'categories"), they are reported for an entire crop year, according to accounting practices and crop year definitions that are less than transparent and not suitable for the required detail of analysis. In particular, prices of wheat or barley on the prairies at producer locations sold by the CWB are not available, hence cannot be directly compared with non-CWB values, however credible the external sources may be. Similarly, annual averages of externally sourced prices cannot legitimately be compared to pooled prices because volumes of CWB sales at points in time are unknown. Reliance on analyses commissioned by the agency on its own data that cannot be evaluated by third parties, hence does not contribute to objectivity. Control of data and information, a form of "market power", is now usually considered undesirable in public institutions.

Market power is the key raison d'être of the CWB as well as the basis of CWB arguments that it increases farmer returns. But, and importantly, market power is only a necessary condition (but not a sufficient condition) for increased net returns to farmers. If market power does not exist or is questionable, then increased producer net returns also do not exist or are questionable and arguments for compulsory marketing can no longer be substantiated.

Market Power: The Role of Market Structure and Products

At the outset, it is important to identify a significant structural characteristic of the CWB. The export prices the CWB receives from grain it sells are determined by the price in can fetch in world markets for products at the port, i.e., on a vessel at port, ready to be shipped overseas. Prices that producers receive are pooled over the year, have certain marketing costs (handling, storage, cleaning, transportation) deducted, and are paid based on where farmers deliver their grain inland. Farm location and associated handling, storage and transportation costs are significant and they are variable across the CWB designated area, particularly in relation to transportation charges. In addition, farmer returns are affected by costs they incur that arise from CWB delivery requirements; for example, storing grain that cannot be shipped on-farm. As a result, there is a significant level of individual producer costs and marketing margin between the port and at the farm arising from explicit CWB costs but also from indirect and hidden costs. Importantly then, increased prices which may result from the CWB exercise of market power on sales (priced at the port) do not guarantee increased returns for farmers. This point illustrates again that market power is a necessary condition for improving producer wheat and barley returns, but it is not a sufficient condition to that end.

Evaluating Sources of Market Power

Review of the literature indicates that there is no single definition of market power. Any traditional definition is heavily weighted toward price advantages enjoyed by a firm as a consequence of its particular market position[8]. Market position may derive from inherent market structure (e.g., few firms and/or a large market share), from product characteristics such as unique quality, patent protection, from significant cost economies, from firm behaviour such as effective promotion or exclusive dealing arrangements, or, as in the CWB case, government policy and regulation. Information, or more precisely asymmetric information, has also been identified as a source of market power. Whatever the source, the essence of market power is the advantage a market player has in extracting more net revenue from the marketplace than its competitors (in a regulated environment, the alternative commercial structure)[9].

[8] F.M. Scherer. *Industrial Market Structure and Economic Performance*. 1980

[9] Modeling the alternative market structure for CWB wheat and barley on the prairies is not an academic exercise. In fact, CWB regulation is unique on wheat and barley among all other field crops on the prairies and across Canada. This fact has led many, including these authors, to ask what is unique about wheat and barley in agricultural markets. Oats was removed from the CWB mandate in 1989 and, in 2011, there was a proposal by the Manitoba Canola Growers to have canola incorporated into CWB operations.

Market Power in Agricultural Cooperatives and Marketing Boards

This concept of market power in relation to agricultural markets and farmer bargaining associations has long been a point of discussion in academic literature. Legislation enabling cooperatives and marketing boards aimed at improving the bargaining power of producers exists in most agricultural countries.[10] In voluntary organizations such as cooperatives, the agency has control only over the portion of the production provided by producer members; farmers outside of the cooperative are free to sell their production independently. If the agency is successful in increasing net returns by the exercise of its market power, non members may capture that benefit without paying membership costs (the so-called free-rider problem). Without production control, higher returns may expand production, and unless demand simultaneously increases, there may be a surplus with its price decreasing effects, and increased storage costs for members. This production/cost sequence associated with voluntary membership in bargaining associations is a major reason for the compulsory membership – and at times associated production restrictions - under marketing board legislation.

CWB supporters draw upon this logic to reject the concept of a voluntary CWB. However, there currently exist free rider effects in the CWB compulsory delivery model that affects its market power. To the extent the CWB grains compete with grains grown outside the CWB area in Canada and elsewhere in the world, such domestic and off-shore producers are beneficiaries of CWB selling strategies while prairie producers bear any of the costs of the strategy such as withholding sales. This was the criticism when wheat was "backed up" on prairie farms in 1970 and was again an issue in durum wheat in late 2008 through 2010. There is an important conclusion in this structural analysis: performance assessment of a bargaining agency must include all direct and indirect costs (such as membership, inventory carrying and disposal costs, and indirect regulatory costs) to determine the contribution to producer net returns.

Market Power in Practice at the Canadian Wheat Board

Often CWB market power on the wheat and barley it sells is characterized (or rather inferred) simply from its regulatory control over producer deliveries and sale of the regulated grains in Western Canada. That proposition gives no consideration to the markets in which the agency sells and as such, in our view, has no weight in demonstrating CWB market power. Share of the export market is a slightly stronger proposition. Western Canadian producers do enjoy a substantial market share of the export trade of some grains. For example, Canadian malting barley represents about 28 percent of the four million metric tonne (mmt) trade in malting barley; in "high quality" wheat, Canadian share ranges up to 40 percent of the 8.5mmt of trade; and Canadian durum ranges up to 50 percent of the approximate six mmt durum trade[11]. It is our view that neither of these indicators (control of all CWB grains delivered or simple market

[10] For example, Economic Theory of Bargaining in Agriculture, Helmberger, P. and Hoos, S., Journal of Farm Economics" 45, 1963; and Sidney Hoos, Agricultural Marketing Boards: An International Perspective.1979.

[11] CWB Grain Production and Trade Forecast to 2011-12, CWB . http://www.shipowners.ca /documents/joint_conference/WARD_WEISENSEL.pdf . Retrieved May 1, 2008; no longer available.

share in world trade) contributes much to the understanding of the market power available to the CWB.

