The Canadian Wheat Board and the creative reconstitution of the Canada-UK wheat trade: wheat and bread in food regime history

by

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A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy

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Abstract

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Submitted in conformity with the requirements for the degree of Doctor of Philosophy Graduate Department of Sociology University of Toronto, 2010.

This dissertation traces the historical transformation of the Canada-UK commodity chain for wheat-bread as a lens on processes of local and global change in agrofood relations. During the 1990s, the Canadian Wheat Board (Canada’s monopoly wheat seller) and Warburtons, a British bakery, pioneered an innovative identity-preserved sourcing relationship that ties contracted prairie farmers to consumers of premium bread in the UK. Emblematic of the increasing importance of quality claims, traceability, and private standards in the reorganization of agrifood supply chains, I argue that the changes of the 1990s cannot be understood outside of historical legacies giving shape to unique institutions for regulating agrofood relations on the Canadian prairies and in the UK food sector. I trace the rise, fall, and re-invention of the Canada-UK commodity chain across successive food regimes, examining the changing significance of wheat-bread, inter-state relations between Canada, the UK, and the US, and public and private forms of agrofood regulation over time. In particular, I focus on the way in which changing food regime relations transformed the CWB, understood as the nexus of institutions tying prairie farmers into global circuits of accumulation. When in the 1990s, the CWB and Warburtons responded to structural crises in their respective industries by re-inventing the Canada-UK wheat trade, the result was significant organizational and industry change. On the prairies, the CWB has shown how – contrary to expectations --
centralized marketing and quality control may help prairie farmers adapt to the demands of end-users in the emerging ‘economy of qualities’. In the UK, Warburtons has led the ‘premiumisation’ of the bread sector, traditionally defined by consumer taste for cheap bread, over the last 15 years. The significance of the shift towards quality chains in the wheat-bread sector is analyzed in light of conflicts over the proposed introduction of genetically engineered (GE) wheat to the Canadian prairies.
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<tbody>
<tr>
<td>ANT</td>
<td>Actor-network theory</td>
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<tr>
<td>APAS</td>
<td>Agricultural Producers of Saskatchewan</td>
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<tr>
<td>AWB</td>
<td>Australian Wheat Board</td>
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<tr>
<td>BAC</td>
<td>Baking Association of Canada</td>
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<tr>
<td>BGS</td>
<td>Board of Grain Supervisors</td>
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<td>CAP</td>
<td>Common Agricultural Policy (EU)</td>
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<td>CBP</td>
<td>Chorleywood Bread Process</td>
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<tr>
<td>CFA</td>
<td>Canadian Federation of Agriculture</td>
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<td>CFIA</td>
<td>Canadian Food Inspection Agency</td>
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<tr>
<td>CGC</td>
<td>Canadian Grain Commission</td>
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<tr>
<td>CIGI</td>
<td>Canadian International Grains Institute</td>
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<tr>
<td>CNMA</td>
<td>Canadian National Millers’ Association</td>
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<tr>
<td>CoC</td>
<td>Council of Canadians</td>
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<tr>
<td>CSGA</td>
<td>Canadian Seed Growers’ Association</td>
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<tr>
<td>CWB</td>
<td>Canadian Wheat Board</td>
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<tr>
<td>DEFRA</td>
<td>Department of Environment, Food and Rural Affairs (UK)</td>
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<tr>
<td>EEC</td>
<td>European Economic Community</td>
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<tr>
<td>EEP</td>
<td>Export Enhancement Program</td>
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<td>EU</td>
<td>European Union</td>
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<td>Eurep</td>
<td>Euro-Retailer Produce Working Group</td>
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<td>FAC</td>
<td>Foreign Assets Control</td>
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<td>FFVs</td>
<td>Fresh fruits and vegetables</td>
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<td>FSA</td>
<td>Food Standards Act</td>
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<td>FTAs</td>
<td>Free Trade Agreements</td>
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<td>GAP</td>
<td>Good Agricultural Practice</td>
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<td>GATT</td>
<td>General Agreement on Tariffs and Trade</td>
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<td>GCC</td>
<td>Global commodity chain</td>
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<td>GE</td>
<td>Genetically engineered</td>
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<td>GGGC</td>
<td>Grain Growers’ Grain Company</td>
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<td>GMOs</td>
<td>Genetically modified organisms</td>
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<td>HAACP</td>
<td>Hazard Analysis Critical Control Point</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<td>IP</td>
<td>Identity preserved</td>
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<td>IWAs</td>
<td>International Wheat Agreements</td>
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<td>KAP</td>
<td>Keystone Agricultural Producers</td>
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<td>KVD</td>
<td>Kernel visual distinguishability</td>
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<td>MAFF</td>
<td>Ministry of Agriculture and Food (UK)</td>
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<td>NAFTA</td>
<td>North American Free Trade Agreement</td>
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<td>NFU</td>
<td>National Farmers Union</td>
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<td>NACs</td>
<td>New Agricultural Countries</td>
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<td>OFFS</td>
<td>On-farm food safety</td>
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<td>PPOs</td>
<td>Producer Payment Options</td>
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<td>PRCW</td>
<td>Prairie Recommending Committee for Wheat</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<td>RPM</td>
<td>Resale Price Maintenance</td>
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<tr>
<td>RR</td>
<td>Roundup Ready</td>
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<tr>
<td>RTE</td>
<td>Ready-to-eat (cereal)</td>
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<tr>
<td>SARM</td>
<td>Saskatchewan Association of Rural Municipalities</td>
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<tr>
<td>SGGA</td>
<td>Saskatchewan Grain Growers’ Association</td>
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<tr>
<td>SOD</td>
<td>Saskatchewan Organic Directorate</td>
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<tr>
<td>TNCs</td>
<td>Transnational corporations</td>
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<tr>
<td>WBGA</td>
<td>Western Barley Growers’ Association</td>
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<tr>
<td>WCWGA</td>
<td>Western Canadian Wheat Growers’ Association</td>
</tr>
<tr>
<td>WGMP</td>
<td>Western Grain Marketing Panel</td>
</tr>
<tr>
<td>WRAP</td>
<td>Wild Rose Agricultural Producers</td>
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<tr>
<td>WTO</td>
<td>World Trade Organization</td>
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Chapter 1 - Introduction

In 2004, the Canadian Wheat Board (CWB) led a remarkable coalition of grain industry actors, farm groups, and social movement organizations in successfully preventing the introduction of genetically engineered (GE) wheat to the Canadian prairies. Monsanto’s RoundUp Ready wheat would have been the first GE wheat variety to be commercially introduced anywhere in the world, and the first for a major food staple\(^1\). The biotech giant’s withdrawal of the product and was a major public relations blow for Monsanto and no GE wheat variety has been introduced since. By 2001, when the CWB and its allies launched their public campaign to oppose GE wheat, the majority of prairie farmers opposed RoundUp Ready wheat. This opposition posed a paradox given that, since the 1990s, prairie farmers have embraced GE canola (used as an ingredient in processed foods and for cooking oil) on a large scale. Two key factors help explain the change. The first lies in the unique historical constellation of institutions – public quality standards and collective marketing through the CWB -- linking prairie farmers to global commodity chains\(^2\) for wheat. The second is the way in which the conflict intersected with questions of bread and wheat quality revolving around the cultural significance of bread as a staple food and wheat as the iconic crop of prairie settlement.

\(^1\) The vast majority of acreage devoted to GE crops is made up a handful of crops mostly grown as ingredients to processed foods and/or livestock feed or for textiles. The top four GE crops for 2007, in order of importance, were soy (51% of global GE acreage), maize (31%), cotton (13%), and canola (5%) (ISAAA 2007).

\(^2\) A commodity chain is the series of stages tying actors (producers, corporations, and consumers) into social and economic relations around the production and consumption of a particular commodity. In the sociology of development, commodity-chain analysis is deployed as a lens on the social relations of power and inequality embedded in economic relations, and as such has served as a corrective to discourses that reify economic relations (e.g., neoclassical economics) (see Gereffi and Korzeniewicz 1994 and Collins 2005).
The CWB’s leadership provided unity and coherence to an unusual convergence of interests among disparate actors, including farmers and environmentalists, in the conflict over GE wheat. Founded in 1935, the CWB is a state-sponsored collective marketing agency with the exclusive authority to sell wheat and barley on behalf of prairie farmers. Able to present a unified front for Canada’s wheat industry, the CWB became the leading voice for expressing farmers’ opposition to GE wheat based on the threat of lost export markets. The CWB’s access to detailed market information revealed that prominent customers, especially countries and corporations willing to pay premiums for Canada’s high-quality wheat, refused to buy GE wheat. By opposing GE wheat, the CWB sought to protect Canada’s reputation for high-quality bread milling wheat, framing the issue as a matter of respecting consumer preferences, whatever their basis. Meanwhile, proponents of GE wheat warned that failing to adopt GE wheat would place Canada at a disadvantage with respect to emerging markets in the global South, where price trumps quality distinctions.

For their part, environmental and social justice groups drew upon the symbolic and cultural importance of wheat/bread in order to broaden the appeal of their anti-biotechnology stance. Building on a decade of anti-GE activism, these organizations tapped into increasing consumer anxiety over food safety, nutrition, and provenance reflected in the turn towards organic, non-GE, and local foods. Consumer concerns over issues of wheat/bread quality were vividly expressed in the intervention of a British bakery, Warburtons, in the debate. Warburtons has maintained a unique sourcing arrangement for high-quality wheat through the CWB for nearly 15 years. Once a small

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3 With the exception of wheat and barley sold domestically as livestock feed.
regional player, Warburtons now dominates the market for premium wrapped bread⁴ in
Britain and is today the country’s second most recognized food brand, behind Coca-Cola.
Unwilling to risk its brand reputation with GE-wary UK consumers, the bakery
unequivocally rejected GE wheat. Conflicts over GE wheat therefore embodied contests
over ‘quality’, an increasingly powerful organizing principle in the restructuring of
agrofood commodity chains (Burch and Lawrence 2005; Busch and Bain 2004; Campbell
2005; Friedmann 2005).

Quality claims have been always been a key component of Canada’s export
strategy for wheat and for nearly 75 years, the CWB has been the linchpin of a set of
prairie institutions providing for publicly guaranteed wheat standards. Centralized
marketing and quality control through public institutions have complemented each other
in orienting prairie wheat production towards export markets for high-protein bread
milling wheat, ideally suited for industrial milling and baking technologies dominant for
most of the 20th century. Yet, over the last 20 years, the CWB’s monopoly marketing
structure (the single-desk) has become the subject of intense conflicts, as both domestic
and international actors question the legitimacy of collective marketing in an era of
deregulation and trade liberalization. At the same time, centralized quality control has
been criticized for privileging markets for bread-milling wheat over new markets in feed
and agrofuels. Critics of the centralized quality control and marketing system decry the
emphasis on “Cadillac-quality” (Carter et al. 2006a) wheat and advocate full deregulation
of the prairie wheat economy, which would allow farmers to sell their grain directly to
buyers and end centralized coordination of quality control. Here, the introduction of new

⁴ This refers to mass-produced, pan-baked bread intended mostly for use in sandwiches and toast, and is to
be distinguished from ‘artisanal’ bread intended for special occasions and typically served with meals.
wheat varieties (including GE) would be left exclusively to ‘market forces’, without regard to the overall integrity of the prairie wheat crop. Supporters of the current set of public institutions fear the “wal-martization” (Boyens 2006) of Canadian wheat, leading to the erosion of Canada’s distinctive edge in world markets. With the CWB at the centre, conflicts over GE wheat thus ultimately turned on alternative ways of integrating prairie farmers into global agrofood supply chains for wheat.

The dilemma being played out on the Canadian prairies is part of a much larger set of questions about the regulation of agrofood relations. State-centred forms of agrofood regulation emerged from the economic and political chaos of the Great Depression and World War II. Yet, since the 1970s, state-centred regulation has been in decline, as governments have embraced deregulation and free-trade and as transnational food corporations have become the lead actors shaping patterns of food production, distribution, and consumption. These changes coincided with declining public confidence in the food system arising from food safety scares, GE crops, and the ecological crisis of industrial agriculture. For more than two decades, scholars have tried to make sense of the breakdown of state-centred agrofood regulation and to understand what might replace it. The question has been to what extent private capital – with increasing power to shape the global agrofood system – is capable of filling the vacuum left by the decline of public regulation.

The answer has come in new forms of private regulation organized around ‘quality’ – a term mobilized by food manufacturers and retailers in marketing differentiated products to distinct classes of consumers. Food manufacturers and retailers have used ‘quality’ to market their products ever since the emergence of mass markets in
standardized food products in the early 20th century. Yet, the content and significance of quality claims has shifted over the last 20 years. First, whereas quality claims in an earlier era revolved around concerns with product consistency and safety, today quality claims are based on a growing array of consumer concerns around provenance (e.g., ‘regional’ and ‘artisanal’ foods) and conditions of production (e.g., organic, fair trade, dolphin friendly). Second, ‘quality’ is increasingly guaranteed through private standards, labelling schemes, and quality assurance systems intended to codify and legitimize claims made on the basis of health, environment, safety and provenance. Responsibility for implementing these private standards – which comprise a new layer of agrofood regulation -- is passed down to farmers and food suppliers, who must meet increasingly exacting criteria for product quality and production practices (e.g., environmental and labour standards), all verified with third party auditing (Busch and Bain 2005; Campbell et al. 2005). Together these changes have been taken to signal the emergence of an economy of qualities in the agrofood sector, the hallmark of which is the proliferation of private standards defining differentiated food markets and classes of consumers (McMichael and Friedmann 2007).

The CWB-Warburtons program suggests that new dimensions of quality are becoming more important in the strategies of key actors in international wheat-bread commodity chains. Originally organized to supply Britain with bulk shipments of wheat as the raw material for a cheap wage food, the Canada-UK wheat trade established the prairies’ role as world breadbasket. For decades, Canada supplied huge quantities of essentially a single variety of high-protein wheat with a worldwide reputation for performance in industrial bread production. Today, the Canada-UK wheat trade has been
re-oriented towards specialized wheat varieties for premium bread. Warburtons’ products, which trade at a substantial mark-up compared to its competitors, are marketed on the basis of specific consumption qualities such as taste, texture (light), and volume. Although the bakery offers lines of organic, neutraceutically ‘enhanced’, and health-oriented products, its best-sellers are premium white breads. Under the Warburtons program, contracted prairie farmers produce specialized wheat varieties for use in Warburtons’ sophisticated baking processes. The wheat, which is identity-preserved (i.e., segregated from bulk shipments of Canadian wheat) and subject to specialized production standards, has become essential to Warburtons’ competitive strategy in the UK bread market. In turn, the program has become a high-profile success story for the CWB, marking a shift in its commercial strategy over the last 15 years, as it has placed increasing importance on branding, niche marketing, and specialized identity-preserved (IP) programs for key customers. These efforts are part of a broader process of organizational renewal for the CWB as it responds both to legitimacy crises and new conditions of accumulation.

When presented with the threat of GE wheat, the CWB acted, on the one hand, to defend Canada’s traditional role as a provider of high-protein wheat for bulk exports and, on the other hand, to consolidate the recent shift towards privately regulated, identity-preserved contracts for niche customers. As an empirical instance of the changes theorized by the economy of qualities thesis, this case is unique in two key ways: the nature of the commodity (wheat-bread) involved and the actors leading the change. Thus far, the economy of qualities thesis has been applied mostly to commodity chains operating on national and regional scales for fresh foods (e.g., fruits and vegetables, and
dairy products) (Campbell 2005; Campbell et al. 2005; Cavalcanti 2004; Stanford 2004). As the raw material for a semi-fresh food staple, wheat has traditionally been treated as an undifferentiated bulk commodity. Over the last 20 years, however, millers and bakers have demanded increasingly exacting quality requirements tailored to highly automated production methods, prompting wheat sellers to implement new forms of quality-differentiation, branding, and identity-preservation (Kennett 1997; Kennett et al. 1998). These changes are mirrored in the transformation of bread, here exemplified by the bifurcation of the UK bread market. By contrast to the bread consuming cultures of continental Europe, British food culture has long been associated with the standardized, industrial loaf. Over the last 15 years, however, there has been a sea change in the British bread industry, as branded, premium products now compete alongside once dominant ultra-cheap supermarket own brands. Quality principles have thus begun to transform the industry and consumer tastes, leading to the differentiation of products and diets. Here the ‘premiumisation’ of one segment of the bread market has transformed industrial bread from mundane article of consumption into an indulgence product. Centred on ‘premium’ white bread, this shift is mediated by unique features of UK bread-consuming culture.

Meanwhile, the new relations forged in the Canada-UK commodity chain highlight the leadership of a collective-marketing agency and a branded food manufacturer -- neither of which are theorized to play a leading role in the shift towards the economy of qualities -- in the construction of a quality chain. Scholarship to date has emphasized the role of private actors in establishing new forms of agrofood regulation that transcend public standards. With its public mandate to maximize returns to prairie farmers, the CWB embodies a unique set of state-economy relations in which farmers
surrender individual property rights in exchange for the benefits of collective marketing and centralized quality control. The CWB’s role in the shift towards the economy of qualities therefore raises a paradox, as a public institution leads in the establishment of private standards meeting the niche requirements of prominent buyers. The CWB-Warburtons program suggests that quality-differentiation in commodity chains for wheat is therefore more complex than implied by the sharp dichotomy that pits “Cadillac-quality” against “walmartization”. The distinctive feature of the program is the way in which it blends public and private regulation. By adapting prairie institutions to the private quality standards of prominent buyers, the CWB may help mediate the shift towards the economy of qualities for prairie farmers.

The Warburtons’ story is no less surprising. The bakery has used supplies of Canadian wheat to market expensive premium lines of bread and has posted impressive sales and profits. For decades, large, vertically-integrated national bread manufacturers dominated the scene in the UK bread market. By the 1970s, however, supermarket chains were replacing national bread manufacturers as lead actors in the bread market, using ultra-cheap own brand bread products as a loss leader (i.e., to increase traffic through their stores). Warburtons emerged from relative obscurity during this period to lead in the premiumisation of the UK bread market. Up against the UK’s supermarket giants Warburtons’ story speaks of the unlikely success of a relatively small, branded food manufacturer. Its innovations in supply-chain coordination, pioneered in Canada, are today being replicated in programs linking UK wheat producers to leading bread manufacturers and supermarket chains.
The key in unlocking the transformation of quality principles in the Canada-UK commodity chain for bread-wheat is *history*. I use a historical political economy approach to agrofood change – *food regimes*\(^5\) (Table 1.1) – to situate and interpret these changes in their historical context. The antecedents to the CWB-Warburtons relationship are in long-term historical relations linking Canadian farmers to UK food consumers, originally forged during the first food regime (1870-1914). The historical rise and fall of the Canada-UK wheat trade coincided with shifting international structures of power and patterns of accumulation in historical food regimes. Tracking these changes helps identify both continuity and ruptures in the commodity chain that contributed to the revival of the Canada-UK trade, albeit around new principles, in the 1990s. In this context, the creative reconstitution of the Canada-UK wheat-bread commodity chain, after decades of decline, can be understood to embody the strategies of social actors adapting to food regime change. Thus, food regime history helps to contextualize the transformation of prairie agriculture, British consumption, food manufacturing, and food politics in global and local social relations.