Unlike supply management marketing boards, the CWB does not control how much wheat or barley producers plant or harvest; it has control only over deliveries into the grain handling system. Planted and harvested acres vary widely on the prairies. For example, 'spring wheat acres' have varied between 23 and 30 percent of 'seeded plus summer fallow acres' in the 2000 to 2009 period. Often, most of the 'seeded' acreage change is within the cereal segment (that is, between wheat classes, barley and oats). At the extreme, there was virtually no change in the prairie cereal acres in 2006 and 2007 but 3.5 million acres went from spring wheat into other cereal grains. In 2010, much of the planted or intended acreage in Saskatchewan and Manitoba was lost at or following seeding from excessive moisture. This illustrates how much crop production can vary even after the production (and some marketing) decisions have been made. This is the nature of weather dependent agriculture, where quality, quantity and the amounts traded are ,to a large extent, not determined by individual producers (Manitoba Rural Adaptation Council (MRAC) and the CWB 1999).[12] Overproduction of high quality wheat (to compensate for uncontrollable shortages) has also occurred in relation to the malting barley market[13].

Defining Markets: Imports, Exports, and Quality Markets

The CWB sells up to 16 percent[14] of its receipts of high quality wheat in the domestic market, and the remainder in the export market. Outside the feed market and limited production in Ontario and Quebec, there is very little competition for CWB wheat in the domestic market as the CWB is able to price at a level that eliminates imports. Indeed, the CWB has the authority to sell to domestic millers at prices that make nearby U.S. wheat unattractive, and implies the CWB has market power[15]. However, this behaviour, when detected, has attracted trade action by the United States. The NAFTA rules provide some discipline on this kind of market behaviour and the CWB has become a lightning rod for numerous trade actions. Trade actions are slow to reach resolution, expensive, and disruptive to commercial business. In addition, the small domestic volume dilutes the impact of whatever domestic advantage may be captured.

Further, contrary to examples in introductory economics textbooks, wheat is far from a homogeneous product. There are many segregations (classes) of wheat in world trade: by type, color, hardness, end-use, quality, protein level (see Figure 4). Separate classes are usually not substitutable in the domestic market, but are generally more so in

[12] "The Market Competitiveness of Western Canadian Wheat, A Joint Study by the Manitoba Rural Adaptation Council Inc. and the Canadian Wheat Board", January 1999.

[13] "North American Malting Barley Trade: Impacts of Differences in Quality and Marketing Costs" Wilson, W and Johnson, D 1995, North Dakota State University, 1995 Agricultural Economics Report No 335.

[14] http://www.cwb.ca/en/newsroom/releases/pdf/year_end_presentation.pdf Retrieved May 4, 2011

[15] Canada imported no wheat until the mid 1980s and the wheat imports have grown steadily to average 320,000 tonnes per annum over the 2000-09 period. Though this amount is not large – approximately 5% of domestic consumption – it is an indication of Canadian grown wheat needing to compete with imported wheat.

offshore markets with a few major exceptions. Different qualities of similar wheat can be blended in milling and baking mixes to ensure baking requirements are met. Less substitutability usually implies increased market power. Canadian policy has long promoted and claimed superior quality on its high quality wheat and consistency of cargoes across all Canadian grain and oilseed crops in international sales. This policy initiative is intended to provide a measure of market advantage to Canadian grains. To complicate this substitutability issue, high protein, high gluten Canadian wheat will usually be a substitute for most offshore production. However, in years of lower quality production offshore, demand for this particular class of Canadian wheat may increase, as high quality wheat becomes complementary to the supply of offshore lesser quality wheat.

The prairies produce more high quality wheat[16] than the CWB can sell and any over production is blended with cargoes of lower quality sales. Between 1992-93 and 1996-97, an average of 3.3 mmt of "high-quality" wheat was produced each year while the price premium on more than 13 percent protein was available on only about 2.5 mmt (MRAC and the CWB, 1999).

It is clear by now that there is no one, simple answer to a question of CWB market power. Practically and analytically, the answer has to be determined in terms of specific markets in which the CWB sells, defined by the particular class of grain, and the amount of competition and substitutability for that grain. In economic jargon, this is the issue of defining the "relevant market" for analytic purposes. Because of data limitations, analysis in this paper is largely focused on the four distinct classes of prairie-produced grains (see Table 2, below, for more details):

- **Canadian high quality bread wheat** defined as Canada Western Red Spring (CWRS) class. This class represents up to 85 percent of annual sales by the CWB depending on the year and production/harvest conditions.[17]
- **Durum wheat,** a relatively small crop but one in which CWB sales usually dominate world trade. Among prairie grains, durum is most likely to demonstrate CWB market power.

[16] At the most basic level for processing wheat into end products, wheat quality can be broken down into a few basic components. Because of this, these components largely form the basis for world wheat trade. Three factors – grain hardness, grain protein content and dough strength (that is protein quality aspects) – account for most of the variation in wheat quality. In international wheat trade, the wheat protein content is considered one of the single most important quality factors. The MRAC/CWB study defined "high quality wheat as #1 and #2, 13% protein or higher CWRS, 14% or higher US HRS and Australian Prime Hard" while in Australia their Prime Hard is considered to be the equivalent of CWRS 13.5%. See Figure 1(above) and http://www.grdc.com.au/uploads/documents/GRDC_Wheat_Quality.pdf Retrieved April 2, 2011

[17] Growing conditions are the primary determinant of grain quality. Recent developments in near infrared sorter technology have proven to enable the sorting of bulk grain by various quality characteristics. On a commercial level, in Sweden, it is common to sort wheat into high-quality for bread production and lower quality for other uses such as vodka production (The Western Producer, pp. 18, 4/28/11). Widespread adaptation of this technology will fundamentally affect the "supply source" of high quality grain.

- **Feed barley**, now an almost insignificant share of CWB business. It has been the focus by producers and federal government for deregulation.
- **Malting barley**, a small but specialized category of barley used for beer production. World trade of malting barley is about 4 mmt of the 140 mmt of total world production. Most barley will produce beer but extraction rate and taste are affected by the quality of the barley malt. This means that ordinary barley may substitute for malt barley and therefore that malting barley prices are limited by feed barley availability.

Measuring Market Power

The debate on whether the CWB is in fact able to capture more net revenue on behalf of farmers by virtue of its regulatory powers is, most unfortunately, far from settled. Economic studies conducted in the 1980 to late 1990 period produced useful and new information on CWB operations. The legal cases generated new historical and property rights revelations, and indicated the extent to which the Canadian Wheat Board Act extends into grain marketing, directly and indirectly. Neither the legal cases nor the many review studies did much to settle whether the CWB has market power in the sense of improving net returns to the producers from whom it receives wheat and barley. If anything, the attention and the findings contributed to more polarization and less consensus.

Early Attempts to Measure CWB Returns to Farmers

An initiative was undertaken by the CWB in 2000 to commission a respected economist from the University of Saskatchewan, Dr. Richard Gray, to provide CWB producer-level price information which could be directly compared to current available market generated data. The exercise was termed "benchmarking" producer returns by which, over time, the price impact of the CWB's single desk could be assessed with an agreed, transparent and well-publicized valuation process[18]. In principle, from an economic/business perspective, the purpose of that study was consistent with evaluation and performance needs of determining whether the CWB has market power and provides net benefits from compulsory delivery.

[18] Benchmarks to Measure CWB Performance -Recommendations, Richard Gray, June 2001 http://www.kis.usask.ca/pdfs/CWB_Studies/CWB%20Bench%20Rec%202002.pdf

Table 2: Quality and Types of Grains Produced in Canada

Grain Quality: the term has several definitions; i) stated or implied characteristics in formal standardization protocols (e.g., #1 CWRS, Prime), ii) price (higher/lower), iii) buyer/seller mindset, iv) suitability to end use. In this paper, the term is used in the context of the end-user: physical and technical attributes for the major end products in use. High Quality Wheat (HQW) in Canadian terminology and international markets usually means wheat which is especially suitable to high end pan bread production, and it is characterized by relatively high protein levels, good gluten strength, high water absorption capacity and consistency in the milling and baking process. Usually wheat with these characteristics will trade at the highest prices. In this context, Canadian CWRS (13% or higher protein) wheat is traditionally considered as high quality wheat. US Dark Northern Spring (DNS) 14% or higher protein and Australian Prime Hard (13 % or higher protein) along with #1 and #2 CWRS (>13% protein) were used in the MRAC Report as the High Quality Wheat supply in trade.

Protein Content (%): in international wheat trade, wheat protein content is considered one of the most important quality factors. CWRS wheat with protein content above 13% is the largest component of Canadian high quality wheat.

Hard Red Spring Wheat (HRSW): protein level, gluten strength, water absorption of flour combine to make HRSW excellent bread wheat with superior milling and baking characteristics; crop yield capability is mid range. This class includes Canada's "high quality" wheat, such as Canadian Western Red Spring (CWRS), U.S. Dark Northern Spring (DNS) and Hard Red Spring (HRS).

Hard Red Winter Wheat (HRWW): has a wide range of protein content (generally lower than HRSW) has good milling and baking characteristics and crop yields are higher than HRSW. It is used to produce bread, rolls and, to a lesser extent, sweet goods. At the high end of protein (>12%) HRWW may be considered HQW.

Soft Red Winter Wheat (SRWW); is high yielding but has relatively low protein and is used for flat breads, cakes, pastries, and crackers.

Hard White Wheat (HWW): is closely related to red wheat (except for color genes) and has a milder, sweeter flavor, equal fiber and similar milling and baking properties. It is use mainly in yeast breads, hard rolls, bulgur, tortillas and oriental noodles.

Hard Red Spring Wheat (HRSW): protein level, gluten strength, water absorption of flour combine to make HRSW excellent bread wheat with superior milling and baking characteristics; crop yield capability is mid range. This class includes Canada's "high quality" wheat, such as Canadian Western Red Spring (CWRS), U.S. Dark Northern Spring (DNS) and Hard Red Spring (HRS), and AUS Prime.

Soft White Wheat (SWW): is used in much the same way as SRWW due to being low in protein but it is high yielding. It is used in baking cakes, crackers, cookies, pastries, quick breads, muffins and snack foods.

Durum: is the hardest of all wheat, and is required to make semolina flour for pasta. In the Canadian Western Amber Durum (CWAD) class there are four sub-classes among which there is substitutability. Durum is a dry land wheat with lower end yields.

Barley - a cereal grain primarily used as animal feed but is also the main source of malt for beer, some distilled beverages and some food products.

Delivery of results was another matter. Only one set of results was produced; the project quietly disappeared within two years; and there does not appear to be any further public reporting of these benchmarking results. The conclusion might follow that the process was terminated because the results did not produce evidence supportive of the benefits of compulsory delivery. But the case is not that simple. At the time, another of many U.S. trade challenges was initiated against the CWB. Canadian agricultural policy has faced many trade challenges from the U.S. over the past three decades. Producing indisputable data that demonstrates discriminatory pricing practices and application of market power by a state trading agency in the midst of a trade challenge would have been, to say the least, poor timing.[19] This situation suggests another reason why the present status of the organization is in need of change. For whatever reasons, the benchmarking process no longer exists. The CWB remains an extremely closed organization as regards to information/data release. It is the primary, often the only, source of data and information by which to conduct detailed performance analysis. As indicated before, we firmly believe this is one of the impediments to resolving differences about the future of the CWB.