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\(^5\) Food regimes are historical constellations of international rules regulating the production and consumption of food (see below).
## Table 1.1 – Key features of historical food regimes

<table>
<thead>
<tr>
<th>Food regime period</th>
<th>Role of the state</th>
<th>Food production/consumption</th>
<th>Regulation of trade/ international exchanges</th>
<th>International structures of power</th>
</tr>
</thead>
</table>
| UK-centred food regime (1870-1914) | - Coordinating projects of national expansion/ development  
- In settler-states, centred on immigration, agriculture, transportation  
- In European states, centred on industrialization | - Independent commodity production based on family labour -- the ‘family farm’  
- International commodity chains for ‘wage foods’ (meat, grain) linking settler-states to industrializing European powers  
- Consumption of basic ‘wage foods’ (e.g., bread) | - Regulation of international exchanges through the gold standard  
- Colonial division of labour organizing exchange of temperate commodities agriculture for tropical/sub-tropical commodities | - British hegemony, centred on free-trade and the gold standard  
- European colonial expansion into Africa, Asia, and Latin America |
| Mercantile-industrial food regime (1945-1972) | - State-centred forms of agrofood regulation  
- In agriculture, commodity programs (US), state-marketing (Canada, Australia), and tariff protection  
- In food sector, state regulation of food standards, nutrition, prices  
- Neoliberal governance via deregulation and market imperatives  
- Devolution of state (public) responsibilities to private actors | - Industrial agriculture based on manufactured inputs and mechanization  
- Production of standardized, branded food commodities via corporate agrofood capital  
- Key complexes centred on wheat, livestock, and durable (processed) foods  
- Standardization of diets  
- Proliferation of privately regulated commodity chains centred on ‘quality’ (e.g., fresh, organic, fair-trade, etc.)  
- Decline of branded foods and rise of supermarket own brands, chilled food and ready-made meals  
- Class differentiation of diets via standardized and ‘quality’ food commodities | - Regulation of food trade via state-marketing agencies and multilateral cooperation  
- Mercantile exchange relations linking the US to the Third World via food aid  
- Selective liberalization of trade via the GATT  
- ‘Free trade’ agreements as the vehicle for privatized food security, corporate power (WTO, regional FTAs)  
- Private regulation of global commodity chains by transnational capital and associated consortia (e.g., Eurep Gap) | - US hegemony centred on dollar as world reserve currency  
- Bretton Woods system for regulating international finance and coordinating Third World development (the IMF and the WB)  
- Spread of state-system to the Third World via decolonization  
- Global political and financial disciplining through the WTO and Bretton Woods institutions  
- Emerging forms of global governance centred on climate change diplomacy (?) |

In turn, this analysis provides a lens on historical processes of conflict and change in the agrofood sector. First, it helps make sense of the historical transformation of state-economy relations regulating the prairie wheat economy. As the key institution integrating the prairie wheat economy into global circuits of accumulation, the emergence and subsequent transformation of the CWB must be understood in light of the changing strategies of the state and farmers (as a class) in shifting food regime relations. Farmers advocated for the CWB during the crisis of the first food regime (1914-1945) as a means of redressing the structural inequalities of the grain trade. Meanwhile, the state sought ways of responding to problems of market collapse, grain surpluses, and shifting patterns of trade and accumulation. I show how the CWB has served as a mechanism for adapting the Canadian prairies to domestic and international food regime relations. Building on the legacy of these structures, the CWB has recently created a unique interplay between collective marketing, centralized quality control, and new relations with downstream actors, with a renewed emphasis on quality-differentiated products for premium markets. As the CWB pursues these new commercial directions, old debates over the single-desk take on new dimensions. In turn, the survival of the CWB impinges on the fate of prairie farmers in the shift towards the economy of qualities.

Second, tracing the transformation of the wheat-bread commodity chain over time sheds light on historical conflicts shaping the UK food sector. The UK food economy has assumed unique features arising from its place in food regime history. Founded on a policy of food import dependence and free trade, the early UK food sector embodied laissez-faire principles and the politics of cheap food. The profound crisis triggered by successive world wars turned this situation upside down, as the UK state assumed a
leading role in regulating food standards, quality and prices. Since the early 1990s, however, the UK has largely devolved food regulation to private actors, with supermarkets taking the lead (Marsden and Wrigley 1996). I trace these changes through the lens of the bread sector. Not only has bread has played a central role in British diets, but the history of bread is intertwined with the development of food manufacturing industries, state regulation of the food sector, and more recently, conflicts between food manufacturers and retailers. Today, the UK bread sector is being transformed in the shift towards the economy of qualities. Warburtons’ phenomenal success owes much to its exclusive sourcing relationship for specialized prairie wheat varieties, which has served as the platform upon which it has built its reputation for premium bread products. This model has been so successful that leading bread manufacturers and retailers are developing similar supply chain relationships with UK farmers, leading to significant industry change.

Changes to both the prairie grain industry and the UK bread sector intersected in the conflict over GE wheat. The shift towards quality chains for wheat-bread thus also sheds light on changing dynamics in the contestation of GE crops. The CWB and Warburtons each played a leading role in opposing GE wheat, helping to crystallize the debate around different alternatives for the future of the prairie grain industry – quality products for premium markets, or cheaper products destined for price-conscious emerging markets. In the way it included new forms of cooperation (across social movement and industry lines) and contestation (over socially constructed claims to wheat and bread quality), the GE wheat controversy thus helps illuminate the shifting politics of GE crops.
This dissertation will contribute to sociological knowledge of historical food regimes, commodity chains, and the wheat-bread sector. Likewise, by tracing the history of prairie farm politics, UK food politics, and their intersection, it will contribute to knowledge of agrofood politics and social movements. The historical political economy approach used here helps situate and interpret the transformation of the CWB and Warburtons, separately and together, and draw out the implications for broader changes in the agrofood sector. Today the CWB and Warburtons are leading in the creation of privately regulated supply chains for premium bread, suggesting a surprising role for wheat in the shift towards differentiated ‘quality’ foods. Tracking the changing significance of wheat and bread – as told through the interweaving stories of the CWB and Warburtons – will shed light on wider structures and transformations in the global agrofood system.

**Overview of chapters**

In Chapter 2, I present the theoretical framework for my dissertation. This study is framed by recent questions and research directions in agrofood studies, particularly emerging scholarship on the shift towards the economy of qualities. I draw upon on a food regimes (Friedmann and McMichael 1989, Friedmann 1993, 1994, 2005; McMichael and Friedmann 2007) interpretation of this shift, which situates recent changes in a holistic account of relations among states, classes, and enterprises over distinct periods of historical stability and crisis. Food regimes are historical constellations of rules and social relations regulating the production and consumption of food across domestic and international spaces. Table 1.1 identifies the key features of historical food regimes. I situate the recent transformation of the wheat-bread
commodity chain in the context of emerging principles that may provide the basis for a new food regime (Burch and Lawrence 2005; Friedmann 2005), providing an empirical instance of restructuring around privately guaranteed quality claims. Because this process is mediated by the time- and space-bound specificities of the Canada-UK commodity chain, it provides insight on dimensions of complexity and contingency in the shift towards quality.

In this light, Chapter 2 outlines the key contributions of my analysis to current knowledge of food regimes. First, this case provides an opportunity to understand the role of a complex, hybrid organization (the CWB) as a historical food regime actor. The CWB emerged from the crisis of the first food regime, but consolidated its role during the mercantile-industrial food regime. It is unique in the way it has embodied both state imperatives (for regulating domestic agriculture and international trade) and the economic interests of prairie farmers as a politically influential class. Today, it is thought by domestic and international opponents to have outlived its purpose. Yet, it has shown creativity in adapting to new commercial and political circumstances. Food regimes analysis provides a means of interpreting the emergence and historical transformation of the CWB as an outcome of Canada’s changing strategies for integrating the prairie wheat sector into successive food regimes, a process mediated by struggles among farmers, capital, and the state.

Second, I use historical political-economy approach taken in the food regimes literature to make sense of the unique historical evolution of the UK food sector. Specifically, food regime history provides a means of tracing the mutually constitutive processes shaping the UK bread sector and the prairie wheat economy over time. These
historical legacies, in turn, provide context to the re-invention of the UK bread sector since the 1990s. Here, the change is being led by Warburtons, providing an example of how a particular food manufacturer is responding to and constructing changing quality conventions in the bread sector. Warburtons’ story is fascinating given supermarket dominance in the UK food sector and the historical legacy of consumer taste for cheap, industrial bread. Third, the historical transformation of the wheat-bread commodity chain provides a lens through which to interpret the controversy over GE wheat on the Canadian prairies, here understood as a conflict over competing modes of integrating prairie wheat producers into the economy of qualities.

I outline my methodological approach in Chapter 3, arguing for McMichael’s (1990) incorporating comparison as the most appropriate strategy for interpreting complex historical change at different scales. Incorporating comparison is an alternative to conventional macro-historical methods. Whereas the latter rely on formal comparison of preconceived units of analysis abstracted from their historical and geographical contexts, incorporating comparison progressively constructs objects of comparison (system parts and wholes) by situating them historically and in their mutually conditioning relationships. The historically-grounded, holistic, and non-deterministic approach taken in food regimes analysis is a form of incorporated comparison. In this dissertation, I explore incorporated comparisons along three axes: the transformation of the Canada-UK commodity chain for wheat-bread; the role of Canada (as mediated by prairie institutions) as a secondary state actor; and the role of concrete historical actors (the CWB and Warburtons) across successive food regimes.
Chapter 4 is the first of three historical chapters tracing the interweaving stories of the prairie wheat economy and the UK food sector. Figure 1.1 provides an overview of key historical events and food regime dates.
### Figure 1.1 – Timeline of historical events

<table>
<thead>
<tr>
<th>UK-centred food regime (1870-1914)</th>
<th>Mercantile-industrial food regime (1945-1972)</th>
<th>Corporate-environmental food regime (?- )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food regime transition (1914-1945)</td>
<td>Food regime transition (1972 – ?)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Event</th>
<th>Year(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>World War I</td>
<td>1914-1918</td>
</tr>
<tr>
<td>Treaty of Rome (EU)</td>
<td>1957</td>
</tr>
<tr>
<td>US – USSR wheat deal</td>
<td>1972</td>
</tr>
<tr>
<td>Uruguay Round of the GATT</td>
<td>1986 - 1994 (WTO)</td>
</tr>
<tr>
<td>EU Common Agricultural Policy CAP</td>
<td>1957</td>
</tr>
<tr>
<td>Warburtons founded</td>
<td>1876</td>
</tr>
<tr>
<td>First shipment of prairie wheat to UK</td>
<td>1878</td>
</tr>
<tr>
<td>First CWB (1919-20)</td>
<td></td>
</tr>
<tr>
<td>Modern CWB (1935)</td>
<td></td>
</tr>
<tr>
<td>First CWB sale to communist China</td>
<td>1957</td>
</tr>
<tr>
<td>CWB single-desk becomes permanent</td>
<td>1967</td>
</tr>
<tr>
<td>CWB-Warburtons contract</td>
<td>1995</td>
</tr>
<tr>
<td>CWB governance changes</td>
<td>1998</td>
</tr>
<tr>
<td>Monsanto withdraws GE wheat</td>
<td>2004</td>
</tr>
</tbody>
</table>

In Chapter 4, I trace the emergence and transformation of the prairie wheat economy and the British food sector during the first (UK-centred) food regime (1870-1914) and its associated period of crisis. The establishment of the prairie wheat economy tied Canadian farmers to exports of bread-milling wheat destined for an industrializing milling and bread-manufacturing sector in the UK. In a process mediated by Canada’s relationship to the UK, struggles among social actors, and the geography of the prairies, the state and farmers established the key institutions for regulating the grain trade and consolidating Canada’s reputation for high-quality wheat. Having moved decisively towards a policy of food import dependence, the UK relied on cheap North American imports to supply bread to working class eaters. The massive supply of North American wheat drove the adoption of new milling technology (the roller mill) that produced whiter, stronger flour suited to increasingly standardized bread production, at once constructing and responding to British tastes. Though the US dominated during the first decades of this trade, Canada’s key role in provisioning the UK during WWI consolidated the prairies’ status as a leading wheat exporting region.

The decades-long crisis spanning both world wars and the Great Depression produced major changes in both the prairie wheat economy and the UK food sector. On the prairies, structural inequalities and market volatility in the early grain trade led farmers’ movements to invent and experiment with collective marketing. With the crisis of the world-economy and the first food regime (1914-1945), a state-coordinated version of collective marketing was instituted in the form of the single-desk CWB. In the UK, food regime crisis called into question the policy of import dependence. With government involvement in regulating food quality and food supplies over this period,
the state came to be seen as the chief guarantor of access to safe, nutritious and adequate supplies of food. The experiments of the crisis of the first food regime coalesced into relatively stable relations during the second, US-centred food regime.

Chapter 5 describes how the CWB came to serve as the nexus of institutions tying the prairie wheat economy into the second food regime (1945-1972). The CWB helped Canada adapt to the US’s re-entry into world markets, while simultaneously responding to state goals for expanding and stabilizing trade and meeting domestic farm income targets. This role began to unravel, however, when the UK reversed its decades-old policy of food import dependence in the after-math of WWII. As a result, the UK market for Canadian wheat declined precipitously and Canada lost its distinct edge in premium markets for high-quality wheat. No longer able to take for granted its dominance in these markets, nor its ability to influence prices through market power, the CWB was transformed during the 1970s – the beginning of a food regime crisis lasting several decades -- into a more commercially oriented organization focused on market development and branding. In the UK, state regulation of prices, nutritional standards, and food safety provided the framework under which emerged an increasingly consolidated and vertically integrated grain milling and bread manufacturing sector. By the 1970s, however, the bread manufacturing sector faced a perfect storm of crisis conditions. Declining bread consumption, recession, and industry consolidation all squeezed the margins of bread manufacturers. This crisis opened the way for large retailers to revolutionize the bread market with the introduction of ultra-cheap, supermarket own brand bread products, leading to conditions of chronic crisis for bread manufacturers lasting into the 1990s.
In Chapter 6, I interpret the transformation of the Canada-UK wheat-bread commodity chain in the 1990s as the outcome of the shifting strategies of commodity chain actors responding to crises in their respective industries. In Canada, volatile international markets and the price-depressing effects of trade conflicts between the EU and the US framed a crisis in the grains sector from which the prairies has yet to emerge. With the declining effectiveness of the CWB in maintaining farm incomes and the crisis of legitimacy of state-led regulation of agriculture, the future of the CWB became a matter of domestic and international political contestation. Acute conflicts on the domestic scene led, in the 1990s, CWB leaders and the federal government to rethink the governance of the organization. By 1998, the CWB had become a farmer-controlled entity with a renewed impulse for organizational and operational change. Meanwhile, a major shift in the structure of the world market occurred as, over the span of a few short years, the number of monopoly state-importers with which the CWB dealt declined precipitously. I explain how the CWB adapted to these changes by re-orienting the organization around new political and commercial realities. In the UK bread sector, the 1990s were marked by severe price wars and declining market share for branded manufacturers. Both trends were linked to the increasing dominance of large supermarket retailers. Using ultra-cheap bread as a loss leader, supermarkets put severe pressure on the traditional branded manufacturers. In this context, Warburtons embarked on a program of national expansion based on a strategy of premiumisation. Refusing to cut prices or compromise on quality, Warburtons both responded to and constructed the bifurcation of the bread sector between ultra-cheap own brands and superior quality, premium products.
It is in this context that the CWB and Warburtons forged a unique sourcing arrangement based on identity-preserved (IP), contract production of specific Canadian wheat varieties. The Canadian sourcing program provided one of the pillars of Warburtons’ success in the 1990s and 2000s, as the bakery used a high proportion of very high-quality, IP wheat in its milling grists. At the same time, the contract proved an important success for the CWB, which played a key role in establishing and coordinating the program. I examine ways in which, through its collective marketing mandate, the CWB was able to mediate the integration of prairie producers into this quality chain to the benefit of all prairie farmers. Likewise, I explain how the CWB – Warburtons program has turned into a showcase of CWB responsiveness to prominent buyers and has driven institutional, regulatory, and social change on the Canadian prairies.

In Chapter 7, I situate the conflict over GE wheat in the context of the transformation of the wheat-bread commodity chain in the 1990s. Here, I interpret conflicts over GE wheat as indicative of the way in which key commodity chain actors have contested quality principles around wheat-bread. Framed as a threat to lucrative premium export markets, the conflict embroiled both the CWB and Warburtons in a defence of quality principles in the Canada-UK commodity chain. In a departure from previous conflicts over GE crops, the conflict over GE wheat involved a symbolic element linked to bread’s status as a culturally significant staple food and wheat’s special significance to prairie agriculture. I argue that the conflict shows how the CWB is playing a new, more prominent role in mediating the integration of prairie farmers into global supply chains for wheat.
Key findings

This dissertation contributes to food regimes analysis by tracking empirically the transformation of the wheat-bread commodity chain and its key actors over time. Focusing on a particular commodity-complex (bread milling wheat), it provides a concrete instance of how social actors (farmers, state actors, and corporations) have negotiated food regime change. My analysis shows how new food regime relations (commodity-chain co-ordination around privately guaranteed standards) in the wheat-bread sector combine both ‘new’ and ‘old’ elements relative to previous food regimes. The creative reconstitution of this commodity chain in the 1990s built upon historical legacies in the Canada-UK wheat trade. First, Canada has for decades maintained a reputation for high-quality milling wheat, a function of the public institutions of centralized quality control and marketing forged in the crisis of the first food regime. Today those institutions are being adapted to new quality conventions driven by prominent buyers, providing an example of hybrid private/public regulation. Second, continuity of supply in the Canada-UK wheat-bread trade has shaped paths of development in the prairie wheat economy and the UK bread sector. The prairie wheat economy continues to serve export markets for premium bread-milling wheat, though the UK is now one among many export outlets. Meanwhile, some features of British bread consuming culture (preference for pan-baked, white bread) can be traced to the effects of dependence on North American wheat varieties. The innovation in the revival of the Canada-UK relationship has been to incorporate and/or transcend these elements in reinventing the commodity chain around IP prairie wheat for premium bread products.

Likewise, I show how actors and institutions (e.g., the CWB) forged in previous food regimes are engaged in the reinvention of their roles. For the CWB, the result has
been a creative combination of organizational and commercial changes that, while maintaining its basic mandate to maximize sales returns for farmers through collective marketing, have helped adapt the prairie wheat industry to new conditions of accumulation. In the UK context, the Warburtons’ case shows how, in a market recently dominated by supermarkets, a food manufacturer has carved out a competitive space through quality-differentiation and innovative sourcing arrangements.

Finally, the analysis illuminates the changing role of wheat-bread across food regimes, revealing both continuity and change. On the one hand, there is continuity in the basic wheat-bread link across food regimes, with supplies of North American hard wheat used to produce standardized loaves for mass consumption. On the other hand, the significance of North American wheat varieties for the UK food sector has been mediated by changing Canada-UK trade relations, the reorganization of the agrofood system, changing technology, and more recently, the highly exacting quality specifications of food manufacturers. On the consumption side, the Canada-UK commodity chain linked prairie wheat production to the mass consumption of a food staple. The recent reconstitution of the commodity-chain through the CWB-Warburtons contract links a relatively privileged and knowledgeable set of contracting farmers to discerning overseas consumers of a premium product. The story thus turns on both natural aspects (e.g., wheat varieties) of the commodity as well as the ways in which social actors have negotiated commodity chain relations over time.
Chapter 2 – Theories and Literatures

In this chapter, I review the theories and literatures informing my analysis of the historical transformation of the Canada-UK commodity chain for wheat-bread. I begin with recent theorizing about the importance of ‘quality’ as the basis of competition, coordination, and contestation in agrofood commodity chains. Although these insights have been used to illuminate recent restructuring in several commodity chains and complexes, it has not as yet been applied to food grains or bread. Notwithstanding characterizations of wheat as an undifferentiated commodity and bread as mundane article of consumption, I suggest that the economy of qualities thesis can help make sense of the recent emergence of end-user driven ‘quality chains’ for bread milling wheat exemplified in the CWB-Warburtons program. The case provides an empirical instance of the formation of a quality chain linking contracted production of specialized wheat varieties to standardized but quality-differentiated products for a premium market.

Yet, in the way that it has been shaped by the legacy of historical commodity-chain relations (actors and institutions), the reconstituted Canada-UK quality chain for wheat-bread points to longstanding debates over changing forms of historical state-economy relations in the regulation of food production and consumption. The economy of qualities thesis suggests that private regulation led by transnational corporations (especially retailers) is today superseding state-led forms of regulation. The shift towards quality-differentiation in the commodity chain for wheat-bread described here is rendered more complex by the central role played by a public grain-marketing agency (the CWB) combining public and private forms of regulation. Meanwhile, Warburtons’ leading role
in the premiumisation of the UK bread market provides a corrective to narratives of supermarket dominance in the shift towards the economy of qualities.

Despite two decades of intense pressure on the legitimacy of Canada’s centralized grain marketing and quality control system, the CWB has played a leading role in mediating new quality principles in wheat. The significance of Canada’s unique grain marketing and quality control institutions suggests that historical legacies are crucial for making sense of the shift towards the economy of qualities. I use *food regimes* analysis to provide world-historical context to the emergence (and subsequent transformation) of these institutions. The food regimes approach problematizes changing forms of agrofood regulation in distinct historical periods of stability and transition as the outcome of social struggles among social movements, capital, and states. Applied to the history of the Canada-UK commodity chain for wheat-bread, food regimes analysis helps interpret how -- at different scales -- processes of cooperation and conflict among social actors has mediated the integration of the prairie wheat sector in the world food economy.

I review food regimes in terms of its theoretical contribution to agrofood studies, arguing that its key strengths are its historicity, methodological holism, and ability to connect and interpret processes of local and global change. Next, I present a synthesis of food regime history as it has been developed over the last 20 years, with a focus on the way it has explicated changing state-economy relations. To date, accounts have focused predominantly on relations at the centre of historical food regime relations, i.e., those revolving around successive hegemons. By examining the shifting strategies for integrating the Canadian prairies into successive food regimes, I provide a lens on the role of a *secondary* food regime actor. Here, I argue, the constellation of institutions
regulating the prairie wheat economy can only be understood in relation to Canada’s response to changing conditions of accumulation and power – particularly, relations with each hegemon -- in historical food regimes.

Last, I review scholarship on the history of the prairie wheat economy and of the UK food sector. These bodies of literature provide a backdrop for understanding the historical transformation of each sector separately, and together. The Canadian political economy tradition has examined the history of the prairie wheat economy, the emergence and transformation of the CWB, and forms of agrarian political contestation, but mostly as a function of national dynamics of capitalist development. Recent literature on the political economy of grain marketing has emphasized political and institutional factors leading to current conflicts over the CWB, but has not addressed shifting commercial strategies as they relate to long-term political, economic, and institutional change. Meanwhile, historical literature on the UK food sector helps account for some of its unique features, including the legacy of experiments with food import dependence, the particularities of its food consumption culture, and the legacy of heavy state involvement in the food sector as a result of the world wars.