An Index of Market Power

In so far as measurement of market power can reasonably be determined, this is a strong test for the existence or termination of the single desk aspect of the agency**.** The Herfindahl-Hirschman Index (HHI) is a commonly accepted measure of market concentration and is used in estimating the market power of profit motivated firms within commercially defined markets. Though not entirely applicable to a regulatory agency selling a globally traded commodity, it does allow for dealing with market structure and competition of grain markets and, therefore, market power issues. We believe the HHI provides objective, quantified, and useful data upon which to assess CWB market power because international grain markets do operate substantially in an environment of commercial activity with various degrees of competition.[20]

The HHI is based on market share but adds valuable information (as compared to examining market share alone) because it accounts for the number and size distribution of competitors (both important structural variables) in the market. In a market with a large number of small firms (such as unorganized farmers), the value of the HHI approaches zero; in a genuine monopoly situation with only one seller, the value would be 10,000[21]. High HHI values indicate more "market concentration" and imply

[19] The Benchmarking exercise represents the dilemma which the CWB and this form of policy instrument create for Canadian exports in a freer trade world. Unless marketing boards can generate the increased returns they seek for domestic producers from either domestic consumers or reduced marketing margins, they will likely run headlong into foreign or global trading rules. World trade rules, despite all the imperfections of "free trade" initiatives, have moved to this position. Other research indicates that the CWB may not be reducing marketing margins or capturing significant economic rent from domestic consumers.

[20] We recognize one exception to this claim. Government to government grain sales are often secret, non-transparent, and may be subject to motivations unrelated to commercial grain markets.

[21] The HHI is calculated by squaring the market share of each firm and summing these values. For example, a single firm supplying a market has a 100 percent market share and an HHI of 10,000; a market

market power; low values indicate low concentration and more competitive market conditions. To extract monopoly profits, it is generally presumed that both industry concentration and individual firm power are required. Even in a concentrated industry, marginal players may not be able to achieve pricing power.

Markets in which the HHI value is between 1,000 and 1,800 are considered to be moderately concentrated; those in which the HHI is above 1,800 are considered to be concentrated by the U.S. Department of Justice and the Federal Trade Commission and may require intervention.[22] The Competition Bureau in Canada uses the concept of market share and generally does not consider a firm with a market share of less than 35 percent to be capable of exercising market power.[23]

Applying HHI measurement to a particular industry and market requires determination of the "relevant market". This requires determining product definition and identifying sellers. All sellers that currently produce or sell in the relevant market are included in the calculation[24] but potential participants that can enter the market without incurring substantial cost may affect competitive behaviour. Consequently, at least qualitative consideration must be given to potential entrants. As noted earlier, Western Canadian farmers regularly switch between classes of wheat as well as switch wheat acres to and from other crops. These same phenomena occur worldwide. Over time, new wheat production technology has also allowed wheat production to increase in more areas of the world.

Substitution Effects Due to Pricing with Market Power

Buyer ability to use similar products ("substitution" in economic language) is another factor which determines the relevant market. Just as more sellers generally reduce market power, buyer substitution among similar products will reduce the ability of sellers of traditional products to raise prices. For example, in the feed grain market there is a distinct price relationship among corn, feed barley, feed wheat and by-products from ethanol production because, over significant ranges of use in various feed rations, these ingredients can substitute for one another in response to price differences.[25] Similarly, in some importing countries, locally produced wheat may substitute for imported Canadian wheat in milling and baking. Growth in Ontario and Quebec wheat production over the last two or three decades has replaced some of the prairie wheat traditionally used across Canada. These definitional matters, while difficult to measure, are important in correctly assessing market power. In general, defining the market

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supplied by four firms with 40, 30, 20 and 10 percent market shares, respectively, has an HHI of 3,000; for many small sellers each with equal market shares, the HHI approaches zero.

[22] The Herfindahl – Hirschman Index, US Department of Justice, http://www.usdoj.gov/atr/public/testimony/hhi.htm

[23] http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/02713.html#12 For comparison, if one firm has 35% market share with the balance being split evenly between 7 firms, the HHI would be 1,828.

[24] Horizontal Merger Guidelines, U.S. Department of Justice and the Federal Trade Commission http://www.justice.gov/atr/public/guidelines/horiz_book/hmg1.html

[25] Distiller's Dried Grain with Solubles (DDG) is a high protein by-product of ethanol production which has become a significant feed source as ethanol production has increased.

(Canada vs. the world) or product (malting barley or "high quality wheat") narrowly increases the likelihood of demonstrating evidence of market power.

The concept of 'Small but Significant and Non-transitory Increase in Price' (SSNIP) has been developed to assist in market definition.[26] In applying the concept of SSNIP, the relevant market consists of a list of commodities or goods which are considered substitutes by the customer. This list, for the market player, is worth monopolizing because, if only one firm supplied all of the items on the list, that firm could increase prices and, thereby, increase returns without losing customers.[27]

The principle underlying the SSNIP concept can be applied to evaluate Western Canadian farmers' relevant market. Though the CWB may be able to segregate Western Canadian grain production into various markets, and extract a premium from some, the criterion for farmers is different.[28] The market for prairie producers' wheat is that for all of their production, regulated and unregulated. Though the CWB may be able to extract a small premium for malt barley, a barley farmer's profitability from barley is dependent on the weighted average of regulated malting and unregulated feed sales. Hence using the SSNIP methodology requires measurement be done at the undifferentiated, farm-gate product level. The definition of the wheat market for Western Canadian farmers must be expanded to include not just high quality wheat that the CWB claims to have market power in, but also other wheat classes which Western Canadian farmers grow, especially those closely related to high quality. As a result, the approach taken in this analysis was to examine different lists of wheat to demonstrate that measured market power varies, as expected, with the definition of product and market.

Evidence

We calculate various HHIs for CWB sales at different levels of market definition (Table 2, below). The data are, unfortunately, out of date because the "quality" distribution and CWB sales have not been fully reported for more than a decade. As a result, our analysis may be questioned on that count. We attempted to obtain more current data from several sources including the CWB and Canadian Grain Commission but were advised that the data are no longer compiled this way. This example of termination of a valuable data series is not uncommon to researchers on Canadian grain matters and reduces the ability to produce detailed, current analytic results.

We believe, however, that to the extent the data are out-of date, there is a predictable direction of error in our analysis. As indicated above, the last two decades have produced growth of indigenous wheat production and exporting in several

[26] Horizontal Merger Guidelines: Questions for Public Comment, FTC & US DoJ http://www.ftc.gov/bc/workshops/hmg/hmg-questions.pdf. For an example of using SSNIP in the juice market (orange, grape and tomato) see pp. 3- 4 of http://ozshy.50webs.com/ssnip5.pdf. Retrieved March 20, 2011..

[27] The SSNIP test is an iterative process attempting to find the smallest list which would still allow the firm to profit from a price increase of 5% for at least one year.

[28] This proposition raises again the point made earlier: what definition of "producer revenue" is the target of the regulation; aggregate supply (all producers together) or the sum of individual producers. This is a fundamental economic issue, and important to producers as well.

countries (see Figures 1, above, and 5, below). Over the same period, there has been a gradual decline of production of Canadian high quality wheat, some increase in different Canadian classes, and replacement of wheat acres by other crops within Canada (see Figure 2, above). As a result, market concentration and market power will have declined relative to a decade or more earlier, and our estimates, based on older data, will overstate market power today.

HHI in Wheat under a Restrictive Market Definition

We start with the assumption that demand for high quality wheat (high protein Canadian Western Red Spring (CWRS), Dark Northern Spring (DNS) and Australian Prime Hard) is independent of wheats outside these particular classes, and that millers and bakers are strictly profit motivated in relation to these classes. These are restrictive assumptions, no doubt, but they could be argued to fit the concept of "high quality" wheat which drove wheat policy in Canada for so long. Assuming further that the three countries (Canada, the United States and Australia) offering this "product" in international markets determine the competition, application of their market shares in the HHI methodology gives a value of 4,200. The US share from Table 2, below, is 51 percent; the Canadian share is 39 percent; and Australia is 10 percent. Clearly, this is a very large number and would lead to the conclusion that the market is extremely concentrated and any of the exporters should be able to influence prices.

This interpretation of the data would appear to fit conventional wisdom of board supporters who believe the agency has market power and that the CWB extracts high premiums in the high quality markets like the UK and Japan. By Canadian competition policy standards (35 percent market share for market power), the CWB would also have to be judged, under these market definition criteria and these data, to have market power. As indicated earlier, the narrower the definition of the market or the product, the more likely is this methodology to produce results that suggest market power exists. This example, while probably representing considerable prairie conventional wisdom, does not really fit world wheat market conditions today.

A More Realistic Description of U.S. and Australian Wheat Sales

The first example does not describe well the actual selling structure of the United States and Australia today. There are at least five competitors of relatively equal size in the U.S. and at least three in Australia,[29] each competing domestically for supplies and each with their own sales forces. The CWB has all high quality wheat deliveries from prairie producers locked by regulation, and although it does not make all wheat sales off-shore, the assumption of the CWB as sole seller for Canada is credible. Using the CWB, five U.S. firms and three Australian firms lowers the HHI to 1,633, still within the restrictive "product" definition of high quality wheat. The implied change in seller

[29] There are at least the equivalent of five competitors of equal size in the U.S. market – ADM, Bunge, Cargill, Louis Dreyfus and CHS – though likely far more as the USDA Grain Inspections, Packers and Stockyards Administration, 2008 GIPSA Grain Exporters Directory lists 135. In Australia, there are now three significant firms – Viterra, Grain Corp Ltd., and CBH – in addition to another 26 licensed exporters competing in the international sales market.

structure has significantly altered concentration (reduced it) and competition (increased it) in the international market according to the analytic tool. An HHI of 1,633, indicates a moderately concentrated seller situation, with the CWB the dominant firm, but does not guarantee monopolistic profits

Relaxing Wheat Class and Competitor Assumptions.

The notion that high quality wheat (defined as above) is an island in international wheat trade, particularly with some of the new wheat varieties and countries that now are in the market, is an oversimplification. Broadening the market/product definition to all exports of Canadian and U.S red spring and winter wheat classes, Australian and EU red, and Argentinean red wheat, we estimate an HHI of 850. This value indicates a market that is not concentrated in economic terms and means there will be little, if any, market power, even for the biggest seller.

If the countries emerging in wheat production and trade over the last decade were included (Table 1, above), this number would drop even further reflecting the upward bias in HHI value caused by the out-of-date market data. The change in wheat distribution around the world has a major impact on competitive characteristics and undoubtedly reduced the ability of any one supplier to dictate most prices and many of the other trade terms.

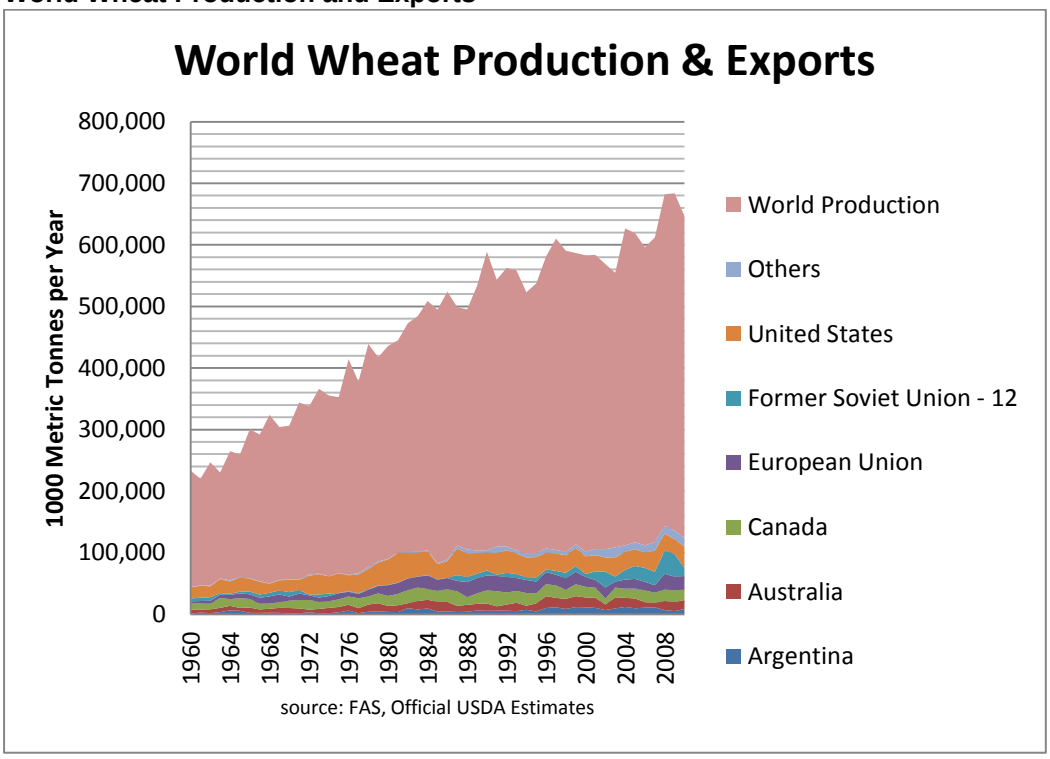
The Effect of Indigenous Wheat Production on HHI.