The economy of qualities

In characterizing the sweeping changes of the last 30 years, scholars have recently suggested that ‘quality’ has become the overriding organizing principle and basis of competition in agrofood commodity chains operating at various scales. This idea has been used to contrast emerging agrofood relations to those of a previous era (roughly the 1940s to the 1990s) characterized by standardized food products valued predominantly on the basis of price and public guarantees of basic food safety. By contrast,
contemporary processes of agrofood restructuring revolve around demand for highly differentiated products offering a bewildering array of quality claims based on nutrition, provenance, production standards, or ethical concerns. Four key changes are understood to be driving this transformation. First, international conflicts over food standards have revealed the political nature of food quality and food safety issues, which today present a major obstacle to the project of global free trade in agriculture (Friedmann 2005). Second, food politics have come to revolve around consumers rather than producers, as farm numbers have declined and issues of nutrition, food safety, and the social and environmental conditions of food production have become more prominent. Third, where once food manufacturers were the dominant form of agrofood capital, supermarkets are today the leading actors, marking a fundamental shift in the balance of power in agrofood systems (Burch and Lawrence 2007; Flynn et al. 1994; Humphery 1998; Marsden et al. 1996). Fourth, private actors have begun to establish new forms of agrofood regulation that circumvent or supersede public guarantees of quality and safety (Busch and Bain 2004; Friedmann 2005; Campbell et al. 2005). Taken together, these changes have been theorized to constitute an emerging economy of qualities. In what follows, I review the economy of qualities thesis and explore ways in which it might be applied to the transformation of international commodity chains for wheat-bread.

In the last 30 years, food has become the object of conflict – at various scales – over international trade, technology, safety, environment, and nutrition, only to name a

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This term has parallel but not altogether congruent meanings in the sociology of agriculture and food and in economic sociology. In the former, the term has been used to refer to the growing importance of privately guaranteed quality claims -- led by supermarkets, and responding to consumer anxiety over food issues -- driving new social relations and forms of accumulation (McMichael and Friedmann 2007). In the latter, the economy of qualities has been used to refer more broadly to the reorganization of economic markets around dynamic processes of qualification/requalification through which economic actors position products for consumption. Here, the ‘service’ economy is considered emblematic of this transition.
few. In the international arena, conflicts over food standards were, by the late 1990s, undermining the project of trade liberalization through the World Trade Organization (WTO) (Friedmann 2005). Previously exempt from the post-war framework for negotiated trade liberalization, agriculture was brought under the purview of the GATT (the WTO’s immediate precursor) during the 1980s in a bid to resolve bitter competition between the EU and the US over export subsidies. These conflicts spilled over into contentious questions over food regulation, as the WTO attempted to harmonize global food standards. Under pressure from the growing concern among European consumers over new agrofood technologies, the EU imposed a longstanding moratorium on hormone-treated beef and in the late 1990s imposed a de facto moratorium on GE foods (only lifted in 2003) (Buttel 2003). These actions produced a major split with the US, triggering serious trade penalties for the EU through WTO rulings. In this way, conflicts over international food standards – which have never been fully resolved -- took centre stage in on-going trade frictions at the WTO (Friedmann 2005, 252).

These conflicts reflected broader changes in food politics, as environmental movements and food consumers became new drivers of change in the agrofood system. The introduction of GE crops was one issue that, in the 1990s, drove increasingly intense environmental scrutiny of industrial agriculture, bringing food and agriculture issues to the centre of global environmental movements (Friedmann 2005, 249-50). The success of anti-GE food movements resulted partly from the ‘environmentalization’ of biotechnology opposition, as influential environmental movements (e.g., Greenpeace) framed GE foods primarily as a danger to human health and ecosystems (Buttel 2005).
By the late 1990s, the issue was also increasingly linked to broader criticism of corporate globalization, especially arguments targeting the WTO system (Buttel 2003).

Meanwhile, consumers disillusioned with the food system have driven demand for healthy, safe, and sustainably produced food. European food scares of the 1990s -- epitomized in the food safety crisis over bovine spongiform encephalitis (BSE, or ‘mad cow’ disease) -- prompted a loss of faith in the ability of public authorities to guarantee food standards (Marsden et al. 1994). Food manufacturers and retailers began increasingly to use labels such as ‘healthy’, ‘natural’, and ‘organic’ as marketing tools targeting wary consumers (Friedmann 2005, 250). The legacy of food scares was to institute new forms of industry-led regulation, which were pioneered in the UK as it experimented with neoliberal deregulation of the agrofood sector. The shift was marked in the UK’s Food Standards Act (FSA) of 1990, which devolved overall authority for food safety to private actors in what has been called ‘private interest regulation’ (Marsden and Wrigley 1996). The UK’s FSA has become emblematic of the neoliberal devolution of state (public) responsibility for food and agricultural standards occurring to various degrees in the rest of the EU and in the US (Campbell, Lawrence and Smith 2005).

The decline of consumer confidence in the food system coincided with the rise of supermarkets as leading corporate actors in the global agrofood system (Winson 1992; Busch and Bain 2004; Burch and Lawrence 2005; Burch and Lawrence 2007). Supermarkets emerged in the early 20th century and became the dominant form of food retailing after WWII. Until the 1980s, however, retail capital was generally subordinate to the interests of large (often transnational) food manufacturing firms offering branded
food products. Over the last three decades, massive concentration in retail capital (now also led by transnational firms [ETC 2005]) has combined with new supermarket accumulation strategies to reverse historic relations between food manufacturers and retailers (Lawrence and Burch 2007, 8). Beginning in the 1980s, supermarkets introduced ‘own brands’ that have allowed them to offer cheaper, generic versions of branded food products (Burch and Lawrence 2005; Winson 1992, 175-7). Own brands offered both a new source of profits and a means for supermarkets to achieve new forms of control over food manufacturers. By sub-contracting the production of own brand products to a number of small or medium manufacturers, retailers free themselves from dependence on a single manufacturer, as in the case of national brands (Ibid., 176). The use of own brands also gives supermarkets control over various product characteristics, part of a broader trend whereby supermarkets have specified increasingly exacting production and quality standards from suppliers (Foord, Bowlby and Tillsley 1996; Marsden and Wrigley 1996). Here, new technologies of supply chain management have been key, especially sophisticated information technologies that provide for unsurpassed inventory control and coordination of logistics. In these ways, supermarkets have transcended their traditional role in food distribution by exercising considerable influence over food production and consumption (Lawrence and Burch 2007, 9).

More recently, supermarkets have introduced premium lines of own brand products that compete with, and indeed surpass, branded food products on the basis of quality (Burch and Lawrence 2005). This has been part of a larger trend whereby supermarkets have created altogether new market segments for food, especially convenience foods such as ‘ready meals’ (Lawrence and Burch 2007, 9). By
manufacturing and marketing their own convenience and health foods, supermarkets are allowing the retail sector “to move back into the production process” (Burch and Lawrence 2005, 10). In this way, supermarket dominance has had the effect of ‘greening’ consumers, as powerful retailers attempt to satisfy socially constructed consumer concerns with food quality and safety (Ibid., 18). Supermarket power has thus translated into increasingly sophisticated attempts to respond to and construct consumer demand.

The transformation of consumer demand for food and the rise of supermarkets provide the context for understanding the last key strand underpinning the economy of qualities, the rise of privately regulated and audited standards in transnational supply chains. Beginning in the 1990s, globally sourced commodity-chains for ‘fresh’ produce (especially fruits and vegetables) assumed a key role in processes of globalizing agrofood restructuring (Friedland 1994a; Friedland 1994b, Llambi 1994). Encouraged by the prescriptions of multilateral lenders to increase exports in the name of debt reduction, countries in the global South adopted new agro-export strategies centred on producing counter-seasonal produce destined for Northern supermarkets (Friedmann 1993). By the mid-1990s, consumer demand for quality, ecologically friendly, and healthy foods also drove growth in the ‘organic’ segment, as key agro-exporters such as New Zealand shifted towards organic marketing (Campbell and Coombes 1999; Le Heron and Roche 1995; Lockie, Lyons and Lawrence 2000). These trends were the early precursors to new forms of supply chain regulation emerging in the late 1990s based on retailer-designed private standards verified through third party auditing (Busch and Bain 2004). By the late 1990s, supermarkets faced conditions of intense competition in a highly concentrated
industry. Under such conditions, price-based competition has become less important than non-price competition on the basis of “variety, convenience, quality, and year-round supply” (Ibid., 329). In response, supermarkets began to devise private standards and quality guarantees that have since become a key competitive strategy as they vie for consumer loyalty.

These changes have assumed greater global significance with the establishment of an international consortium of retailers (Eurep\(^7\)) devoted to implementing comprehensive private food standards for suppliers and other upstream actors (Busch and Bain 2004; Friedmann 2005; Campbell 2005). Established in 1997, Eurep has devised an elaborate set of standards (its ‘protocols for Good Agricultural Practice’) that combine concerns for food safety, sustainable farming, and worker health and safety, for all stages from production to retailing (Campbell 2005, 1). These standards go well beyond ‘organic’ (which specifies only which inputs are prohibited) by adopting an ‘integrated systems’ approach intended to ensure the long-term sustainability of farming practices (Ibid., 2). Adhered to by all the major European retailers, as well as many food manufacturers and fast-food restaurants, Global-GAP (formerly Eurep-GAP) standards have become the *sine qua non* of entry into key European markets for quality foods (Campbell et al. 2005; Friedmann 2005). The significance here is that, led by large retailers, private actors have implemented standards for food quality and safety that surpass or circumvent regulations set by governments and the WTO (Busch and Bain 2004, 340; Friedmann 2005).

The key implication of the shift towards the economy of qualities is in the way it has re-ordered power relations in the global agrofood system. Quality standards – their definition, measurement, and enforcement – have become a new terrain of struggle.

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\(^7\) Eurep stands for Euro-Retailer Produce Working Group.
between farmers, processors, food manufacturers and retailers. The market power of retailers and their extended reach into the spheres of food production and consumption have allowed retailers to impose a whole range of requirements on suppliers, including quality specifications, passing the risks and costs of food production onto upstream actors (Lawrence and Burch 2007; Foord et al. 1996). Meanwhile, the implementation of private quality standards involves manifold new requirements for farmers, the adoption of which can generate conflicts among governments, firms, and producer organizations (e.g., Stanford 2002). New private quality regimes may be particularly onerous for farmers in the global south, where small-scale producers struggle to meet quality requirements and follow elaborate auditing procedures (Campbell 2005; Cavalcanti 2005).

**Towards ‘worlds of food’**

The economy of qualities thesis has had a major impact on the field of agrofood studies. Perhaps most significantly, it has prompted efforts at theoretical synthesis that can do justice to the complexity and heterogeneity of the contemporary global agrofood system. Morgan, Marsden and Murdoch’s (2006) ‘worlds of food’ is a leading example. Morgan et al. (2006) take as a starting point the insight from economic sociology\(^8\) that all economic exchange is guided by conventions, routine ways of acting based on shared, implicit norms and frames of reference. Conventions are used by economic actors in evaluating situations and helping to govern basic expectations in economic coordination (Ibid., 20). Conventions are based on mutual agreement by participating actors, and usually relate to some broader justification or logic. In economic coordination,

\(^8\) Especially as developed by Boltanski and Thevenot (1991).
conventions may be based on a number of possible justifications including market performance (notions of price and value), industrial efficiency, green principles, and reknown (social status or reputation) (Ibid.).

The key contribution made by Morgan et al. (2006) is in interpreting the economy of qualities as arising from the complex interplay of competing conventions. Too often, attempts to theorize the agrofood system have drawn a binary between ‘conventional’ (large-scale, industrial) and ‘alternative’ (small-scale, regional) agrofood commodity chains (Morgan, Marsden and Murdoch 2006, 8). With the proliferation of production regimes, standards, and certification processes all referred to under the umbrella ‘quality’, these simplistic dichotomies have become inadequate. In reality, quality claims have become a key feature of competition in both types of agrofood networks – conventional and alternative -- though each according to different logics. In conventional agrofood commodity chains, new quality principles are generally imposed through bureaucratic/technical forms of public and private regulation, albeit requiring new conventions. In alternative agrofood commodity chains, quality principles tend instead to revolve around conventions highlighting authenticity, provenance, and trust between actors. The key is to understand how quality is structured in each case by bundles of conventions that give rise to differing practices and definitions of quality. Through the play of conventions, competing concepts of quality in different types of agrofood commodity chains have become “an intensely competitive economic and spatial ‘battlefield’” (Ibid., 71). Here ‘conventional’ and ‘alternative’ systems constitute rival, but not wholly impermeable, paradigms.
In order to capture this complexity Morgan, Marsden and Murdoch (2006) propose a typology of different ‘worlds of food’ each defined by distinctive economic, ecological, cultural, and political/institutional practices and conventions (Morgan et al. 2006, 23). The Industrial World of food is that governed by the logic of industrialization, standardization and de-territorialization characteristic of fast-food and standardized, generic processed foods. The Market World of food refers to characteristics of agrofood networks producing standardized, but differentiated food commodities destined for ever-more fragmented consumer tastes. The Interpersonal World of food refers to forms of production, consumption, and ecological relations that are typical of ‘alternative’ food networks (Ibid., 23). These worlds of food are not mutually exclusive, but interpenetrate one another in the way they ‘map’ onto actual agrofood networks. In contests over competing definitions of quality, it is clear that “there are different and increasingly fluid ‘worlds’ of food within the same spaces operating rival paradigms of knowledge, power, and regulation” (Ibid., 71).

**Wheat and bread in the economy of qualities**

Organized around the production of specialized wheat varieties for a premium market, the CWB-Warburtons program suggests that the economy of qualities thesis can help explain recent changes in international commodity chains for wheat. Under the program, farmers are contracted by Warburtons to grow select wheat varieties meeting the bakery’s private quality standards. The grain is inspected and selected by Warburtons’ testing facilities located on the prairies and shipped to the UK under identity-preservation (i.e., segregated from the bulk handling system), allowing

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9 The concept is an adaptation of Storper and Salais’ (1997) ‘worlds of production’, referring to the bundle of institutions and conventions characterising regional economies.
Warburtons to match its Canadian wheat sourcing to very specific dimensions of grain quality tailored to its baking process. Warburtons has made premium bread quality – of which its sourcing program is a key pillar -- the core of its competitive strategy in a bread market traditionally dominated by cheap, undifferentiated industrial bread. In these ways, the CWB-Warburtons case embodies changing quality conventions around wheat and bread that are transforming the longstanding Canada-UK trade.

This case allows for empirical and theoretical consideration of the significance of wheat-bread in the economy of qualities. To this point, scholarly attention has focused mostly on changing supply-chain relationships in commodity chains for fresh fruits and vegetables (Friedland 1994a, Friedland 1994b, Llambi 1994; Le Heron and Roche 1995). Commodity-specific examples have included studies of emerging quality principles for New Zealand kiwifruit (Campbell 2005; Campbell et al. 2005), Mexican avocados (Stanford 2002), and Brazilian table grapes and mangoes (Cavalcanti 2004). Though there has been increasing public attention on issues of bread culture, nutrition and quality in the UK (e.g., Whitley 2006), there have been few scholarly studies of changing quality dynamics in wheat-bread commodity chains (Sharpe, Barling and Lang’s [2008] study of ethical dimensions in UK commodity-chains for wheat is the exception).

The extent to which quality principles such as traceability, identity-preservation, stringent production standards, and quality specifications are transforming wheat-bread commodity chains will help illustrate the depth and character of quality differentiation in this sector. The case of wheat is particularly interesting because of its contradictory character as a commodity. On the one hand, wheat used as feed grain, as a raw material in processed foods, or destined for price-conscious markets in the global South is treated
as an undifferentiated, bulk commodity. On the other hand, as the principle ingredient in bread, a semi-fresh processed food, wheat holds particular cultural and dietary significance. Bread-milling wheat destined for premium markets can therefore be predicted to be subject to other quality conventions, such as those related to the differentiation of consumer tastes, food safety, the provenance of grain, and environmental issues. At the same time, the consumption qualities of wheat in bread are not always accessible to eaters (as they might be for fresh produce), and grain imports have over decades divorced bread consuming cultures from local wheat varieties. This case therefore offers an opportunity to understand ways in which the nature of the commodity in question, and its transformation into food, mediate the nature and pace of changing quality conventions.

This case also provides a means of exploring how the Canadian prairies are being integrated into the economy of qualities via the reconstitution of the Canada-UK commodity chain for wheat-bread. With its distinctive geography, history, and institutions, the prairie wheat sector constitutes a regionally specific world of food. In general, the transformation of the Canada-UK wheat trade since the 1990s is characteristic of the shift from an Industrial World of food to a Market World of food in the prairie wheat sector. Yet, it is clear that this shift is partial (as the Warburtons program accounts for only a small percentage of total Canadian exports, though more than half of exports to the UK) and has been mediated by unique features of prairie agriculture. First, prairie agriculture is shaped by a unique configuration of public institutions regulating grain marketing (the CWB) and quality standards. After the
elimination of Australian Wheat Board’s monopoly powers in 2008\textsuperscript{10}, the CWB is the only monopoly state-marketing agency for wheat left in the world, and is emblematic of Canada’s centralized grain marketing and quality control system. The CWB is a complex hybrid of the public and the private, since it is formally controlled by prairie farmers, yet derives its monopoly powers from government statute. The CWB’s leadership in the quality differentiation of wheat varieties poses a paradox in the way the agency has combined public and private standards in attempting to accommodate the increasingly exacting demands of end-users while fulfilling its public mandate. In this context, the CWB’s evolving commercial orientation (exemplified by, but not limited to, the Warburtons contract) suggests complexity in the shift towards private regulation in the Canada-UK commodity chain for wheat-bread.

Second, the role of the CWB and Canada’s unique system of public grain standards suggest the importance of history in mediating the emergence of new quality conventions in the prairie wheat sector. State-marketing via the CWB dates nearly 75 years and quality claims have always been part of Canada’s strategy for integrating the prairies into world markets for wheat. From the origins of the prairie wheat economy, quality standards for wheat have both constructed and responded to changing requirements (for many decades dominated by the UK) related to baking and milling technology, industrial organization, and consumer tastes in import markets. Yet, until recently, practices and definitions of quality were based almost exclusively on industrial conventions organized around the transformation of prairie grain into standardized, white

\textsuperscript{10} Although subject to a process of gradual deregulation beginning in the 1980s, the AWB had retained its monopoly on Australian wheat exports until a kick-back scandal fatally undermined its legitimacy. In 2006, the AWB was implicated in making payments of more than $200 million to the Iraqi regime to secure wheat sales between 1997 and 2003. It was finally stripped of its export monopoly in July, 2008, and now competes with private grain companies in export sales of Australian wheat.
loaves. Today, new quality conventions blend industrial, market, and other conventions in redefining the Canada-UK wheat trade. The quality conceptions of Canadian and British industry actors thus build on a decades-long relationship that presents both continuities and ruptures with previous definitions and practices.

Although Morgan and colleagues (2006) recognize the role of path-dependent historical legacies on worlds of food\textsuperscript{11}, their analysis of regional/national case studies focus mostly on \textit{internal relations}. By virtue of having been established to serve distant export markets, the prairie wheat sector differs in the significance of its links to global circuits of accumulation and import markets. The prairies’ unique institutional configuration has been both cause and consequence of changing modes of integrating the prairie wheat economy into the global agrofood system. For this reason, analysis of this case calls for a framework that can provide world-historical context to the economy of qualities thesis. I argue that the food regimes perspective helps make sense of the historical transformation of the prairie wheat economy as a distinctive world of food.

\textbf{Food regimes}

Nested in the political economy of agriculture tradition (Buttel and Newby 1980, Buttel, Larson and Gillespie 1990; Friedland et al. 1991) the food regimes approach was developed, in the late 1980s and early 1990s (Friedmann and McMichael 1989; Friedmann 1993, 1994), as a means of contextualizing the global restructuring of agriculture and food within broader trajectories of change in the world-economy and state system. By the early 1990s, the political economy of agriculture had begun increasingly

\textsuperscript{11} Morgan and colleagues claim, for instance, that Tuscany’s model of rural development – based on its distinctive pattern of small-holding and diverse, artisanal food production – is a legacy of the historical sharecropping system dating from the medieval period and only partly altered by 20\textsuperscript{th} century patterns of rationalization (Morgan et al. 2006, 91-5).
to focus on processes of international, indeed global, restructuring of agrofood relations. The need to theorize this process became the pre-eminent focus of international scholarship in agrofood studies, generating several collected volumes documenting the restructuring of agrofood commodity chains in a new international division of labour (Bonnano et al. 1994; McMichael 1994; Goodman and Watts, 1997; Magdoff, Foster and Buttel, 2000). Here, research focused on the emergence of counter-seasonal global commodity chains for fresh fruits and vegetables (FFV) (Friedland 1994a; Friedland 1994b) and their role in the agro-export strategies of what Friedmann (1993) called the New Agricultural Countries (NACs) (Llambi 1994; Raynolds 1994). Others tracked the concentration and consolidation of capital, leading to the growing power and influence of transnational corporations (TNCs) in agrofood sectors upstream (e.g., seeds and chemicals) and downstream (processing, distribution, and retain) from farming (Heffernan and Constance 1994; Heffernan 2000).