We have argued that indigenous production within importing countries should receive consideration in assessing exporter market power. In the past two or three decades, wheat production has become more ubiquitous and the list of producers and exporters has expanded. For example, in 2010, worldwide wheat production was 647 million tonnes; Canada produced 23 million tonnes (Figure 5, below). Over the 2009-10 period, exports by the EU were 22 million tonnes while imports were approximately 4.5 million tonnes. Over the same time period, the FSU exported 13.1 million tonnes and imported approximately 5.7 million tonnes.[30]

Consequently, if the broadest definition of the wheat market is considered, the logic takes us to the conclusion that there is very little concentration in selling, only selective market power and, therefore, very little potential for strategic market pricing. This is the basis for those who argue that the world wheat market has changed in the past two decades and has become significantly more competitive under more or less normal production conditions. Our analysis using the HHI methodology on various wheat examples confirms these conclusions.

[30] Foreign Agricultural Services, USDA Official Estimates.

Figure 5: World Wheat Production and Exports



Durum

CWB market power in durum wheat is most often cited by the CWB.[31]. For what it is worth, economic theory and the particular characteristics of the world durum market would, *a priori,* support that proposition. Canada grows approximately four million of the world's 40 million tonnes and has had up to a 60 percent share of the six to seven million tonne export market. Durum has only four categories of segregation and as such is a much more homogenous product than ordinary wheat (recall narrower definitions of products imply more market power). Without calculating the HHI, it is obvious that the level of market penetration is very high and market concentration is large, implying market power. The Competition Bureau norm of more than 35 percent market share suggests that the CWB has price setting capability in this market. Whether this market power translates into higher net returns for producers becomes the relevant question.

The CWB exercises its domestic authority on durum by often accepting less than all of the durum available from prairie producers, meaning that farmers must incur the cost of on-farm storage or accept lower prices from the feed market. This situation has occurred in each of the 2008 and 2009 crops of durum. In 2008-09, about 74 percent of the crop was accepted for delivery even though the carryover was only 73% of the ten year average; in 2009-10, the CWB accepted about 60% of the farm stored durum, and at lower

[31] Crop Year 2008-09 CWB year-end news conference July 30, 2009, slide 11. http://www.cwb.ca/en/newsroom/releases/pdf/year_end_presentation.pdf retrieved 6/13/10

prices; the carryover then increased to 137% of the 10 year average.[32] There are significant costs to individual farmers as a result of storing wheat during periods of high prices; for example, payment for the top grade of durum[33] in store in Vancouver was $372.98 per tonne in 2008/09 and declining to $202.66 per tonne in 2009/10.[34] The result was that farmers looking to sell their carried over (stored) durum received far lower prices in addition to incurring storage and cash flow costs. The argument frequently made is that the high prices were the result of the CWB not supplying the market with all of the durum available. This is clearly an example of the "free rider" problem: durum producers in other countries benefit from the higher prices arising from the CWB reducing the available supply without incurring any of the costs or risks associated with that strategy.

As this particular durum situation played out in 2010, unexpected crop pressures just before the northern hemisphere harvest caused most crop prices to rise. Suddenly there was a shortage of high quality durum in the world. A crop that had been in surplus for over two years and projected not to improve in 2010/11 was suddenly scarce and valuable. A few farmers had continued to store durum (at their own cost) and were paid for their market speculation, despite all the dire warnings from the CWB of slow sales. Many farmers bailed out early by selling durum for feed. This is not an unusual story and it is not only a durum market story. In regulated markets, when faced with excess temporary supply situations, some producers may end up taking second (or third) best options on farm stored grain. [35]

This situation also illustrates the use (or lack thereof) by the CWB of an information advantage as a source of market power. The evidence in this durum case of a sudden, sharp price turnaround indicates that superior forward information by the agency was not a source of market power. As well, as indicated before, there is a market failure situation in these examples: the agency that makes the "hold product back" decisions neither pays the storage costs, nor is affected by the market results when the value of the decision is realized, positively or negatively. The "market power" message in this example is important: centralized market signals and marketing decision making without risk or responsibility for bearing costs is unlikely to match individual risk or cost experience. To suggest that this aspect of CWB market power over the durum crop should be treated as a benefit to prairie farmers is debatable. Other examples could be cited.

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[32] CWB 2009-10 Statistical Tables, pp.7 http://www.cwb.ca/public/en/about/investor/annual/pdf/09-10/stats_english2009-10.pdf retrieved May 4, 2011. Even more dramatic was in increase in on-farm stocks of durum from 50,000 tonnes in 2008 to 735,000 in 2009 and 2,000,000 in 2010.

[33] #1 CWAD 12.5% protein

[34] CWB 2009-10 Statistical Tables, p 16 http://www.cwb.ca/public/en/about/investor/annual/pdf/09-10/stats_english2009-10.pdf retrieved May 4, 2011

[35] Domestic disappearance (farm + commercial) increased from 945,000 tonnes in 2007-08 to 1,255,000 tonnes in 2008-09. Because there was no increase in domestic durum milling capacity, the change can be attributed to durum used in the lower priced feed grain market. From CWB 2009-10 Statistical Tables, p 7 (http://www.cwb.ca/public/en/about/investor/annual/pdf/09-10/stats_english2009-10.pdf retrieved May 4, 2011)

Malting Barley.

As with wheat, all barley destined for export and for human consumption and grown in the CWB region falls within the CWB mandate. Barley used for malting purposes, whether used domestically or destined for export, is subject to CWB control. However, the determination of market power on malting barley is different in concept than for other CWB grains. The CWB does not sell malting barley as it does feed barley and wheats; it's only role is to provide the price regime on producer sales to buyers of malting barley and to authorize these transactions. In effect, the CWB is a commission agent on behalf of producers, negotiating (a term not well suited to a monopolist) the price at which buyers must bid.

Elevator companies, malsters (companies that convert barley to malt), breweries in a few cases, and exporters select barley (from farmer samples) that is considered to be malting quality, pay the CWB regulated price and accept the delivery directly from producers through the grain handling system. Although the malting and brewing industries are reasonably highly concentrated, and are tending to become more so over time, the NAFTA has altered that market structure much more toward effective competition. It has also significantly altered the CWB ability to differentiate the domestic and (U.S.) export market. Since the NAFTA, the premium on domestic sales has been smaller due to the threat of imports from the U.S. As a consequence, any advantage of the CWB comes from limit pricing, i.e. under-pricing grains to deter imports, if at all. The price difference between malting barley and feed barley has been reduced considerably since the NAFTA rules applied.

Barley, as a consequence of the institutional arrangement of CWB pricing and malting selection, also displays some of the characteristics of durum backed up on farms with induced producer costs. Barley that is not selected for malt is usually sold by farmers in the domestic feed grains market. Variety requirements for malting barley are stringent and generally feed barley varieties out-yield malting varieties. Malting barley that is grown, but not accepted, represents lost feed barley potential. Assessing CWB market power capability on malting barley alone does not reflect this negative impact (cost) to overall producer returns from barley production.[36] This is another case of market power arguments or evidence on a narrowly defined product that overstates realized producer market outcomes.

Wheat and Barley as Animal Feed, and Other Wheat Classes

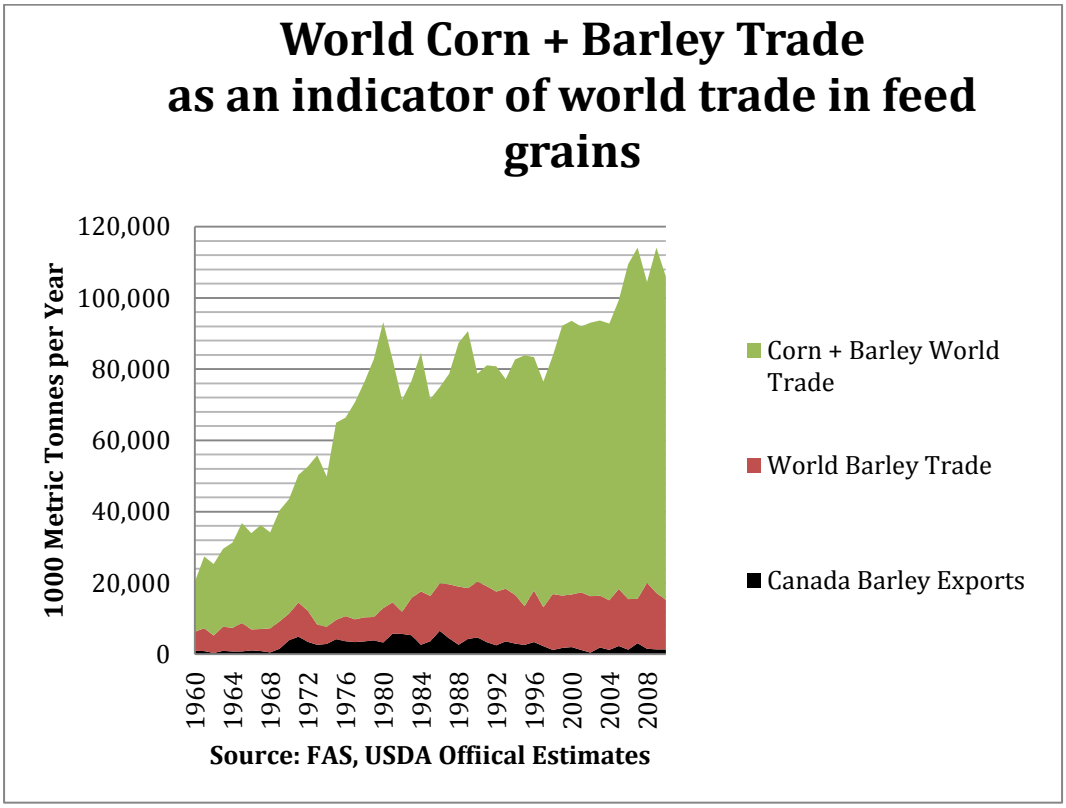
Relatively low quality wheat, durum and feed barley, unsuitable for milling or human consumption, are commonly fed to animals throughout the world. Both feed wheat and barley compete with the entire supply of feed grains within Canada. Outside Canada, there is a large and diverse market including corn and other types of feed.[37] The

[36] Carter, C. 1993b. "The Economics of a Single North American Barley Market." *Canadian Journal of Agricultural Economics* 41(1993): pp. 243-255 and "North American Malting Barley Trade", Wilson & Johnson, 1995, http://ageconsearch.umn.edu/bitstream/23128/1/aer335.pdf

[37] Other common types of feed include sorghum, oil seed meal products, fats and tallow, and recently the by-product of ethanol production, distillers wet and dry grains. Feed mixes are prepared in relatively high tech plants, driven by linear programmed scientific specifications. Small variations in ingredient costs can alter mixes in a continuous process of minimizing feed costs to livestock and poultry.

CWB export of feed wheat has averaged 1.5 million tonnes and as little as 1.5 million tonnes of barley. In contrast, U.S. corn production was in the order of 332.5 million tonnes in
2009-10. Using the world corn and barley trade subset of the total world feed trade ,if all of the Canadian barley exports were used in the feed market, Canada's share of that sub-segment was only 1.25% in 2009-10 (Figure 6, below). Canada is a small player in the world feed market, indeed even in the North American feed market. Without needing to resort to HHI analysis, it is quite clear there is little chance of the CWB having any market power on the feed grains it sells.