While a detailed review of the relations underpinning each food regime (and the conditions of crisis that undermined them) is in order, I focus first on the theoretical contribution food regimes analysis has made to agrofood studies. In the article that introduced food regimes, Friedmann and McMichael (1989) linked changing international relations of food production and consumption to the evolution of the state system, a changing international division of labour, and the increasing articulation between agrofood and industrial sectors. Food regimes are constellations of social relations providing the conditions for stability in food production, consumption, and trade in distinct historical periods (Friedmann and McMichael 1989, Friedmann 1993, 1994, 2005). Scholars have used the concept predominantly as a “tool of hindsight” (Pritchard 12 For an early articulation of the commodity chains/systems approach, see Friedland (1984).
identifying at least two historical food regimes, and emphasizing the protracted crisis of food regime relations since the structural changes to the world-economy of the early 1970s.

The concept of food regimes combined two strands of macro-sociological theory: regulationism and world-systems theory. Regulation theory (Aglietta 1979) emphasizes the stabilizing institutional underpinnings of different regimes of accumulation (e.g., in the identification of Fordism with 20th century capitalist development up until the 1970s) as a way of understanding continuity and change in capitalist social structures. According to the regulationist perspective, stable regimes of accumulation have historically taken several forms, each with its own underlying logic and conditions of stability. By showing that capitalism is compatible with various social forms, this approach corrected Marxist readings that reified social relations and processes of social change under capitalism. The food regimes concept extended the regulationist approach from the national to the world-historical scale by combining it with a world-systems (Wallerstein 1974) interpretation of social change. World-systems theory emphasizes the mutually constitutive relationship between a hierarchical state system and global processes of capital accumulation over successive periods of hegemony (economic, social, and political leadership vested in a dominant state) (Wallerstein 1974; Arrighi 1994). By combining these theoretical strands, the food regimes approach has sought to develop a world-historical lens capable of illuminating the transformation of food sectors at multiple, interpenetrating scales, emphasizing how state-based and economic social structures are mutually constitutive of changing relations of power and property.
During the 1980s and 1990s, food regimes analysis was applied substantively to several key areas of social change in the global agrofood system. First, it was used to interpret the intense process of contestation involved in establishing new rules for international trade in agriculture (particularly the incorporation of agriculture into the multilateral trade system), highlighting increased corporate power, the decline of farm lobbies, and a shift from national (public) to transnational (corporate) forms of regulation of the agrofood sector (Friedmann 1993; McMichael and Myhre 1991). The other key substantive focus was on delineating key commodity complexes (Friedmann and McMichael 1989) -- the livestock complex, the wheat complex, and the durable foods complex -- as a means of explaining the “suppression of particularities of time and place in both agriculture and diets” under global restructuring led by agrofood TNCs (Friedmann 1994, 272). More recently, Friedmann (2005) and McMichael and Friedmann (2007) have sought to interpret the shift towards quality and the ‘retail revolution’ in the context of emerging food regime relations (see below).

The key innovation of the food regimes approach was to situate contemporary processes of agrofood restructuring in world-historic changes. As a “framing concept” (Pritchard 2009), food regimes locates processes of global and local change in structured narratives describing periods of stability and crisis in global agrofood relations. Stable food regimes have emerged when key actors -- classes (of farmers and consumers), states and capital -- agree on implicit rules tying them into predictable relations of food production, consumption and trade (Friedmann 2005). Historically, food regimes have been underwritten by the influence of a hegemonic power (up until 1914, the UK, and between 1945 and 1973, the US) (Friedmann and McMichael 1989). Departing from the
earlier emphasis on delineating periods of stability (two historical food regimes, discussed below), Friedmann (2005) has acknowledged the need more precisely to understand periods of transition, particularly the process whereby actors ‘name’ food regime rules in such a way that undermines previous relations and prefigures new arrangements. Here, all actors struggle over new relations, with a particularly important role played by social movements, which are understood to serve as “engines of regime crisis and formation” (Ibid., 229). Though social movements can be influential, food regime rules are contested in a field structured by unequal relations of power and property (Ibid., 228).

The food regimes approach has been among the most influential framing tools in agrofood studies, playing an important role in on-going debates over the nature of changing agrofood relations (Araghi 2003; Friedmann 2004, 2005; McMichael 2005; Burch and Lawrence 2005) and constituting a point of departure for a number of empirical studies (e.g., Le Heron 1993; Pritchard 1998; Roche 1999). Food regimes (and political economy of agriculture, more generally) has nevertheless generated – since the 1990s -- substantial debate over theoretical and ontological questions in agrofood studies.

Goodman and Watts (1994) have critiqued political economy approaches for succumbing to a totalizing portrayal of the logic of capitalist accumulation as a force of transformation and eliding the distinctive biological and geographical basis of food production and consumption. The critique of food regimes, more specifically, was that in assuming the coherence of food regimes over particular historical periods, the approach falls prey to a hyper-structuralism and reification of agrofood relations, the result of which is to gloss over national/regional particularities of restructuring and political
contestation (Ibid., 18-26, 37-8). Whereas political economy approaches have emphasized “unity in diversity” (McMichael 1994, Introduction) in processes of agrofood restructuring, critics called for greater attention to “multiple trajectories” of change in the agrofood system (Goodman and Watts 1997). For instance, Watts and Goodman (1997) remained relatively agnostic about the trajectory of change in the agrofood system, claiming that key differences between the globalization of industrial sectors and of the agrofood sector mean that “the agro-food sector is clearly not global in any simple sense” (14). Likewise, they expressed scepticism about the significance of GATT/WTO rules as a mechanism of “global private regulation” (Friedmann 1993) of agrofood relations (Watts and Goodman 1997, 13).

Other debates have focused on appropriate ways to theorize the nature-society nexus in accounts of agrofood change (Goodman 1999, 2001). Goodman (1999) criticized political economy and associated approaches for perpetuating a nature-society dualism embedded in ‘modernist ontology’. While acknowledging some efforts to more seriously account for nature in agrofood studies (all rooted in some notion of exceptionalism of agrofood networks as embedded in biologically mediated processes), Goodman (1999) argued that only a radical break with modernist ontology could transcend the nature-society dualism. Here Goodman (1999, 25-6) proposes an actor-network theory13 (ANT) approach that interprets agrofood networks as nature-culture hybrids emerging from the interaction of both human and non-human ‘actants’. In ANT, both types of actants are assumed to exercise agency in the constitution and reconstitution of network relations. The ANT approach has been used to interpret food scares and agro-biotechnology (Goodman 1999) and to understand the shifting network

13 ANT was originally formulated by Bruno Latour, the most representative work of which is Latour (1993).
relations involved in the technoscientific transformation of rape seed (into canola) (Busch and Juschka 1997; Busch and Tanaka 1996), to cite two examples.

In light of these criticisms, the food regimes approach has proven both resilient and adaptable, and continues to offer, I argue, distinct theoretical advantages. The food regimes approach is considerably more open-ended than sometimes given credit for, even as it retains an emphasis on processes of commodification and accumulation that are the central dynamics of capitalist political-economy. True to its roots in regulation theory and world-systems approaches, capitalist political-economy and, by extension, food regimes are understood to be subject to significant, even radical, changes in its social, technological, ecological and organizational bases. While avoiding determinism, the key is attention to the *historicity* of political-economic change. Processes of change are understood to be structured by a ‘unity in time’ (McMichael 1994, 3) that links the local to the world-historical across periods of stability and change (Friedmann 2005).

The food regimes approach is also fundamentally *comparative*, though not in the sense used in some forms of historical-comparative sociology (see Ch. 3). This comparative dimension allows different processes of change occurring across space and time to be interpreted in their diversity, in their connection to each other, and as part of an evolving whole:

There is a complex, nonlinear, and politically contingent aspect to all these different forces unifying different aspects of agro-food systems across the world. Yet we can develop some analytical perspectives to bring these changes into relation to one another so that some patterns of change, as well as political opportunities for change, can be identified. (McMichael 1994, 13).

At its best, food regimes analysis therefore privileges neither ‘unity’ nor ‘heterogeneity’, but uses world-historical accounts to contextualize particular instances of change. Critics
of food regimes and allied approaches mistakenly confuse the *scale* (macro) and *scope* (holistic) of analysis with determinism (Collins 2005). Contrary to the view of these critics, the food regimes approach does take into account both “contingency and politics” (Collins 2005, 9), especially in the way the detailed reconstruction of periods of stability and contestation in global agrofood relations emphasizes the struggle among historical actors, with uncertain outcomes. Furthermore, food regime accounts are not static, but subject to revision, even renaming\(^\text{14}\), as different aspects of historical food regimes become more or less important for interpreting current conjunctures (see Friedmann 2005). Finally, food regime analyses have increasingly incorporated attention to nature-society relations by underscoring the ecological foundations and contradictions of historical food regimes (Friedmann 2005). Drawing especially on the environmental histories of Crosby (1986) and Cronon (1991), Friedmann (1999) has traced the radical transformation that agriculture has wrought on relations between humans, other living organisms, and ecosystems. Ecological conditions (at both the nexus of production and consumption) are understood to structure and constrain food regime change.

Debates counter-posing political economy approaches to those emphasizing contingency, heterogeneity, and hybridity have recently been addressed by efforts at theoretical synthesis. Among the most successful of these has been the ‘worlds of food’ approach developed by Morgan and colleagues (see above). This approach creatively combines three contending theoretical approaches in agrofood studies (political economy, ANT, and conventions theory) by showing how each contributes partial, but ultimately complementary views (Morgan et al. 2006). The value of the political economy approach

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\(^{14}\) The second food regime, for instance, has been referred as the ‘surplus regime’ (Friedmann 1993), the ‘postwar food regime’ (Friedmann 1994), and the ‘mercantile-industrial food regime’ (Friedmann 2005).
is to emphasize how global processes of capitalist accumulation have driven the industrialization and de-territorialization of agrofood commodity chains. To this view must be added the recognition that “food chains never fully escape ecology and culture” (Ibid., 8) in the way food production and consumption are rooted in biological and social processes. According to such an approach, no singular logic drives agrofood change – rather, it arises from the complex interplay of material, social, and cultural forces.

**Food regime history**

Food regime accounts detailing periods of historical stability (regimes) and change (crisis/transition) have been elaborated several times elsewhere (Friedmann and McMichael 1989, Friedmann 1993, 2004, 2005, among others). In this retelling, I provide the context necessary for situating the evolution of Canada-UK relations, the wheat-bread commodity chain, and social movements of farmers and consumers across food regimes. I locate each of these strands in food regime history and discuss both their empirical and theoretical contributions to the food regimes approach. The key insight generated here is to acknowledge how the unique set of prairie institutions for regulating the wheat sector emerged in response to changing constellations of power and accumulation over successive food regimes. Viewed in this way, the emergence of new quality conventions in the commodity chain for wheat-bread must be understood in light of the historical legacies of food regime change.

The first international food regime (1870-1914) was born of the establishment, during the 1870s, of a ‘world market’ for wheat (Friedmann 1978) linking the agricultural exports of settler-states to European metropoles (Friedmann and McMichael 1989). In this new international division of labour, settler-states (the US, Canada, Australia, and
New Zealand) exported the products of temperate agriculture (especially wheat and meat) to Europe, in exchange for flows of capital, manufactured goods, and migrants. This arrangement hinged on the mutually complementary strategies of European and settler-states, the former in seeking to quell restive working class populations, and the latter in pursuing projects of national development. Cheap imports of grain and meat from settler-states served as ‘wage foods’ for European working classes, reducing the cost of industrialization, and helping to diffuse discontent. At the same time, the diffusion of temperate agriculture from Europe to settler-states (the intertwined processes of cultural and ecological transformation that created what Crosby [1986] calls the neo-Europes) provided a relief valve to population pressure in Europe, as streams of European migrants poured into the settler-states (Friedmann 2005, 234-5). In turn, settler-states, beginning with the US, used agricultural exports to Europe in a process of territorial expansion and settlement linked to national projects of development.

The division of labour between settler-states and European metropoles emerged alongside an older (yet, in the late 19th century, expanding) division of labour between European powers and their colonies of ‘occupation’ (Friedmann and McMichael 1989). In contrast to settler-states, these colonies were directly administered by colonial powers and specialized in producing tropical and sub-tropical crops (including sugar, coffee, tea, tobacco, and cocoa)15, many of which had assumed a new importance in working class European diets (for the case of sugar, see Mintz 1985). This international division of labour produced a climatic and geographical complementarity between European

15 Of course, not all countries producing tropical and sub-tropical crops for world markets during the first food regime fit into the category of colonies of ‘occupation’. Notable exceptions would have included those countries in Latin America that had, by the early 19th century, gained formal independence from European powers.
metropoles and the colonies of occupation (Friedmann and McMichael 1989, 98). By contrast, the trade between the metropoles and the settler-states produced competition between independent nation-states producing many of the same products (Ibid. 101-2).

The UK’s hegemonic role in the capitalist world-economy underpinned the first food regime, as the gold standard played a key role in regulating international currencies and trade (Friedmann and McMichael 1989, 99-100). The UK was also central to food regime relations because it was the largest single food importer during this period, a result of its radical experiment with food import dependence beginning with the repeal of the Corn Laws in the 1840s. Here it sacrificed the interests of landed property for industrial capital, and exported capital and manufactured goods under its free trade policy. For these reasons, I refer to the first international food regime as the UK-centred food regime.

The UK-centred food regime produced a number of institutional innovations and legacies that transformed social and ecological relations in European and settler-states and restructured the state-system. First, it created a class of commercial farming households (the ‘family farm’) dependent on the unpaid labour of women, men, and children, and as a result, able to undercut the price at which food could be produced in Europe (Friedmann 1978). These farm households were dependent on distant export markets and at the mercy of the private interests (railways, banks, and grain merchants) and states that organized the grain trade (Friedmann 2005, 236-7). Second, and related, the structural inequalities faced by farming households generated a distinctive farm politics expressed in new agrarian social movements (Knuttila and Stirling 2007; Lipset 1971; Sharp 1997). Third, the first food regime drove changes to the state-system. By
instituting international (as opposed to mercantile) trade and competition, the new international division of labour produced “a system of independent, liberal national states” (Friedmann and McMichael 1989, 94). In these states, the path to national development would be modeled on the US experience, where the expansion of agricultural production complemented industrialization.

The Canada-UK commodity chain for wheat-bread was forged during the UK-centred food regime. Though the US dominated British wheat imports for the first three decades of the food regime, Canada first caught up to then surpassed the US by the early decades of the 20th century. This shift coincided with the phenomenally rapid expansion of the Canadian wheat frontier, as the ‘national policy’ of western settlement – linking policies of immigration, transportation, and tariff protection -- began finally to be realized (Fowke 1957). Prairie farmers became dependent on wheat exports to the UK, which reached nearly one-third of the value of all Canadian exports between 1911 and 1915. During World War I, Canada’s wheat producing capacity became a key strategic asset of the British empire (Offer 1989) as Canada implemented the first forms of government control over the wheat supply in order to provision the UK. Capitalizing on climatic and geographical features giving prairie wheat a natural edge in protein content (highly valued in emerging industrial milling and baking technologies), state actors established centralized control over grain quality through grading, public plant breeding, and strict control over the introduction of new wheat varieties (Kuyek 2007). Meanwhile, farmers responded to market volatility and their structural vulnerability to the private grain trade by organizing distinctive prairie social movements (Lipset 1971; Knuttila and Stirling)

2007) and forms of economic cooperation (Fairbairn 1984). These farmer-led social innovations would play a key role in food regime restructuring between 1925-1945.

Meanwhile, massive imports of North American wheat (first US, then Canadian) transformed the UK food sector. By the 1870s, the UK began adopting industrial roller-milling, a process particularly well suited to the use of hard (i.e., high-protein) North American wheat varieties in fledgling processes of industrial bread manufacture (Perren 1990). The strong, white flour produced in the roller-milling process yielded lightly textured loaves of white bread that at once responded to and constructed consumer tastes. New baking technologies introduced during the end of the 19th century and in the early decades of the 20th century first standardized then industrialized bread production, leading to a homogenization of diets and wheat varieties. These developments paved the way for the emergence of vertically-integrated milling and baking giants that would become major food manufacturing interests in the UK.

The internal tensions of the UK-centred food regime – of which there were both ecological and social strands – led to regime crisis between 1925-1945. The stabilizing influence of UK hegemony declined following World War I and the end of the gold standard as the world reserve currency. When world grain prices collapsed in the mid-1920s -- a prelude to generalized economic collapse of the Depression -- classes of farming households experienced acute dislocation and hardship (Conway 2006; Friedmann 2005, 237). These were compounded by the ‘dustbowl’ conditions of the 1930s. Settler agriculture rested on shaky ecological foundations, as the virgin soil of the North American plains was brought under cultivation for the first time, radically changing ecological conditions that had sustained aboriginal inhabitants (Friedmann
The experiences of the two world wars also revealed the vulnerability that came with heavy food import dependence in the UK.

US governments responded to price volatility and depression in agricultural markets by implementing commodity programs under the New Deal (Friedmann 1993). Rather than directly subsidizing farm incomes, these commodity programs instituted price supports that only encouraged production, and ultimately generated large agricultural surpluses. The particular form taken by US domestic agricultural policy of this era was only one available alternative, and was to prove extremely consequential to the eventual structure of the second food regime (Friedmann 2005, 237-240). Economic depression in world agricultural markets drew a second response in the form of international commodity agreements, which were intended to match world supply to demand among key importers and exporters. Yet, just as agreement neared on an international wheat deal (at the time, by far the most important agricultural crop in international trade), talks were suspended by the outbreak of hostilities in 1939 (Wilson 1978, 628).

The crisis of the UK-centred food regime generated major shifts in both prairie agriculture and the UK food sector. On the prairies, over a decade of drought, depression, and collapsing export markets led to new forms of state regulation intended to stabilize the agricultural sector and respond to changing world market conditions (Finkel 1979; Wilson 1978). Chief among these was the establishment – after two decades of experimentation with different solutions to the failure of the private grain trade\(^\text{17}\) -- of the

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\(^{17}\) The first incarnation of the CWB came about when the federal government experimented with monopoly control of the prairie wheat crop in the aftermath of World War I. Farmers’ experience with better price stability led them to advocate, unsuccessfully, for the re-institution of the CWB in the early 1920s. When this failed, farmers organized private grain marketing co-operatives that, after a few years of modest success, succumbed to the collapse of grain prices in the 1930s (see Ch. 4).
monopoly CWB, which at the same time responded to farmer demands for ‘orderly marketing’ and allowed Canada to meet its war-time obligation to provision the UK (Irwin 2001). In the UK, the state’s leading role in coordinating the war-time food supply led to new forms of state involvement in regulating food safety, prices, and nutrition.

In re-establishing the conditions for stability after the war, social actors (states, social movements, and capital) drew on some of the innovations spawned in the crisis of the first food regime (in the US, farm programs; in Canada, state-marketing) and invented altogether new relations (e.g., food aid). Friedmann (2005) has called the second food regime ‘mercantile-industrial’ in order to account for its twin dynamics: 1. politically constructed international trade, and 2. the rise of an industrialized agrofood sector, eventually to be dominated by large agrofood capitals. In both aspects, the mercantile-industrial food regime was fundamentally shaped by US hegemony. After the war, the US sought to retain depression-era commodity programs as a means of stabilizing farm incomes in response to the desires of the powerful farm lobby (Friedmann 1993). A side-effect of commodity programs was the production of large agricultural surpluses. The need to deal with these surpluses came to dominate the establishment of international food regime rules. Food and agricultural goods were excluded from postwar efforts to liberalize international trade under the General Agreement on Tariffs and Trade (GATT), understood to be a key condition of post-war economic growth. This allowed the US to retain domestic commodity-programs, which were incompatible with the GATT since they depended on the use of both import controls and export subsidies (Friedmann 1993).
As a result of this, the new food regime was to be centred on non-market or state-state transfers of food and agricultural goods, underpinned by the institution of “food aid”, an invention of the second food regime (Friedmann 2005). Beginning with the Marshall Plan for European reconstruction, the US found an outlet for its agricultural surpluses in massive shipments of food aid. However, as Europe replicated the US model of agricultural regulation and protected its domestic food sector, American export opportunities declined. The solution to this problem was found in expanding the system of food aid to the decolonizing Third World. This was accomplished through the US’s Public-Law 480, instituted in 1954, under which the bulk of food aid shipments to the Third World were made at discounted rates. Allowing recipients to pay in counterpart funds (local currency), PL-480 helped food aid recipients that were short of US dollars to import large quantities of cheap food (mostly wheat), tying US surpluses to the international Development Project (McMichael 2007) centered on Third World industrialization. Given the new role for the US dollar as world reserve currency, the US was uniquely positioned to use food aid as a mechanism of surplus disposal (Friedmann and McMichael 1989, 104). Food aid not only served domestic agricultural policy, but allowed the US to pursue foreign policy goals. In the context of Cold War rivalry, food aid cemented geo-political ties with key Third World states, and contributed to wider anti-communist strategic goals. As the Cold War intensified, the First World and the communist Second World became (essentially) mutually exclusive trading blocs. Providing one condition under which US surpluses would persist, this Cold War dam was thus another key structural feature of food the second food regime (Friedmann 1993, 39). In the Third World, food aid created dependence on cheap imports and shifted eating
habits towards wheat-centred diets, later to precipitate severe crises under changed conditions in the 1970s (Friedmann 1993, 38-9).

Government farm programs and state-sponsored modernization of agricultural production provided for the second – industrial – character of the postwar food regime (Friedmann 2005). With agricultural price supports, farmers were encouraged to maximize production, and did so through industrial intensification. Building on the introduction of farm machinery in the first food regime, farmers adopted chemical fertilizers (massive quantities of which were now available through the conversion of war-time nitrogen production), pesticides, and new crop varieties (including hybrids) and completed the process of mechanization by adopting tractors on a large scale. Large national and eventually transnational agro-input firms became a significant industrial sector, as capital selectively appropriated aspects of agricultural production and reintroduced them as external inputs (e.g., in the shift from animal manure and draft power to chemical fertilizers and tractors) (Goodman, Sorj and Wilkinson 1987).

Meanwhile, cheap agricultural commodities fed into new agrofood complexes, generating large agribusiness corporations on the output side of agriculture. The ‘livestock complex’ (Friedmann 1994) turned agricultural commodities into industrial inputs in the manufacture of animal feeds for increasingly intensified meat production. This process began in the US, where soy (introduced to North America in the 20th century) and high yielding maize hybrids became the basis for monocultural production.

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18 In Canada, the adoption of machine technologies in agriculture proceeded in three waves (Winson 1985). During the first wave (after 1850), farmers adopted basic manufactured implements and machines, whereas during the second wave (beginning at the end of the 19th century) human and animal power was replaced by mechanical power in the form of steam-powered threshing machines. The third wave consisted of the introduction of mobile power (based on the internal combustion engine). Though the first tractors were introduced during the 1920s, “tractorization” proceeded rapidly only after WWII.
of feed crops, in turn fuelling increased meat consumption, one of the hallmarks of the postwar diet. The livestock sector became internationally integrated when, in exchange for European protection of its wheat industry, the European Economic Community exempted US soy from import duties (Friedmann 1994, 269). Led by the multinational grain merchants and feed processors that integrated specialized crop production, processing, and meat production, the livestock sector eventually became transnational, with global sourcing of raw materials and sales into class-differentiated global markets (quality cuts for wealthy consumers in the First World, and low quality products for Third World Markets) (Friedmann and McMichael 1989, 107-8).

The second key commodity complex of the mercantile-industrial food regime was ‘durable foods’. Although the first industrially manufactured foods were introduced during the first food regime (e.g., canned fruit and vegetables), markets for such foods exploded after WWII as food manufacturing became a powerful industrial sector in its own right. Food processing and manufacturing industries devised many new standardized food products (including packaged and frozen foods) turning agricultural commodities (including soy, maize, and wheat) into inputs for industrial production (Friedmann and McMichael 1989, 108-110). Large, national food manufacturing companies – producing branded goods -- were ascendant during this period. Food processing and manufacturing went hand in hand with the emergence of new forms of retail, particularly the supermarket format, which first emerged in the US before WWII (Humphery 1998). Together, processed foods and the supermarket came to epitomize the cheap food economy of the second food regime, premised on generalized, though not universal, standardization of diets.
Like the livestock complex, the durable foods complex became transnationally integrated as national agrofood capitals became international giants. Using increasingly sophisticated food science and technology, agrofood corporations sought to diversify the sources of their raw materials by substituting the products of tropical agriculture in the Third World (e.g., palm oil) for temperate inputs (soy, maize) used as generic fats and sweeteners (Friedmann 1994, 263-4). This shift undermined the colonial division of labour between temperate and tropical agriculture, and undermined traditional Third World agro-exports.

The Canada-UK commodity chain for wheat-bread declined during the mercantile-industrial food regime. After WWII, the UK (following the broader pattern of the European Community) shifted decisively towards import substitution and, after decades of neglect, increased domestic production in its own national framework of productivist farmer-state relations. In the early 1960s, new baking technology allowed industrial bakers to significantly reduce (but not eliminate) their need for hard wheat in milling grists while maintaining traditional characteristics of mass-produced, industrial bread. The result was a rapid decline in Canadian exports of wheat to the UK, as top-quality Canadian wheat became increasingly substitutable. Meanwhile, Canada pursued new export markets in the face of the US’s re-entry into world markets. Here, massive grain deals with communist states (particularly China and the USSR) helped Canada cope with the destructive effects of US food aid on Canadian market share (Morriss 2000). State regulation of the prairie agricultural sector provided relatively stable incomes to a class of farm households shifting towards more specialized and capital-intensive production for export.
The mercantile-industrial food regime entered into prolonged crisis in 1973, when massive structural changes to world grain markets undermined the stability of food regime relations. Though this was a sudden rupture, its origins lay in the internal contradictions of the postwar food regime. First, the power of the farm lobby declined as the efficiency gains of industrial agriculture allowed an ever-increasing volume of production on larger operations, and with fewer farmers. Second, Third World countries faced declining terms of trade for their traditional exports just as their food import dependency increased, leaving them extremely vulnerable to changed conditions (Friedmann 1993). Third, the agrofood capitals spawned by the food regime outgrew the paradigm of national regulation and state-led trading rules that governed food and agriculture, and began to push for liberalization (Friedmann 2005, 244). Fourth, as Europe replicated the US model and protected its domestic agricultural industries, it came eventually to face the same problem of surpluses, and by the 1970s sought outlets through which to increase its exports.

These contradictions were laid bare as the USSR entered the world market, in 1972, with a huge demand for grain, breaching the Cold War dam (Friedmann 2005, 244). The effect was, virtually overnight, to eliminate the grain surpluses that had underpinned the system and had been a source of US power (Friedmann 1994, 40). The historic US-USSR grain deal of 1972 caused a dramatic price spike which, combined with the oil crisis of the early 1970s, created a food crisis with global repercussions. Dependent on cheap supplies of wheat and facing the evaporation of markets for their traditional exports, Third World countries faced increasing hunger, debt, and social instability. The US shifted away from food aid and towards commercial sales, just as
competition among exporters became increasingly fierce (Friedmann 2005, 245). Meanwhile, the US government responded to the end of surpluses by encouraging farmers to expand production, which they did enthusiastically, and by borrowing heavily (Friedmann 1993, 40). When surpluses and price volatility returned later in the decade, heavily indebted farmers faced a financial crisis, laying the roots for the longstanding farm income crisis of the last 30 years.

These events marked the breakdown of consensus around food regime relations on national and international scales. On the national scale, the postwar productivist alliance between the state and the class of independent farmers eroded, as deficit politics prompted many neoliberal governments to scale back public spending on agriculture. At the same time, farm politics became more fractionated and marginal, as farmers became increasingly differentiated by size and commodity, and continued to decline in number (Friedmann 1993, 54; Winson 1992, 90-2)). On the international scene, food aid was reframed as ‘dumping’ and subsequently scaled-down and tied more strictly to humanitarian goals. As the traditional role of food aid ended, increasing attention was focused US and European use of export subsidies to increase or maintain market share. These export subsidies came increasingly to be seen as destructive and prompted calls to include agriculture in up-coming multilateral trade negotiations under the GATT (Friedmann 2005, 245). Secondary exporters (including Canada, New Zealand, Australia, and Argentina), which could not afford to compete in the subsidy game, formed a loose alliance (the Cairns group) seeking the liberalization of agricultural trade (Ibid., 246). With the completion of the Uruguay Round of GATT negotiations,

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19 The important exceptions have been the EU and the US, whose intransigence in reducing agricultural subsidies has, since the 1980s, been among the most contentious issues in the project of agricultural trade liberalization.
agriculture was formally integrated into the global free trade agenda under the Agreement on Agriculture, and given a powerful new enforcement mechanism, the World Trade Organization (Ibid.). Implementation of global free trade in agriculture has proceeded only haltingly, however, as the US and the EU have been reluctant to meaningfully reduce export subsidies, and as key agro-exporters from the South (led by Brazil) pressed their own agenda. In 2003, further WTO negotiations foundered on the intractability of agricultural trade, as the Southern bloc made a show of force and walked out of the negotiations (Friedmann 2005, 247).

The end of the mercantile-industrial food regime posed multi-faceted challenges to the role the CWB had come to play in domestic agricultural policy and world markets. Facing major changes in wheat markets and increasing competition from Australia and the US, Canada lost its leading edge in the high-quality (as defined by the industrial conventions dominating during this era) segment of world wheat markets. This in turn ended its role as a price leader in world markets and undermined its ability to ensure domestic farm income stability. Entering the 1970s, Canada thus searched for a new strategy through which to integrate the prairie wheat economy into world markets for wheat. These changes occurred in tandem with the declining importance of wheat on the prairies, as agricultural diversification elevated other crops – notably canola – and shifted towards feed grains and livestock production. By the 1980s, farmers faced a severe farm income crisis compounded by US and EU export subsidies.

Meanwhile, neoliberal governments sought to re-orient prairie agriculture by deregulating state supports and implementing free trade (Knuttila 2003). As a result of these processes, the CWB came under increasing strain from legitimacy crises– both
domestic and international -- during the 1990s (Skogstad 2005). Domestic political conflicts over the CWB intensified as right-wing commodity groups argued for the full deregulation of grain marketing. Internationally, the implementation of free trade – through both NAFTA and the WTO – made the CWB more vulnerable to challenges from competing exporters accusing the CWB of ‘trade distortion’. The crisis of the mercantile-industrial food regime therefore was no less a crisis for the CWB, as changes during this period severely tested the legitimacy and relevance of the agency.

Crisis conditions also drove change in the UK food manufacturing and bread sectors, from the 1970s onwards. Post-war consolidation in the milling-baking industry had led, by the late 1970s, to oligopoly. With large food retailers ascendant and the UK government moving away from price controls, bread manufacturers’ margins were severely squeezed by supermarket pricing. Meanwhile, supermarket innovations such as own brand bread and in-store bakeries segmented the bread market and eroded the market share of the large bakers. By the 1990s, bread took centre-stage in supermarket price wars in which the largest chains competed with one another on offering the cheapest basic goods. In this environment, the emergence of a dynamic market segment for premium bread provided a glimmer of light for struggling bread manufacturers. As explained below, I argue that the reconstitution of the Canada-UK commodity chain for wheat-bread around new quality principles in the 1990s had its antecedents in the effects of the crisis of the second food regime on the Canadian prairies and in the UK food industry.
A third food regime? Interpreting current agrofood change

Food regime scholars have taken the on-going contests around the regulation of agriculture and food -- expressed internationally in the collapse of WTO negotiations, and domestically, in the farm crisis, food safety scares, and the environmental critique of industrial agriculture – as signs that the crisis begun in the 1970s has never been resolved. More recently, scholars have focused on the way in which different strands of agrofood change – particularly the emergence of the supermarket-led economy of qualities -- have combined to produce the ‘lineaments’ of a third food regime (Friedmann 2005). These new relations signal that we are in a period of food regime transition, though the stabilization of these new relations – given social and ecological tensions inherent in them – is uncertain (McMichael and Friedmann 2007, 296). I review recent accounts of food regime transition in order to contextualize the transformation of the Canada-UK commodity chain for wheat-bread during the 1990s.

Drawing upon the changes to the agrofood sector referred to above as the economy of qualities thesis, Friedmann (2005) suggests that changes in state-based and corporate strategies prefigure a third food regime. The key characteristics of the new food regime are the way in which audited private standards are superimposed on scaled-down public food standards, at once providing for new conditions of stability and accumulation in the global agrofood system and generating new inter-state and class relations. Because privately regulated supply chains respond to consumer demands that, broadly speaking, represent ‘green’ issues (e.g., health, sustainability, organic, etc.), the food regime is designated corporate-environmental. The impasse over food regulation at the WTO has led the EU and other states to yield on moratoria of beef produced using growth hormones and GM seeds and food, signalling an implicit downgrading of
government established public food standards (Ibid., 252). Just as public standards are downgraded, private capital has instituted new forms of regulation guaranteeing quality (including traceability, identity-preservation, and audited supply chains) for affluent consumers (Ibid., 253). The effect of this shift is that “private capitals … create their own carefully regulated supply chains containing just those higher standards that cannot be sustained in inter-governmental negotiations” (Ibid.). This movement results in part from the selective appropriation of social movement demands around environmental protection (organics) and social justice concerns (fair trade) (Friedmann 2005, 253). To these quality chains is paired a parallel set of supply chains for standardized, lower-end commodities destined for poorer consumers, representing the majority of the world’s eaters. Contrary to the universalizing thrust of the mercantile-industrial food regime, the emerging food regime juxtaposes diverging quality conventions.

The food regimes interpretation of the shift towards quality has helped to contextualize it in world-historical change, showing both continuities and ruptures with previous food regimes. Though the new food regime perpetuates the long-run commodification of food production and consumption, it is more likely to continue to differentiate rather than standardize diets, unlike the mercantile-industrial food regime (Friedmann 2005, 228). Likewise, there is continuity and change in the role of states. In the corporate-environmental food regime, states will continue to play a residual role in establishing a ‘floor’ on basic food standards, even as private capital outflanks public regulation in quality chains (Friedmann 2005, 257). The holistic, global-scale analysis used in the food regimes approach also draws out the implications of food regime change for class relations. On the one hand, the bifurcation of supply chains between ‘quality’
and ‘standard’ will only deepen existing global inequalities in relations of consumption (Ibid., 253). Far from posing a contradiction, the split between the two streams is *complementary*, with some of the same global corporations serving both privileged and poor consumers. On the other hand, the shift to the economy of qualities implies new forms of marginalization and integration for producers and regions. Classes of farmers may increasingly be fragmented according to the private supply chains to which they tie their fortunes rather than by national or commodity-based allegiance. Different regions may stake their fortunes, with varying success, on becoming “quality export sites”, with implications – both positive and negative – for farmers (Ibid. 255-6).

The food regimes perspective has also helped situate the ‘retail revolution’ historically and in the context of global power relations. In this way, McMichael and Friedmann (2007) point out the risk of missing the broader ecological and social relations underpinning the rise of the supermarket-consumer nexus as the centre of food politics. They argue that the supermarket revolution involves new global patterns of land use and labour exploitation likely to continue the marginalization and dispossession of small-scale farmers and worsen the ecological contradictions of the global agrofood system (Ibid.). Exclusive focus on the supermarket-consumer nexus in the economy of qualities thesis paints only a partial picture of the significance of current agrofood restructuring.

**The wheat-bread commodity chain in food regime transition**

These insights provide world-historical context to the restructuring of the Canada-UK commodity chain for wheat-bread during the 1990s. During this decade, change occurring at global and regional scales radically altered the commercial and political environment in which the CWB operated. By the early 1990s, major changes to the state-
system and the deregulation of domestic food sectors posed a major challenge to the CWB. The collapse of soviet communism and the deregulation of Third World import markets eliminated -- virtually overnight -- most of the world’s state-importing bodies. Having specialized for several decades in dealing with large state-importers, the CWB now faced a rapid increase in the number of its customers, and a shift from relatively undiscriminating state buyers to private buyers with more exacting quality requirements. Facing this new competitive environment, the CWB embarked on a major commercial and organizational transformation intended to help prairie farmers adapt to new conditions. For its part, Warburtons responded to the crisis conditions of the UK bread sector during the 1990s by staking its competitive strategy on leading in the premiumisation of the sector. Part of this strategy involved establishing a new sourcing program for Canadian wheat, the objective of which was to match specific dimensions of wheat quality to new, more sophisticated baking processes. Refusing to produce own brand bread lines for supermarkets, Warburtons has focused exclusively on the premium segment of the market for wrapped bread, using select Canadian wheat varieties as a key plank of its quality-based strategy. The CWB-Warburtons program has proven a success for both organizations, and has been integral to each actor’s strategy for integrating itself into the emerging economy of qualities.

This shift takes on added significance when considering historical features of the Canada-UK commodity chain for bread-milling wheat. The question explored here is in what ways recent shifts have changed and/or reproduced historical features of the commodity chain, including the construction of consumer tastes for bread, established supply relations linking prairie institutions to UK food manufacturing industries, and
traditional conventions defining wheat and bread quality. While some elements of the old relations have been reproduced (e.g., high-protein wheat production, Canada’s centralized quality control and marketing institutions, colonial-era trade patterns), others have been transformed (e.g., identity-preserved contracting, differentiation of wheat varieties and end-user demand for much greater control over wheat quality). In particular, the relationship forged in the 1990s demanded the development of new quality conventions and practices that at once built upon and transcended traditional definitions of wheat quality in the Canada-UK commodity chain. The Warburtons’ program thus provides an opportunity to explore dimensions of continuity and change in historic Canada-UK commodity chain relations.

Food regimes analysis allows for the incorporation of these historical legacies into an account of the shift towards the economy of qualities. As a particular instance of food regime change, the case extends the food regime literature in three ways. First, this case allows for the empirical reconstruction of how a public collective-marketing agency is constructing food regime change. Commodity chain analyses have tended not to pay sufficient attention to the actions and strategies of real actors and have too often stereotyped actors according to their structural position and size (Gray et al. 2007, 7). In focusing on the CWB, this case allows for a detailed historical reconstruction of the shifting strategies of a complex, hybrid organization over food regime periods. I interpret CWB change over time as arising from the tensions among its three historical roles: as a vehicle of farmer economic cooperation; as an instrument of state policy; and as a commercial entity. In turn, the relative importance of each of these historical roles is
understood as arising from changing constellations of power, conditions of accumulation, and inter-state relations across food regimes.

Current explanations of agrofood change emphasize the marginalization of state actors and public institutions. Under intense pressure from all sides for several decades, state-marketing agencies like the CWB are predicted to become increasingly irrelevant. There is, nevertheless, a growing body of literature documenting how new commercial entities with their roots in state-marketing bodies are leading change in some globalized agrofood sectors. Key examples to date are studies of New Zealand based kiwifruit (Campbell 2005; Campbell et al. 2005) and dairy industries (Gray et al. 2007; Stringer et al. 2008), both led by large globalizing commercial entities that are the progeny of state-marketing structures. In the 1990s, New Zealand kiwi growers created a new single-desk (monopoly) exporting arm named Zespri in response to severe financial pressure resulting from new international competitors (Campbell 2005, 13). Under Zespri, the industry has shifted decisively away from bulk commodity exports by implementing a form of ‘integrated management’ that ensures higher environmental and quality standards. By 1999, Zespri became fully compliant with Eurep-GAP standards, ensuring privileged access to the high-quality European market (Ibid., 14). Meanwhile, the New Zealand dairy sector is now led by Fonterra, created through a 2001 merger of the country’s single-desk dairy marketing arm and two dairy co-operatives (Stringer et al. 2008). Since its inception, Fonterra has pursued new forms of industry coordination and international strategic alliances in a bid to ‘move up the value chain’ (Gray et al. 2007).

Tracking the transformation of the CWB – here conceived as the institution tying prairie farmers into global commodity chains for wheat – over food regime history thus
provides a case for comparison to other commodity sectors and states with similar institutional and geographic histories. As with New Zealand and Australia, Canada has been a secondary actor in successive food regimes. By virtue of geographical remoteness and small populations, agricultural sectors in both the prairies and New Zealand must export the vast majority of what they produce. The export industries of both regions were likewise born of colonial supply relations and transformed by the end of these traditional trade patterns (Campbell 2005, 12; Gray et al. 2007, 7). The cases of Zespri and Fonterra have shown ways in which these actors have attempted to overcome the structural constraints of export dependence and colonial-era trade patterns, most recently by pursuing integration of each sector into quality-based global commodity chains (Gray et al. 2007; Campbell 2005). Like the CWB, the strategic adaptation of Zespri and Fonterra to changing conditions of regulation and accumulation in the global agrofood sector has involved substantial organizational change, including new forms of governance (Campbell 2005, 13-14; Gray et al. 2007, 15). This retelling of the transformation of the prairie wheat sector shows how strategies of adaptation in successive food regimes have shaped its unique configuration of institutions – centralized marketing and quality control.