Figure 6: World Corn and Barley Trade



For other wheat classes such as winter wheat, soft white wheat and soft red wheat, the situation is similar to the feed barley market. Whether or not there is product substitution among wheat classes outside the high quality wheat classes, the production received by the CWB is generally small in relation to world stocks. Perhaps the most extreme example is Hard Red Winter Wheat, similar to the feed barley situation, for which the CWB exported only an average of 30,000 tonnes per annum 1992-93 to 1996-97 compared with U.S. exports of almost 11 million tonnes per annum[38].

[38] MRAC/CWB p4.

Table 2: World Wheat Trade (Excluding Former Intra Soviet Union Trade)

	1992-93	1993-94	1994-95	1995-96	1996-97	**Average**
Canada						
Canadian High Quality Wheat (CWRS 13%+ Protein)	3,572	1,220	2,301	4,421	4,963	**3,295**
Total CWRS Wheat	*14,983*	*10,220*	*13,859*	*10,707*	*13,090*	***12,572***
Feed	1,331	4,655	395	214	641	**1,447**
Durum Wheat	2,260	2,788	3,996	3,198	4,067	**3,262**
Other Wheat	1,753	1,433	2,511	2,084	1,569	**1,145**
Total	**20,327**	**19,096**	**20,761**	**16,203**	**19,367**	**18,426**
Market Share	*20%*	*20%*	*23%*	*18%*	*20%*	***20%***
United States						
US High Quality Wheat (Dark Northern Spring)	4,321	3,700	4,563	5,371	3,505	**4,292**
Other US Wheat Competing with CWB Wheat (Hard Red Spring)	11,678	6,981	8,006	8,952	7,966	**8,717**
Durum	1,175	1,378	904	897	968	**1,064**
Other Wheats	20,157	21,683	19,321	19,471	15,121	**19,151**
Total	**36,156**	**32,364**	**31,890**	**33,794**	**26,592**	**32,159**
Market Share	*36%*	*35%*	*35%*	*38%*	*27%*	***34%***
EU						
Total	**21,002**	**19,124**	**16,098**	**12,190**	**17,005**	**17,084**
Market Share	*21%*	*20%*	*18%*	*14%*	*17%*	***18%***
Australia						
Total Australian High Quality Wheat (Prime Hard)	495	702	158	1,453	1,531	**868**
Total	**9,526**	**12,771**	**7,900**	**12,105**	**18,017**	**12,064**
Market Share	*9%*	*14%*	*9%*	*13%*	*18%*	***13%***
Argentina						
Total	**7,076**	**4,273**	**7,393**	**4,194**	**9,516**	**6,490**
Market Share	*7%*	*5%*	*8%*	*5%*	*10%*	***7%***
Others						
Total	**7,556**	**5,740**	**7,410**	**11,500**	**7,000**	**7,841**
Market Share	*7%*	*6%*	*8%*	*13%*	*7%*	***8%***
High Quality Total	8,388	5,622	7,022	11,245	9,999	**8,455**
World Total	**101,643**	**93,368**	**91,452**	**89,986**	**97,497**	**94,064**
% High Quality	7.7%	5.6%	7.2%	11.9%	9.9%	**8.4%**

Source: The Market Competitiveness of Western Canadian Wheat, Manitoba Rural Adaptation Council Inc. & CWB, 1999, http://www.cwb.ca/en/growing/market_analysis/mrac.pdf No longer available on the web but available in *The Economics of Genetically Modified Wheat*, p 51, Carter, Berwald & Loyns, 2005 . Data on quality distribution in this form are no longer available from the CWB.

Conclusions: The Need for Reform

Our objective in this study was to produce information on the question of CWB market power as a means to establishing whether or not the basic rationale for the single desk exists. The legislation, if it is intended and if it is claimed, to provide net benefits to prairie producers of wheat and barley, must result in the exercise of market power through its single desk authority. The legislated mandate of compulsory delivery and single desk sales guarantees neither market power nor increased net revenue to producers. Supporters believe the agency has market power; the agency claims it exists; doubters challenge its existence; and a debate continues.

Our first conclusion from this study is that the markets where the CWB sells wheat and barley have changed so that any market power that may have existed no longer exists to an extent to justify the regulation of the CWB buying all prairie wheat and barley destined for human consumption or the export market. Market power cannot be assumed from exclusive compulsory acquisition and monopolistic sale within a region of Canada by a marketing agency which sells a widely available product globally. Therefore, the scope of the Canadian Wheat Board mandate as a producer revenue enhancer needs to be reconsidered.

Throughout this report we have noted the information gaps, voids and dead-ends that exist in attempting to obtain the value of Canadian wheat of various forms in order to analyse market performance of the Canadian system largely because of the lack of detailed reporting by the CWB. The argument is frequently made that the CWB operates no differently than private grain companies in not reporting sales data in full detail. But market data are compiled and reported by analysts, agencies, futures and options markets on an ongoing basis so that individual sales by individual companies, while convenient for analysts or producers, are not essential to understanding what market price relationships are. The CWB has authority over all domestic and export wheat sales, and except for the limited amount of cash contract sales done by producers, producer values of wheat on a current basis simply are not available. That situation overarches the ability of analysts to determine prices over time and confirm or reject claims that the agency does a extract premium for producers. Compounding this methodological issue is the contradictory public positions taken by the CWB within Canada (we do manipulate the market) and outside Canada (we are fair traders).There is an urgent need for the entire policy and practices package of the CWB on communications, information and data release to be subjected to corporate and public agency review, and reform, to ensure that data and market information reporting serves the needs of the producers, industry and analysts.

As the policy environment exists on the CWB these days, we have the worst of both domestic and trade worlds…our internal debate wastes time, resources and creates too many factions, while our trading partners and competitors complain and react. It is time for reform.