Second, this account of the transformation of the Canada-UK commodity chain for wheat-bread provides a unique vantage point on historical change in the UK food sector. To date, analysis of historical food regimes has tended to focus less on consumption and import sectors than on food production and exports. I trace the history of wheat imports, milling and baking industries, bread consumption, retailing and state regulation of the UK food sector over successive food regimes. My analysis underlines
mutually constitutive processes shaping the history of the prairie wheat economy and the UK food sector. Until the 1960s, the fate of the prairie wheat economy was deeply intertwined with the UK import market. In turn, changing supply factors and state-state relations between Canada and the UK shaped the UK food market in significant ways. Recently, new commercial relations between the CWB and a prominent British bakery are re-orienting these historic commodity chain relations. The rise of Warburtons shows how, in the UK bread sector, a relatively minor, branded food manufacturer has led the premiumisation of the market. Warburtons has helped construct demand for premium bread products in a market traditionally marked by consumer preference for cheap bread and has innovated in forms of supply chain coordination that far exceed industry norms, but which are now being taken up by supermarket chains. As scholars continue to focus on supermarkets as leaders of agrofood transformation (Burch and Lawrence 2005, 2007), this analysis provides for knowledge of the strategies of branded food manufacturers in response to food regime change.

Third, interpreting the GE wheat controversy in the context of historical changes to global commodity chains for wheat-bread allows for a broader interpretation of recent agrofood contestation. Since the 1990s, a transnational anti-biotech movement bridging many interests and issues has contested the introduction of GMOs with a significant impact on the national and supra-national regulation of biotechnology (Schurman and Munro 2003). The rejection of Roundup Ready wheat on the Canadian prairies was particularly significant because of massive farmer opposition (where farmers had already embraced GE canola), the way in which it brought together a unique constellation of actors, and the major public relations blow to Monsanto. The approach taken here draws
on Schurman and Munro’s (2008) “cultural economy” approach to agrofood contestation, combining attention to commodity chain structures as well as cultural/discursive factors that shape outcomes. My analysis shows how the conflict over GE wheat intersected with the cultural significance of bread/wheat and the quality-based commercial strategies of both the CWB and Warburtons. Viewed from the vantage point of long-term changes to the wheat-bread commodity chain, the GE wheat episode is interpreted as an historic choice between different modes for integrating the prairies into new forms of accumulation.

**Political economy of prairie grain marketing**

My analysis of the Canada-UK commodity chain for wheat-bread contributes substantively to knowledge of the political-economy of the prairies. Historical analyses of the prairie wheat sector have focused on its role in Canada’s project of national development, beginning in the 1870s. Informed by Fowke’s (1957) classic treatment of the subject, Conway (2006) has interpreted the establishment of the prairie wheat economy as a solution to the crisis of the eastern Canadian capitalist class. Western settlement – falling under the decades-long constellation of policies referred to as the ‘national policy’ – was considered key to consolidating Canada’s territorial expansion, expanding the investment frontier, and creating a captive market for eastern manufactures (Fowke 1957). The national policy established an east-west national division of labour, with the west dependent on exports of agricultural commodities and (eventually) other raw materials. Notwithstanding major technological and social changes over the last century, the prairie grains sector retains many of the vulnerabilities to which it has historically been subject, including dependence on export markets, an unpredictable
climate, and market power imbalances between farmers and agribusiness (Skogstad 2007, 26).

The extremely uneven nature of the prairie grain trade shaped historical power relations. Producing commodities for export and dependent on manufactured farm inputs, prairie farmers have always been “inseparably tied in with the price system and the urban economy on a national and international basis” (Fowke 1957, 12). Yet, farmers have faced a structural market disadvantage, with a small number of private actors financing and coordinating the grain trade upon which thousands of independent farming households depended. Political economy readings of prairie history explain the rise of agrarian social movements and economic cooperation as efforts to address farmers’ “competitive inferiority in the price system” (Skogstad 2007, 28).

Historically, the emergence the CWB embodied the aspirations of organized farmers for addressing this structural disadvantage. The origins and transformation of collective marketing through the CWB has therefore garnered significant attention, with detailed historical treatment by Wilson (1978) and Morriss (1987, 2000). Wilson’s (1978) account tracks in fine detail debates among leading figures over the question of grain marketing. The value of his work is in highlighting contingent processes of experimentation in the several attempts to solve the grain marketing impasse during the 1930s. Morriss’ (1987, 2000) two historical volumes provide an organizational history emphasizing the CWB’s changing role in world markets and in domestic agricultural policy. While providing rich narrative detail, neither Wilson nor Morriss provide any systematic sociological analysis of the path taken in establishing the institutional structure of prairie agriculture. Their value is predominantly as a source of secondary
data on key events shaping the history of grain marketing on the prairies. Meanwhile, Irwin (2001) provides a valuable history of the concept of ‘orderly marketing’, which was to inspire farmer agitation for the monopoly CWB during the turbulent decades between the world wars. His account emphasizes the complex intersection of farmer interests and state imperatives leading to the eventual establishment of the monopoly CWB during war-time conditions, in 1943.

Skogstad (2005) has provided a sociological explanation of CWB transformation during the 1990s using a theoretical framework emphasizing different logics of institutional change. Here, the CWB is conceived of as a utilitarian/functionalist institution, formed on the basis of the shared economic interests of prairie farmers (facing the collapse of grain markets) and war-time government imperatives (seeking to assure grain supplies allies and avoid domestic inflation). When changed political and economic conditions in the 1990s undermined the CWB’s stability, contending coalitions of actors engaged in conflicts over the future of centralized grain marketing. The coalition of social actors supporting the CWB (farmers, supportive political actors, and the prairie Wheat Pools) succeeded in resisting wholesale elimination of its marketing monopoly by proposing less radical changes consistent with utilitarian arguments (Skogstad 2005, 535). Viewed through this lens, the CWB’s governance and operational reforms of the late 1990s constituted a “strategic cultural adaptation” to a changing commercial and political environment (Ibid., 544).

While Skogstad’s (2005) analysis draws on CWB history and political-economic context, the food regimes perspective used in my dissertation extends the analysis by situating the story in global political-economic changes. My account of CWB emergence
and historical transformation ties organizational, commercial, and political changes to Canada’s shifting role in subsequent food regimes. Viewed in this way, distinctive prairie institutions (the CWB and public grain quality institutions) are understood as mechanisms for integrating the prairies into circuits of accumulation under historically changing structures of international power. In this regard, my approach draws some inspiration from Oleson’s (1979, 1999) accounts of CWB transformation linking institutional change to a broad, historical periodization of changing global conditions. Oleson identifies major structural shifts in world markets for wheat and trade relations that prompted intense periods of adaptation for the CWB. One key ‘inflection point’ for CWB adaptation occurred in the late 1960s, when new baking technology, the end of multilateral wheat agreements, and intensifying export competition forced the CWB to radically re-evaluate its commercial strategy (Oleson 1979). The period of rapid change in commercial and political conditions of the 1990s marked a second key tipping point, prompting another round of major adaptation for the CWB (Oleson 1999). The value of Oleson’s accounts is therefore in showing adaptability in the way the CWB single-desk marketing mechanism has historically been deployed in very different political and commercial environments.

Analysis of CWB adaptation to changing global conditions of accumulation also provides a new perspective on recent debates over the future of single-desk grain marketing. The CWB single-desk selling mechanism has been the subject of many agricultural economic studies, but these have tended to focus on narrow questions of economic efficiency, measured through price premiums. Some agricultural economists have argued that the CWB earns prairie farmers higher returns than would be possible in
an open-market environment (Kraft et al. 1996, Schmitz et al. 1997, and Schmitz et al. 2005). Others have claimed that the CWB does not earn significant price premiums (Carter 1993; Charlebois and Pedde 2008), that regulated grain marketing generates economic inefficiencies (Carter and Loyns 1996; Carter, Berwald, and Loyns 1998) or that the CWB has impeded technological and institutional change in prairie agriculture (Carter et al. 2006b). Though some studies have provided broader assessments of CWB change and performance (Schmitz and Furtan 2000), few studies to date have directly examined the CWB’s changing commercial strategies, including new relations with downstream buyers, branding, and IP programs (with the exception of two early studies on the CWB-Warburtons relationship, Kennet [1997]; and Kennett et al. [1998]).

Recent political conflicts over public grain marketing and quality control institutions – catalyzed by the current Conservative federal government’s policy of deregulation – have put Canada’s unique set of prairie institutions in the spotlight. Government actions that have violated the spirit and the letter of the law on CWB governance have undermined the principle of farmer control instituted in the agency’s 1998 reforms (Magnan, forthcoming). Supporters of the prairies’ centralized marketing and quality control system argue that the integrity of the CWB and its sister institution for regulating grain quality, the Canadian Grain Commission (CGC), is essential for maintaining Canada’s success in international markets (Sinclair and Grieshaber-Otto 2009). Detractors of the current system decry its emphasis on ‘Cadillac quality’ wheat for export markets, and argue that the prairie wheat economy should re-orient itself towards price-conscious emerging markets and biofuels (Carter et al. 2006a). My analysis of the transformation of the Canada-UK commodity chain for wheat-bread
provides a lens on the evolution of distinctive prairie institutions that shows the way in which they may be helping prairie farmers adapt to new global political-economic conditions in the economy of qualities.

**History of the UK food sector**

Finally, this dissertation will contribute to sociological knowledge of the British food sector. As the first industrial nation, the UK food sector has followed a distinctive pattern of development giving rise to unique structural and cultural features. These features of the UK’s food sector were fundamentally shaped by its early experiment with food import dependence. On the one hand, access to huge quantities of imported grain drove the industrialization and consolidation of grain milling (Perren 1990). Grain milling and, increasingly baking, became early examples of a large-scale food manufacturing sector emerging during the 20th century. On the other hand, early industrialization of the food sector created a food culture that “sets a high premium on price and treats food more as fuel than as pleasure” (Morgan et al. 2006, 143). In the bread sector, reliance on cheap imports of hard North American wheat contributed to the convergence of consumer demand around the store-bought, white loaf (Burnett 2005; Collins 1976). Food import dependence also shaped a distinctive British food politics centred on the right to ‘cheap necessaries’, including bread (Trentmann 2001). These features help explain the evolution of bread consuming culture in the UK, traditionally emphasizing cheap, standardized products.

Paradoxically, the extreme vulnerability revealed by the world wars led the British state to take a leading role in food sector regulation after the crisis of the UK-centred food regime (Burnett 1989; Drummond and Wilbraham 1958). The
government’s intimate control over the food supply during the war led to new forms of state control over nutrition, prices, and food safety. After the war, the state established comprehensive regulation of the food sector and a national framework for agricultural modernization lasting for several decades (Lang 1999). More recently, the UK has been at the epicentre of the ‘retailing revolution’ led by supermarkets (Burch and Lawrence 2007; Flynn, Marsden and Ward 1994; Wrigley and Lowe 1996; Vorley 2007). Partly, this resulted from the crisis of the UK’s postwar regulatory regime, centred on corporatist relations between government and farmers. By the 1990s, loss of faith in public regulation of food and agriculture led the UK to experiment with the devolution of key powers to private actors (Marsden and Wrigley 1996). In this way, the UK became an early leader in the shift towards supermarket-driven, private regulation of agrofood supply chains.

The story of bread sector premiumisation led by Warburtons and the CWB both confirms and challenges current understandings of the political economy of the British food sector. On the one hand, Warburtons’ leading role is surprising in the context of supermarket dominance, which is particularly pronounced in the UK. On the other hand, the establishment of the CWB-Warburtons program shows how a British corporate actor has brought new forms of private supply chain regulation to the Canadian prairies. That this form of quality chain is being established for bread – perhaps the prototypical standardized, industrial food – provides evidence of the way in which new quality principles are expanding their reach. Finally, the CWB-Warburtons program has had an interesting recursive effect in the way in which the model developed on the Canadian
prairies is being diffused back to the UK, as supermarket chains develop identity-preserved wheat sourcing for in-store bakeries (see Conclusion).

**Conclusion**

By advancing sociological knowledge of historical agrofood systems, state and private forms of regulation, and agrofood politics, this study will make a significant contribution to the field of political sociology. The case will speak to longstanding debates in the international political economy of agriculture and food, providing insights into the global restructuring of agrofood relations, new forms of regulation and governance in agrofood systems, and the fate of prairie farmers. The CWB-Warburtons case is inflected by many questions driving contestation over agrofood relations, including GE crops, food sovereignty, ‘quality’, and ecology. It will provide new knowledge of the changing role of commodity chains for wheat-bread over food regime history, and a concrete instance of how actors are constructing new supply chain relations for ‘premium’ products. In the next chapter, I present the methodological approach grounding my analysis of the Canada-UK commodity chain for wheat-bread.
Chapter 3 - Methods: Historical political economy of agrofood relations

Given the legacy of historical institutions, practices, and relations shaping the prairie wheat economy and the UK food sector as distinctive worlds of food, making sense of recent changes in the Canada-UK wheat trade requires a long historical view (see Ch. 2). To this end, the food regimes approach is helpful in that way that it not only provides historical narratives used to organize and interpret agrofood system change, but also methodological prescriptions for historical-comparative research. Here, historical-comparative analysis is conceived of as a means of locating and interpreting change among parts in relation to the transformation of a contingent, evolving whole (food regimes) in a complex, open-ended unfolding of social relations. In my analysis of the Canada-UK commodity chain for wheat-bread, I interpret the historical transformation of each sector (the prairie wheat economy and the UK food sector) in relation to the other, and in relation to changing structures of power and patterns of accumulation in successive food regimes. This form of historical-comparative method is a version of McMichael’s (1990) incorporated comparison. In this chapter, I first, explain how incorporated comparison relates to methodological debates in macro-historical sociology; second, show its relevance for making sense of my empirical case; and third, describe the data and evidence upon which I have drawn in reconstructing the Canada-UK commodity chain for wheat-bread.

Method in macro-historical sociology

In this section, I review methodological controversies in macro-historical sociology, arguing for incorporated comparison as the most appropriate strategy for reconstructing and interpreting shifting social relations across space and time. The value
of incorporated comparison is, on the one hand, to locate historical instances of social change in geographical and chronological contexts while, on the other hand, avoiding the reification of social structures and historical processes.

Though comparative macro-historical analysis was a hallmark of classical sociologists such as Marx and Weber, this tradition declined during the middle decades of the 20th century. One key catalyst for the resurgence of macro-historical theorizing and methodological work was, beginning in the 1970s, debates over modernization theory accounts of social change in the decolonizing Third World. Where modernization theory treated as a given the notion of discrete societies (delimited by the boundaries of nation-states) passing through a common set of historical stages (Rostow 1960), world-systems theory (Wallerstein 1974) argued for a historically grounded and relational view of global social change. According to world-systems theory, paths of development and social change cannot be abstracted from the way in which regions, nation-states, and classes are incorporated into/marginalized from systemic relations. For this reason, Wallerstein argued that the appropriate unit of analysis in macro-historical change is the ‘world-system’, consisting of a single division of labour integrating many political/cultural units differentiated by their structural position in the system as a whole (1974). In this view, the evolution of ‘parts’ of the system can only be understood in terms of their relation to the ‘whole’. This world-systems insight challenged the idea – inherited from 19th century sociological perspectives– that societies exist as discrete, independent units of analysis (Tilly 1984).

While rejecting the normative assumptions and functionalism of modernization theory, other macro-sociological approaches emerging during the 1970s challenged
world-systems theory. Contrary to the holistic and interpretive approach developed by Wallerstein, Skocpol (1979) sought to preserve the principle of formal comparison of discrete units of analysis in macro-historical sociology. Drawing inspiration from Moore’s (1967) analysis of diverging historical paths of development in political institutions, Skocpol used comparative analysis based on John Stuart Mills’ ‘method of agreement’ and ‘method of difference’ to analyze large-scale socio-political revolutions in France, Russia, and China. In this approach, discrete cases are compared according to the presence or absence of particular circumstances in order to determine necessary and sufficient causal conditions explaining a given ‘outcome’, in this case revolution (Ibid., 36-7). Here, the treatment of empirical cases abstracts from particular geographical and temporal contexts and the purpose of comparison is limited to making generalizing statements. Skocpol’s approach represents a strand of comparative macro-sociology emphasizing the need to attain scientific ‘rigor’ in comparisons among a small number of cases (McMichael 1990, 385).

Tilly’s (1984) macro-historical approach departs from Skocpol’s formalism in its greater sensitivity to systemic connections among cases and particular temporal and geographic contexts. While retaining the ambitious scope of macro-historical analysis (the focus of which remains ‘big structures, large processes, and huge comparisons’), Tilly (1984) points out the limits of ‘universalizing’ research strategies (which seek to explain all cases of a single form of social phenomenon) such as Skocpol’s. Without dismissing it as one of several research strategies, he suggests that universalizing analyses tend to ignore variations in the phenomenon at hand and the systemic connections – both among ‘cases’ and between ‘cases’ and the system as a whole -- that
add richness and depth to historical understanding (Ibid., 115). As a corrective to these weaknesses, Tilly proposes ‘encompassing’ comparisons, which examine different ‘locations’ within a larger structure or process “and explain similarities or differences among those locations as consequences of their relationships to the whole” (Ibid., 125). The goal is to make sense of part-part and part-whole connections that account both for commonalities and variations among locations. Because they begin with a theory or conceptualization of the whole, however, encompassing comparisons risk falling into a functionalist mode of explanation where the paths of historical parts are assumed to be determined by their connection to the whole (Ibid., 125-6).

McMichael’s (1990) essay on method sought to build upon the interpretive tradition in macro-historical sociology begun by Tilly and Wallerstein. Consistent with this approach, McMichael rejects methods based on formal comparison of externally related and preconceived units of analysis. Where his ‘historical-comparative’ approach departs from Tilly and Wallerstein, however, is in his treatment of the whole that provides ‘trans-societal’ historical context to local structures. The mistake made by Tilly and Wallerstein is in the way each tends to assume an “all-encompassing” whole (for Tilly, long-run twin processes of state-formation and capitalist development, for Wallerstein, the world-system) to which parts belong, tending to reify the nature of parts and wholes as units of analysis (Ibid., 388-9). In doing so, these approaches do not allow for the possibility of qualitative change in parts and wholes over time, nor for the ways in which parts of a system construct the whole in historical relations. As an alternative, McMichael proposes that the whole be treated as an “emergent totality” -- less an
empirical entity than a “conceptual procedure … in which the whole is discovered through analysis of the mutual conditioning of parts” (Ibid., 391).

McMichael (1990) calls this approach ‘incorporated comparison’. Rather than merely providing a framework for research design, incorporated comparison “progressively constructs a whole as a methodological procedure by giving context to historical phenomena” (Ibid., 386). Here, comparison becomes the substance of inquiry rather than its object, making it “an ‘internal’ rather than an ‘external’ (formal) feature of inquiry” (Ibid., 389). As opposed to being treated as separate, parallel ‘cases’, incorporated comparison “conceptualizes ‘instances’ as distinct mutually-conditioning moments of a singular phenomenon posited as a self-forming whole” (Ibid., 391). In this way, part-part as well as part-whole relations are used to construct parts and wholes, with the nature of neither presumed in advance. The goal is to retain the holism of world-systems theory while rejecting its formalism -- in other words, accepting the notion of the world-system as unit of analysis, while leaving open its nature as an empirical referent (Friedmann 1980). Incorporated comparison can take two general forms. The ‘multiple’ form of incorporated comparison examines change in historical instances over time, while the ‘singular’ form compares instances across space in a particular “world-historical conjuncture” (Ibid., 389). These forms represent generalizing and particularizing procedures, respectively, but can be creatively combined (Ibid., 393).

Two examples of incorporated comparison help illustrate the utility of this approach. Arrighi (1994) presents a sophisticated and highly original account of the historical combinations of economic and state power that have shaped the evolution of the world-system over the *longue durée*. He delineates successive ‘systemic cycles of
accumulation’ (SCAs) (lasting a century or more), which are recurrent periods of material expansion followed by financial expansion defining distinct regimes of capital accumulation under hegemonic leadership (Arrighi 1994, 6). Each SCA includes a phase of continuous change, where the logic of a particular phase of material expansion is developed to its limits, followed by a phase of discontinuous change during which, having reached these limits, a new basis for accumulation is established through systemic restructuring. Historically, this restructuring has occurred through a novel combination of political and economic power under the leadership of a new hegemon. Following McMichael (1990), units of analysis (SCAs) are constructed through comparison, allowing them to be treated as “interconnected instances of a single historical process of capitalist expansion which they themselves constitute and modify” (Ibid., 23). Comparison of successive SCAs focuses on identifying, on the one hand, “patterns of recurrence and evolution” marking continuity with previous relations and, on the other hand, emerging relations that represent “a break with past patterns of recurrence and evolution” (Ibid., 6).

A second pre-eminent example of incorporated comparison is to be found in Tomich’s (1990) analysis of slave-based sugar production in Martinique in world-historical context. He traces the crisis of the sugar plantation economy of colonial Martinique in the first half of the 19th century as a function of its relationship to world-historical change, the political-economy of imperial France, and local social relations governing sugar production in the colonies. Each of these ‘layers’ of analysis are considered “mutually formative parts of a larger whole” (Ibid., 6), not discrete and separate levels of analysis. Analysis proceeds in such a way as to reveal “the world
historical character of local processes while giving specific historical content to the concept of world economy through the concrete analysis of particular phenomena” (Ibid., 6). Thus, the world market, competition among rival imperial blocs, metropole-colony relations, and the local relations of slave production all mutually condition each other in “a unified, structured, contradictorily evolving whole” (Ibid., 5). In this way, Arrighi and Tomich each succeed in reconciling the historical specificity of time- and space- bound events with unifying world-historical processes, but without reifying the nature of the whole.

**Methods in agrofood studies: commodity chain analysis and food regimes**

The historical-comparative approach outlined above has been used to make sense of large-scale change in the agrofood system. The leading examples here are commodity chain analysis and food regimes (which applies commodity chain analysis holistically and in world-historical context). Originally formalized as a method by Friedland (1984), commodity chain analysis has become a methodologically sophisticated -- and despite common criticisms, theoretically grounded (Collins 2005) -- branch of the political-economy of agrofood systems. Commodity chain analysis traces the relations tying social actors into networks of production and consumption, usually for a single commodity or commodity complex. Here, economic relations and exchanges are interpreted as social relations of *power*. As such, commodity chain analysis challenges mainstream economic discourses that abstract economic relations from their social basis.

Commodity chain approaches gained currency in the sociology of global development during a period when scholars began to question the theoretical underpinnings of political-economy and the appropriate units of analysis necessary for
making sense of globalizing changes. On the one hand, traditional marxist political economy approaches tended to reify processes of social change in a deterministic reading of capitalist development dynamics. On the other hand, global changes (e.g., in the shift in power from states to corporations) called into question assumptions that the nation-state constituted the basic unit of analysis in macro-historical sociology (a key insight of world-systems theory). In this context, commodity chain analysis was appealing as a theoretical-methodological approach that “could grasp the evolving organizational aspects of international trade, the linkages that animate it, the coordination that makes it possible, and the new global bodies that regulate it” (Collins 2005, 4).

Commodity chain analysis became a leading approach in world-systems sociology, as scholars applied the approach to historical change in international commodity chains (Gereffi and Korzeniewicz 1994). This usage gave the approach an explicitly global focus, with global commodity chains (GCCs) conceived of as “sets of interorganizational networks clustered around one commodity or product, linking households, enterprises, and states to one another within the world-economy” (Ibid., 2). The value of the GCC approach is to develop a global political-economy perspective that “probes above and below the level of the nation-state to better analyze structure and change in the world-economy” (Ibid., 2). The key is to understand the way in which social relations among unequal actors shape global economic processes. Exemplary models of large-scale commodity chain analyses are Barndt’s (2002) analysis of North American commodity chains for tomatoes -- from migrant women workers in Mexico, to Northern consumers, and women workers in retail -- and Collins’ (2003) multi-sited institutional ethnography of the global apparel industry.
Since its inception, the commodity chain approach has been subject to two key correctives. First, recognizing that “[e]ach commodity system … develops a distinctive history” (Friedland 2001, 93), the method has been revised in order to pay more attention to the historical and spatial context of change in particular commodity chains. There are several examples of explicitly historical commodity chain analyses, including empirical analyses of grain flour and shipbuilding commodity chains in Gereffi and Korzeniewicz (1994), Roche’s (1999) historical food regimes analysis of the New Zealand frozen meat trade, and Campbell’s (2005) analysis of the transformation of New Zealand kiwifruit exports. Second, in response to a tendency towards a supply-side bias, Dixon (1999) introduced a “cultural economy” approach that pays more attention to the consumption dynamics of commodity chains. The cultural economy model attempts to specify more clearly production-consumption links and adds closer attention to the “cultural construction of economic processes and patterns”, including discourses and practices of consumption (Ibid., 156). Recently, Schurman and Munro (2008) have shown how commodity chain analysis can be deployed in exploring processes of social movement contestation around food. They combine insights from the literature on GCCs and Dixon’s ‘cultural economy’ approach to show how aspects of commodity chain structure, power relations among commodity chain actors, and cultural factors each have shaped social movement contestation of GE foods in the UK.

Although it does not rely on a formalized commodity chain methodology (e.g., Friedland 1984, 2001, Dixon 1999), food regimes analysis is broadly consistent with this approach in the sense that it traces production-consumption relations globally (see Collins 2005, 8-9). Food regimes analysis goes further than any individual commodity
chain analysis, however, by interpreting the significance of change in leading commodity complexes (e.g., Friedmann and McMichael 1989, Friedmann 1994) in a holistic reading of distinct historical constellations of power and accumulation. In this sense, the historical political economy approach used in food regimes analysis is a form of ‘incorporated comparison’ (McMichael 1990). Food regime analysis proposes structured historical narratives – always subject to reinterpretation – that help situate the conditions of conflict and stability characterizing agrofood relations in a given moment. In food regime analysis, historical parts form the basis of comparison, but are also understood to construct the whole (food regimes) historically. In turn, food regimes analyses track successive periods of stability and change as a lens on the historical evolution of the whole. In this way, it departs from approaches to agrofood studies giving priority to heterogeneity and contingency (e.g., Goodman and Watts 1997).

While food regimes analysis originally focused on specifying periods of stability in the rules governing food production, consumption and trade, more recent work has emphasized periods of transition and political contestation (see Ch. 2) (Friedmann 2005). Indeed, the question of whether or not a new food regime is emerging (or has emerged) is less important than the need to clearly delineate the disintegration of old relations and the emergence of new relations (McMichael and Friedmann 2007, 292) (much as in Arrighi’s [1994] treatment of historical SCAs). In this way, McMichael and Friedmann (2007) have sought to refocus food regimes analysis “away from distinguishing one regime from another and towards a methodology for interpreting transitions” (Ibid., my emphasis). The key is to avoid structural or historical reductionism in relating real world contests among social actors to the process of food regime change. I apply food regimes analysis
to the Canada-UK commodity chain for wheat-bread as a lens on current processes of food regime transition occurring at intersecting and mutually formative regional and global scales.

**Incorporated comparisons in the Canada-UK commodity chain for wheat-bread**

The historical and empirical specificity of the transformation of the Canada-UK commodity chain for wheat-bread provides texture to and partially construct broader processes of systemic change. Incorporated comparison proceeds along three interrelated axes. I consider the historical evolution of the prairie wheat economy and the UK food sector in relation to 1. the rise (Ch. 4), fall (Ch. 5), and re-invention (Ch. 6) of the commodity chain over successive food regimes; 2. the role of a secondary state actor (Canada) in relation to hegemons in successive food regimes (the UK, then the US); and 3. the role of historical actors (particularly the CWB) in expressing and shaping local and global food regime change.

First, I trace elements of continuity and change in the historical Canada-UK wheat trade. The commodity chain dates to the first food regime, founded to supply the UK with a cheap wage food in the form of industrial bread, but has been transformed over successive periods of change and stability. At its peak, the Canada-UK wheat trade linked the world’s largest exporter to the world’s largest import market, but this trade declined rapidly after the 1960s. Despite this decline, the Canada-UK wheat trade persisted because of the value of the UK as a premium market for prairie wheat (albeit on a much smaller scale), and because of the dependence of UK millers and bakers on Canadian wheat varieties for producing industrial bread. This continuity provided the possibility of re-inventing the Canada-UK wheat trade in the 1990s. Today, the volume
of the trade is less than one-tenth of its historical peak (in 1941, UK wheat imports from Canada were over 4 000 000 metric tonnes\textsuperscript{20}), but provides a high-profile and relatively lucrative export segment. I trace the rise, fall, and re-constitution of the Canada-UK wheat trade in relation to the way in which successive hegemonic actors constructed world trade and the way in which Canada responded.

Taking the long view also allows me to reconstruct practices, discourses, and institutions shaping wheat/bread quality over successive food regimes. Historical processes defining Canadian wheat quality were shaped, on the one hand, by social actors on the prairies attempting to consolidate Canada’s role as a supplier of bread-milling wheat and, on the other hand, by the requirements of actors in the UK import sector, as constructed by changing technology, industry structure, and consumer tastes. For several decades, industrial conventions defined high-protein prairie wheat as the highest-quality available for processes of industrial milling and baking. These claims were bolstered by Canada’s public grain quality institutions, which ensured consistency, cleanliness, and end-use characteristics across shipments. The disintegration of the post-war food regime, however, has posed a challenge to these traditional quality claims. Though Canada has retained strong public institutions for regulating grain quality, end-user demands and the differentiation of diets have led to the emergence of new quality conventions not easily satisfied through the bulk handling, publicly regulated system. Today, Canada’s integration into commodity chains for wheat is mediated by a complex combination of public and private quality guarantees, as illustrated by the CWB-Warburtons program. Historical reconstruction of the Canada-UK wheat trade thus provides the context necessary for interpreting the new relations developed during the 1990s, and the

\textsuperscript{20} Source: Mitchell and Jones 1971, Table – Agriculture, 9: The Overseas Corn Trade - UK 1938-1965.
subsequent transformation of the Canada-UK commodity chain for wheat-bread. I show how new commodity chain relations forged by the CWB and Warburtons have superimposed new quality conventions on longstanding industrial conventions -- a product of historical legacies of the Canada-UK wheat trade -- defining Canadian wheat as high-quality.

Second, I trace the role of Canada as a secondary food regime actor in successive historical periods of stability and change. In each food regime, Canada played an important – but ultimately subordinate -- role vis-à-vis hegemonic actors. In the first food regime, Canada’s integration into global circuits of accumulation and trade was inflected by its dependence on the UK market and by latent colonial ties to the mother country. On the one hand, the development of marketing and quality control institutions on the prairies was conditioned by its overwhelming orientation towards the British import market for bread milling wheat. On the other hand, latent colonial ties shaped and constrained Canada’s path to becoming a leading exporter, for example, in the way the need to provision the UK during war-time consolidated its role as an exporter, and led the state to experiment with and ultimately implement state-marketing.

Canada’s integration into the second food regime was conditioned by relations to the US, both as the emerging hegemon and as an increasingly important Canadian ally and trading partner. I trace Canada’s strategy for managing conflicting tendencies in its relationship to the US – on the one hand, increasingly fierce export competition and, on the other hand, Canada and the US’s mutual interest in managing the world commercial wheat trade -- during this period. State-marketing through the CWB proved an invaluable tool for Canada in adapting to the US’s aggressive mercantile practices in the
non-commercial wheat trade (i.e., food aid). Meanwhile, the US accorded Canada a key role in managing multilateral wheat agreements through pricing cooperation. In the current period of food regime transition, Canada is caught between contradictory tendencies. Canada has supported an agenda of global free trade in agriculture in the hopes of ending US and EU dumping. Yet, key social actors are split on the advantages of retaining the CWB and Canada’s public quality control institutions, which may provide a unique set of advantages to prairie farmers in the emerging economy of qualities, but are targeted for elimination by competing exporters in free trade negotiations. My analysis of Canada’s shifting, sometimes contradictory, strategies as a secondary food regime actor will add depth to current understandings of food regime change.

Third, I trace the evolution of the CWB as a lens on the transformation of a concrete historical actor negotiating food regime change. The CWB is a complex organizational actor embodying three distinctive historical moments: 1. the aspirations of organized farmers pursuing collective marketing; 2. the use of state-marketing as an instrument of state policy in domestic agriculture and international trade, and 3. a commercial entity enmeshed in global circuits of accumulation. While the CWB’s basic mandate and functioning have remained the same, my analysis shows how the single-desk marketing mechanism has been adapted to considerably different political and commercial contexts over successive food regimes. I interpret the transformation of the CWB over time as the outcome of struggles among farmers, the state, and private actors over different modes of integrating the prairie wheat economy into world markets for wheat.
Today, the CWB is the object of intense domestic and international political conflicts expressing the ethos of market-rule and deregulation of the neoliberal era. The commercial and organizational transformation of the CWB since the 1990s can be interpreted as an instance of strategic adaptation that may provide an advantage to prairie farmers. The CWB has shown creativity in combining organizational change and adaptation to new commercial circumstances, particularly in the way it has blended the advantages of public regulation of the wheat trade with new opportunities with downstream actors. Following Tomich’s (1990) example, a particular historical moment (in his case, the slave uprising in French Martinique), can provide a ‘moment’ from which to trace backwards evolving historical relations. In my case, I examine the CWB’s political leadership during the controversy over GE wheat as a vantage point from which to interpret the CWB’s role in mediating the integration of the prairies into the economy of qualities.

**Evidence and data**

Incorporated comparison of the Canada-UK commodity chain for wheat-bread over successive food regimes is constructed from several sources. These include detailed historical works serving as secondary data for reconstructing lines of historical change; statistical sources drawn from national statistical agencies and historical compilations; newspaper and trade journal sources informing specific aspects of industry change; and semi-structured interviews with key informants. I have drawn these sources together in a multi-faceted research strategy grounded in the historical-comparative methodology of incorporated comparison.
Secondary historical sources

I have drawn on key secondary historical sources to reconstruct and reinterpret processes of historical change in the prairie wheat economy and the UK food sector. A historically-grounded tradition in the political economy of the prairie west (Conway 2006; Fairbairn 1984; Fowke 1957; Wilson 1978) provides detail on the scale and scope of social, economic, and institutional transformation of the prairies over time. Detailed political and organizational histories of the CWB (Morriss 1987, 2000; Wilson 1978) provided a rich source of material for reconstructing conflicts over single-desk marketing and the transformation of the organization over time. Meanwhile, more circumscribed and specialized historical accounts provided insight on particular aspects of prairie/CWB history. Oleson’s (1979) account of CWB adaptation to world market restructuring in the 1960s provided an invaluable source on the inner workings of Canada-US pricing cooperation during the second food regime. Donaghy and Stevenson (2008) and Kristjanson (1967) provided concrete historical material on the opportunities and dilemmas faced by Canada in pursuing large-scale wheat deals with communist buyers beginning in the 1950s.

Key CWB documents provide insight on major periods of flux and adaptation for the state-marketing agency. Two strategic reviews of the CWB’s role and functioning have been particularly valuable. The Menzies (1971) report reassessed the CWB’s role under rapidly shifting world market conditions undermining the role single-desk marketing had come to play in domestic agricultural and international trade policies over the previous two decades. A second key strategic review occurred in 1990 (the Steers report), when there was again a major shift in world markets and political conditions demanding a re-orientation of the CWB’s commercial and political strategy. At the
height of domestic political conflicts over the CWB during the 1990s, the government commissioned a third report on the future of prairie grain marketing (WGMP 1996) that provides insight on CWB adaptation to changing commercial conditions during this period. CWB annual reports, newsletters, policy briefs, and web material have also proven useful in documenting organizational and commercial changes including the CWB’s governance changes of the late 1990s, the Warburtons program, and the organization’s branding strategy.

In reconstructing historical change in the UK food sector, I have drawn on several strands of scholarship. Burnett (1989) and Drummond and Wilbraham (1958) provide general social histories of patterns of British food consumption and the evolution of food industries in the UK from the 19th century onward. Other works provide specific treatment of the UK bread sector, including the politics of bread nutrition (Burnett 2005), the fate of baking and milling industries over the 20th century (Collins 1976), and early 20th century food politics centred on cheap bread (Trentmann 2001). Perren (1990) and Tann and Jones (1996) provide historic accounts of the technological and economic transformation of UK milling industries in light of the flood of cheap North American wheat varieties in the late 19th century. Other sources trace the unique path taken in the evolution of food regulation (Lang 1999; Marsden et al. 1994) and food retail industries in the UK (Burch and Lawrence 2007, Marsden and Wrigley 1996, Shaw et al. 2004, Vorley 2007). Two corporate histories of Warburtons provide background historical material on the evolution of the family-run bakery since its founding in the 1876 (Warburtons 1976, 1988).
**Statistical sources**

Statistics on the Canada-UK wheat trade and prairie agriculture were drawn from historical abstracts (Leacy 1983) as well as from Statistics Canada (Canada’s national government statistics agency). Statistics on patterns of food consumption and wheat imports are drawn from secondary historical sources (see above), abstracts of British historical statistics (Mitchell and Deane 1962; Mitchell and Jones 1971), as well as from the Food Statistics Branch of the UK Department of Environment, Food, and Rural Affairs [DEFRA]). Statistics on industry concentration and change in the UK bread, milling, and retail sectors are drawn from Jeffreys (1954) and the UK’s Mergers and Monopoly Commission (1977) report on the bread industry.

**Newspaper and trade sources**

Newspaper and trade sources have proven useful in reconstructing some strands of recent change in the prairie wheat economy and the UK bread sector. I have used a comprehensive sample of newspaper coverage of the GE wheat controversy in the Western Producer (the leading agricultural newspaper on the prairies), the Regina Leader Post, the Saskatoon Star Phoenix, and the Globe and Mail (Canada’s leading national daily) between 1999-2004 to reconstruct processes of social contestation around this issue. I have also drawn extensively on British newspaper and trade journal sources (with searches in Factiva and ProQuest business on-line databases) and other industry sources (official websites of the UK baking [BakeryInfo], and food retailing industries [TalkingRetail]) in order to trace changes to the bread industry and Warburtons since the 1980s.
Key informant interviews

Finally, I conducted semi-structured interviews with key informants (N=45) including commodity chain actors such as Monsanto, the CWB, Warburtons, and organizations representing the Canadian seed, milling, and baking industries (Table 3.1). Interviews were also conducted with the principle actors and organizations involved in the controversy over GE wheat, including leaders of farm organizations and social movement organizations. I conducted interviews with government officials at the Canadian Food Inspection Agency (CFIA) and with a former federal cabinet minister responsible for the CWB (Ralph Goodale). Interviews were transcribed verbatim, then coded and analyzed using NVivo qualitative data analysis software. Though many interviews were conducted by telephone, I conducted on-site visits to the CWB head office in Winnipeg, and for an interview with Warburtons’ officials, to the bakery’s technical centre in Brandon, Manitoba. All interviews were conducted between January 2007, and April 2008.
Table 3.1 – Semi-structured interviews with key informants

<table>
<thead>
<tr>
<th>Category</th>
<th>Organization</th>
<th>N =</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commodity Chain Actors</strong></td>
<td>CWB</td>
<td>11 current/former officials; 9 farmer-directors</td>
</tr>
<tr>
<td></td>
<td>Monsanto</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Warburtons</td>
<td>1 (two officials present)</td>
</tr>
<tr>
<td></td>
<td>CIGI (western grain industry)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>CSGA (seed industry)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>BAC (baking industry)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>CNMA (milling industry)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>CGC (federal grain industry regulator)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Government Officials</strong></td>
<td>CFIA</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Former CWB Minister</td>
<td>1</td>
</tr>
<tr>
<td><strong>Participants in GE wheat controversy</strong></td>
<td>Greenpeace</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NFU (national farmers’ organization)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>CFA (national farmers’ organization)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>SOD (provincial organic farmers’ organization)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>APAS (provincial farmers’ organization)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>KAP (provincial farmers’ organization)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>SARM (provincial association of rural municipalities)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>WRAP (provincial farmers’ organization)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Real Voice for Choice (pro-CWB advocacy organization)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>WBGA (commodity organization)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>WCWGA (commodity organization)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>45</td>
</tr>
</tbody>
</table>

21 Please see p. xi for a complete list of acronyms.
Interviews (including interview guides for different sets of key informants) were
granted ethics approval by the University of Toronto’s Ethics Review Office (protocol #
18798) and were subject to the informed consent of key informants. A standard consent
form with stringent guarantees of confidentiality was presented to farmer-directors of the
CWB, CWB officials, and government officials (excluding those holding or having held
public office). In accordance with the University of Toronto’s Ethical Guidelines on
Interviewing Public Personalities, an alternative consent form was presented to
informants with a high public profile (current/past government ministers; leaders/official
spokespersons of social movement and farmers’ organizations; official spokespersons for
corporations; and current/past presidents/CEOs of the CWB). The alternative consent
form provided for different levels of confidentiality to be maintained, subject to the
agreement of the informant. Even under the least stringent requirements (attribution of
direct quotes), the informant had the opportunity to request that specific comments be
made off the record. Generic references (e.g., farmer-director of the CWB, official
spokesperson of a social movement organization, etc.) are used in place of respondents’
names for all those assured anonymity.

Recruitment of key informants was initiated with a letter explaining the subject
and scope of my research and the nature of the information sought from each type of
respondent. I followed up to these written letters with telephone calls and email
correspondence in order to confirm participation/non-participation and coordinate a time
and location for interviews. The response among prospective informants was generally
positive, and the refusal rate low.
I obtained interviews with 9 of the 11 CWB farmer-directors I contacted and with the large majority of regular CWB officials invited to participate. Farmer-directors were typically quite eager to share their experiences in directing the CWB during what has been a turbulent decade. Although consistently prepared to defend the CWB’s record (e.g., on questions both of accountability and transparency as well as on commercial performance), these respondents also acknowledged the legitimacy of farmer grievances against the CWB and displayed a reflexive understanding of the organization’s continuing challenges. CWB officials were accommodating in sharing information on processes of organizational and commercial change, though sometimes unable to share sensitive commercial information. An interview with two former CWB officials (each having worked with the agency for two-decades or more, beginning in the 1970s) provided an extremely useful historical perspective on organizational change and the challenges posed by shifting commercial and political conditions over time.

Interviews with key farmers’ organizations (none of which refused to participate) provided valuable insight both on coalition dynamics in opposing GE wheat as well as on each organization’s role in on-going political conflicts over the CWB. Interviews with a former Greenpeace official and with a Monsanto spokesperson provided insight on polarized positions in the GE wheat controversy. Although initially declining to participate in my study, I eventually secured a joint interview with Warburtons’ purchasing director for the prairies (Bob Beard) and Executive Director (Brett Warburton). While reluctant to reveal sensitive commercial information or to comment extensively on political debates over the CWB, this interview provided insight on the
The two farmer-directors of the CWB who ultimately refused to participate were both representatives elected to the board of directors on an “open market” or “dual marketing” platform. Although this raises the potential that these anti-single-desk farmer directors perceived bias in my research project, I was nonetheless able to obtain interviews with other respondents who are outspoken CWB critics. I conducted interviews with leaders of the two most outspoken anti-single-desk farmers’ organizations, the Western Canadian Wheat Growers’ Association and the Western Barley Growers’ Association. Both respondents were quite accommodating, and did not hesitate to express their opposition to the current monopoly marketing system. Likewise, I interviewed a Monsanto official intimately involved with the GE wheat controversy who was forthcoming in her criticism of the CWB-led effort to prevent the introduction of the biotech company’s Roundup Ready wheat. Attempts to obtain interviews with the grain handling companies involved in the Warburtons contract (Agricore United and Patterson Grain) were unsuccessful. Patterson Grain is a relatively small (by comparison to the transnational grain giants) private firm, which may help explain the difficulty in securing an interview. One factor that may help explain my inability to obtain an interview with an appropriate official at Agricore United is the fact that the firm was under major restructuring at the time of recruitment, as it was merging with Saskatchewan Wheat Pool (now Viterra). Since Warburtons farmers are selected and contracted by these companies, I was not able to obtain access to lists of Warburtons farmers for potential interviews.
Conclusion

As a case of large-scale historical change linking two regions/states in the world-economy, my empirical analysis calls for a comparative-historical method that does justice, on the one hand, to complexity and contingency in local processes, and on the other hand, to the unifying processes and structures shaping local processes. In this chapter, I have argued for an incorporated comparison methodology grounded in food regimes analysis as the most appropriate strategy for achieving these goals. My dissertation draws together evidence from historical and statistical sources as well as from key informant interviews in an interpretive analysis of the transformation of the Canada-UK commodity chain for wheat-bread over time.
Chapter 4 – The Canada-UK commodity chain for wheat bread (1870-1945)

In this chapter, I track the transformation of the Canada-UK commodity-chain for wheat during the first food regime (1870-1914) and its subsequent crisis (1914-1945). During the first food regime, prairie wheat production tied farmers, the state and capital into Canada’s 19th century project of geographic expansion and national development. In turn, the prairie wheat economy cemented Canada’s role in an international division of labour whereby wheat exports, which became Canada’s most important export by value, fuelled industrialization in the UK via imports of cheap grain. Although Canada lagged behind the US in western expansion for several decades, by the early 20th century, the two countries competed over the world’s largest import market, the UK. In the UK, supplies of North American hard wheat varieties drove the industrialization of the milling and baking industries, which supplied the British population with standardized, white loaves. White bread made from North American wheat became a dietary staple, and a key symbol of the early British consumers’ movement, which linked cheap bread and access to affordable necessities to the defence of free trade policies (Trentmann 2001).

The crisis spanning 1914-1945 revealed the deep social contradictions of the UK-centred food regime. The class of prairie farming households established during the first food regime became dependent on exports and faced chronic price instability, and eventually, market collapse. These conditions resulted in part from major structural inequalities in the grain trade, as thousands of farmers acting as independent commodity producers confronted a private grain trade consisting of a small number of private interests. In the UK, war-time food crises and the Great Depression undermined
confidence in the decades-long policy of import dependence and free trade. In a way that mirrored increasing state-regulation of the prairie wheat economy under crisis conditions, British governments acted to regulate the food sector through public nutrition, domestic production, and control over food supplies. Retracing the Canada-UK commodity-chain over this period reveals the role of wheat-bread in the transformation of prairie agriculture, British food manufacturing and retailing industries, and in the social struggles of social movements (of farmers and consumers), capital, and the state that shaped the regulation of food production and consumption.

These changes are understood as the outcome of shifting state-state relations between Canada, the UK, and the US, and struggles among social actors defining Canada’s role in global agrofood relations. During the UK-centred food regime, the North American plains were integrated into industrializing nation-states and global circuits of commodities. Canadian and US grain growing regions converged on a common model of settler-agriculture and competed for export markets. These paths diverged, however, after WWI, as each responded differently to the crisis of the UK-centred food regime. Canada’s response was structured by the constraints of its geography and its latent colonial relations with the UK. Constrained by its small population, the prairies became dependent on exporting the vast majority of its wheat into volatile world markets, whereas the US increasingly harnessed its productive capacity to the exploding domestic market. Meanwhile, relations of war-time coordination between Canada and the UK during WWI led Canada to experiment with centralized marketing, originally the invention of the agrarian movement. The success of this experiment inspired farmers, who struggled for the implementation of monopoly marketing as a
remedy to the market turmoil of the next two decades. Although reluctant to close the private trade, state actors came eventually to see state-marketing as the best solution and implemented monopoly control when Canada’s commitment to provision the UK was threatened. Ultimately, it was Canada’s reliance on a handful of major export outlets (most importantly, the UK) for essentially a single type of wheat (high-protein milling wheat) that made the prairie wheat economy amenable to the centralized marketing and quality-control that would become its hallmark.

The UK-centred food regime

The 1870-1914 food regime linked industrializing European states to ‘settler states’ in an international division of labour based on the exchange of food staples for capital, manufactured goods, and labour (Friedmann and McMichael 1989). Food regime relations revolved around the UK, the leading economic and colonial power of the era, particularly via its policy of free trade and its dependence on imported ‘wage foods’, which fuelled rapid industrialization by reducing the cost of labour. In settler states such as Canada, the US, Australia, and Argentina agricultural expansion depended on massive European immigration, displacement of indigenous peoples, and ecological transformation. During this period, the huge increase in the size of the world wheat trade coincided with rapidly declining transportation costs to create, for the first time, a single world price for wheat – i.e., a truly world market (Friedmann 1978, 545-6). The world market in wheat became the first for a subsistence good, marking a radical social experiment in food provisioning (Friedmann 2005, 234), the best expression of which would be in the UK’s policy of food import dependence.
Forging the prairie wheat economy

Canada’s role in the UK-centred food regime was cemented by supplying a raw ingredient for bread (wheat), then a key wage food, to the world’s largest import market, the UK. This process depended on a radical transformation of the prairie west, beginning in the 1870s, as the state acquired vast tracts of land to the west of the Great Lakes, dispossessed aboriginal inhabitants, and cultivated native prairie soils that had remained undisturbed for eons. The establishment of the prairie wheat economy became central both to Canada’s project of national development and its role in the international division of labour. With the threat of US expansionism and a stagnant Eastern Canadian economy, Canada’s ruling political and economic classes seized on the settlement of the west as the key to a post-Confederation (1867) strategy of national development (Conway 2006). Settling the west would provide the means of establishing a viable east-west national market, securing territorial integrity and providing new investment outlets for eastern capital. The state used the expanded borrowing base achieved through unification of the British North American colonies to fund the huge investments necessary for the acquisition and settlement of the west (Conway 2006, 7-8). The linchpin of the plan was to open up the prairie west to European settlement and agricultural production in order to supply wheat to industrializing export markets.

The state played a leading role in establishing the prairie wheat economy, putting into place the policies coordinating western expansion through settlement, transportation and trade protection - the ‘national policy’ (Fowke 1957) – by the 1870s. Given the geographic remoteness, harsh climate, and sparse population of the prairies, realizing Canada’s project of western settlement involved surmounting major obstacles. One obstacle was to adapt prairie wheat production both to the harsh growing conditions of
the northern plains and to emerging demand in overseas import markets. The first wheat variety grown on the Canadian prairies on a large scale was Red Fife, a hard wheat of Ukrainian origin, named after the Scottish immigrant who obtained and multiplied it in 1840’s (Wilson 1978, 10). Red Fife was bred specifically for Canadian conditions, and spread from Ontario westward to Manitoba and later to US wheat growing states. Though well adapted to prairie growing conditions, the hard wheat kernel typical of Red Fife was poorly suited for the stone milling technology dominant in the middle of the 19th century. In fact, before the 1870s, prices for Red Fife were routinely discounted (Morriss 1987, 8).

Increased demand for Red Fife wheat only emerged when historical conditions of wheat supply, technology, and social organization constructed wheat quality in terms of its amenability to new, industrial methods of milling (Wilson 1978, 10). Beginning in the 1870s, new technology – roller-milling (see below) – spurred huge demand for hard wheat varieties with high protein content. Because Red Fife grown on the northern prairies -- through a happy coincidence of soil type and climate -- enjoyed a slight edge on protein content over American wheat, it yielded strong flour ideal for producing lightly textured, white bread. This gave Red Fife a reputation for superiority from the beginning, as the first shipments of Manitoba-grown Red Fife to US buyers in Minnesota sold at a premium compared to US varieties (MacGibbon 1932, 26). In this way, the high-protein content of hard wheat from the Canadian prairies became synonymous with ‘quality’ in export markets for bread-milling wheat. This definition of wheat quality – a

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22 The high protein (gluten) content of strong flour accounts for the greater elasticity of the resulting bread dough. High gluten content allows the dough to be stretched further in the process of fermentation, which produces the tiny gaseous bubbles that give bread its spongy texture. The higher the protein content, the lighter and fluffier the loaf of bread.
convention linking select properties of the grain to its performance in industrial processes – would become a dominant mechanism for structuring the world wheat trade.

Consolidating the prairies ‘quality’ advantage depended on the adoption of rationalizing technologies that could render the baking and milling properties of prairie grain ‘legible’ (Scott 1998) to buyers. The key was the introduction of criteria for grading wheat by type (e.g., hard spring) and quality (No. 1, No. 2, etc.), transforming the grain from a heterogeneous good into a homogeneous commodity. This process was pioneered in the Chicago grain trade of the 1850s. By assigning grades to naturally heterogeneous material, grain could be treated as a ‘fluid’ – what Cronon (1991) has called the “golden stream” (120) – a precondition for the emerging bulk-handling and futures-trading systems. Prior to the introduction of standardized grades, wheat was bought and sold in individual sacks that preserved the identity of lots of grain from particular farmers. The scale of grain transactions in the emerging trading markets of the US Midwest drove the shift towards bulk handling, where grades allowed grain of the same type and quality to be bought, sold, and handled in bulk.

These practices gradually diffused to Canada over the following decades, as the first exports of prairie wheat began. The first shipment of prairie wheat reached Britain, via the US, in 1878, and the first shipment to reach Europe by a Canadian transportation route was made in 1883 (Wilson 1978, 10). Bulk handling of the prairie wheat crop began in 1884, when the first terminal elevator was opened at Port Arthur on Lake Superior, the gateway to all overseas grain shipments until the opening of West coast shipping routes after WWI. Having first established standardized grades for Canadian wheat in 1863, the federal government extended grading legislation to western (i.e., Red
Fife) wheat in 1886 (Wilson 1978, 11-12). By 1892, new regulations established three principle grades of hard Manitoba wheat known as the “export grades” (MacGibbon 1932, 34) and by 1899, grades for hard spring wheat were defined according to minimum content of Red Fife (e.g., Extra Manitoba hard wheat had to contain at least 85% Red Fife) (Wilson 1978, 13). In this way, the state established the first form of public control over wheat quality, as expressed in the higher protein content and exceptional baking qualities of a particular wheat variety (Red Fife).

The geographic remoteness of the prairies posed other major obstacles. First, it made the Canadian prairies less attractive to settlement than the US western frontier, which exerted a much stronger pull on flows of investment and people, up until at least the 1890s (Conway 2006, 24-6). Second, with wheat production oriented towards overseas export markets, the Canadian prairies were constrained by the cost of transporting wheat to port positions over huge distances. In the US agricultural frontier, grain movements had multiple outlets in the major river systems of the Midwest. On the Canadian prairies, overseas export orientation and tariff policy forced grain shipments along a single west-east corridor, via the Great Lakes. Combined with low wheat prices related to a world economic recession lasting well into the 1890s, these factors meant that prairie wheat production, exports, and by extension, settlement, increased only slowly during the first decades of the national policy. Up until the decade of the 1900s, the US was by far the leading exporter of wheat to the UK (Figure 4.1).
These barriers were overcome in 1896, prompting a two-decade long wheat boom. Recognizing the barrier posed to wheat exports by high transportation costs, the federal government negotiated statutory freight rates (the Crow’s Nest Pass agreement) with the Canadian Pacific Railway, in 1896, reducing the cost of shipping wheat eastward and fuel and farm implements westward (Conway 2006, 47). This occurred just as world wheat prices rose. With the basic physical (e.g., grain elevators and terminals) and social (grades, bulk handling) infrastructure for the export trade already in place, higher grain prices and lower transportation rates made prairie wheat production economically viable on a large scale for the first time (Conway 2006, 26-7). Meanwhile, US western expansion began to reach its limits, making the Canadian prairies more attractive to settlement.
The prairies experienced a major boom, evident in the scale of the social and ecological transformation of the next decades. Encouraged by government promotion through its system of experimental farms and seed distribution programs (first begun in 1885), prairie farmers adopted Red Fife on a massive scale (Kuyek 2005, 46), forever displacing native prairie grassland. Early in the 20th century, government research agents used new breakthroughs in genetics to develop ‘improved’ wheat varieties, marking the origins of the public plant breeding system focused on improving yields and disease resistance all without compromising milling and baking properties. A new variety named Marquis, with early maturation suited for the short prairie growing season, was introduced in 1909 and quickly replaced its progenitor, Red Fife. By 1920 Marquis accounted for over 90% of all hard spring wheat sown (Kuyek 2007, 31). Between 1890 and 1914, seeded wheat acreage more than tripled, from less than 3 million acres to more than 10 million. Between 1896 and 1913, the prairies attracted over 1 million settler-immigrants, and increased wheat production ten-fold (Conway 2006, 26-7). Total Canadian wheat exports rose sharply over the period, surpassing 1 million tonnes for the first time in 1905 (Figure 4.2), and became Canada’s dominant export sector, assuming an increasingly important share of total exports. By 1906, Canadian wheat exports accounted for fully 20% of all Canadian domestic exports by value, and between 1911-1915, accounted for nearly 29% (Table 4.1).

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23 Source: Leacy 1983, Table M249-257.

Table 4.1 – Value of Canadian wheat and flour exports, 1896-1915 – Five year averages

<table>
<thead>
<tr>
<th>Years</th>
<th>Value of wheat and flour exports (thousands of dollars)*</th>
<th>Value of all domestic exports**</th>
<th>Wheat and flour exports as a % of total domestic exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1896-1900</td>
<td>16580</td>
<td>137000</td>
<td>12.1</td>
</tr>
<tr>
<td>1901-1905</td>
<td>24800</td>
<td>195200</td>
<td>12.7</td>
</tr>
<tr>
<td>1906-1910</td>
<td>49600</td>
<td>237000</td>
<td>20.9</td>
</tr>
<tr>
<td>1911-1915</td>
<td>101200</td>
<td>352200</td>
<td>28.7</td>
</tr>
</tbody>
</table>

*Source: Mitchell 1993, Table E3

**Source: Statistics Canada, Historical Statistics, Series G381-385, Foreign trade, domestic exports, total exports, total imports and balance of trade, declared values, Canada and all countries, 1868 to 1975.

The consolidation of the Canada-UK commodity-chain involved a series of innovations – new forms of agrofood regulation driven by the class of family farmers and the state -- that mediated the structural inequalities of the grain trade and secured
Canada’s quality reputation. Dependent on exports, farmer agitation against the private interests that coordinated the grain trade led to increasingly comprehensive and integrated public regulation. Farmers protested against the monopoly in grain handling awarded to elevator companies by the Canadian Pacific Railway, and decried dubious weighing and grain blending practices of private elevator agents (Wilson 1978, 27). The government responded to farmer complaints by establishing a Royal Commission in 1899, the result of which led to the first legislation regulating the grain trade, the Manitoba Grain Act of 1900 (Wilson 1978, 31). The Act established independent government oversight of the trade, including practices for weighing grain and assigning dockage.\(^\text{24}\)

In 1912, the federal government combined the state’s role in grain inspection and grading with its regulation of grain handling under the Canada Grain Act of 1912 (Wilson 1978, 42). This legislation established a Board of Grain Commissioners, the antecedent to today’s Canadian Grain Commission, the federal agency charged with regulating grain handling and quality. Aside from addressing farmer grievances, the Canada Grain Act served to consolidate Canada’s role as a supplier of high-quality wheat by further entrenching state control over wheat quality. The Canada Grain Act of 1912 defined Marquis wheat, a descendant of Red Fife, as the benchmark against which all other varieties would be measured, extending state control over the introduction of new varieties (Kuyek 2005, 47). This role was reinforced through the Canada Seeds Act of 1923, which established the modern Canadian variety registration system (Kuyek 2007, 44-5). Henceforth, all new seed varieties would be subject to a process of variety registration intended to protect farmers from sales of poor quality seed and to preserve

\(^{24}\) Dockage refers to the discounts assigned for the presence of impurities (weed seeds, stones, and other foreign material) in bulk grain deliveries.
the integrity of Canada’s wheat supply. Under this system, new varieties had to meet or exceed the performance of existing benchmark varieties based on yield, disease resistance, and end-use characteristics.

Farmer resistance took a second track as farmers turned to economic cooperation - the earliest precursors to centralized marketing -- as a means of addressing the extreme inequality of market power between farmers and the private interests of the grain trade. Farmers established the first co-operative grain company, the Grain Growers’ Grain Company (GGGC), in 1906, and farmer-owned grain elevators were established in Saskatchewan in 1911 and in Alberta in 1913 (Wilson 1978, 52). These organizations were the earliest forerunners to the prairie wheat pools, the co-operative grain handling and grain marketing companies that emerged in the 1920s (see below). The basic principles of grain pooling25, to become the foundation of the wheat pools (and eventually the CWB) were expressed as early as 1908 by the organized farm movement (Irwin 2001, 93). In its earliest form, the idea of collective marketing combined the principle of collective economic power (monopoly marketing) and farmer control in a model of state-sponsored collective marketing. The scheme advanced during a meeting of the Saskatchewan Grain Growers’ Association (SGGA) in 1908 consisted of a farmer-owned centralized marketing agency controlled “by an independent commission nominated by the [SGGA], and appointed by the government” (Irwin 2001, 93). The state would play a key role in sponsoring the enterprise by providing credit with which to finance the pool, but farmers would control the agency (Irwin 2001, 93). Pooling

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25 Under the pooling mechanism, farmers deliver their grain to a common agent in exchange for an initial payment. The agent disposes of the ‘pooled’ stocks of grain based on all deliveries in order to maximize prices and minimize market risks for individual farmers. Initial payments are adjusted by a final payout following the liquidation of pool stocks. The result is that all farmers receive the same return on grain of a given class and quality.
appealed to farmers as a way to achieve ‘orderly marketing’, i.e., selling the wheat crop collectively over a long period of time in order to match supply to demand and to even out the highs and lows of the market (Ibid., 92). Demands for orderly marketing would galvanize farmers’ movements for decades to come.

On the eve of World War I, the basic political-economic contours of the prairie wheat economy were in place. The prairies were linked, via bulk exports of bread milling wheat, to the industrializing UK import market, tying Canada’s economic interests inextricably to the wheat trade. The Canadian state played an instrumental role, through the national policy, in coordinating the extremely rapid settlement and agricultural transformation of the prairie west. The state provided for public regulation of the wheat economy in the interests of farmers, establishing standardized grading, independent oversight over grain handling, and an early public plant breeding and agricultural extension system. The state implemented centralized control of wheat quality -- as constructed by demand for high-protein milling wheat overseas -- by tying standardized grades to particular wheat varieties (Red Fife, then its descendant, Marquis).

Wheat production remained in the hands of a class of independent commodity producers, organized on the basis of household labour (Friedmann 1978), which served as a protected market for the manufactured goods of eastern Canadian capital (Fowke 1957). The tensions inherent in this period arose from farmers’ growing disenchantment with their lack of market power. As farmers “recognized their competitive inferiority in the price system” (Skogstad 2007, 28) they pushed for greater public regulation of the grain trade and experimented with economic cooperation. However instrumental the state’s role in regulating the grain trade, grain *marketing* was left in private hands, including
large national capitals (railways, line elevator companies, and banks) and, eventually, farmer-owned cooperatives.

**The UK food import market**

The prairie wheat boom was premised on meeting rapidly increasing British demand for North American wheat in the first instance in which a country would become almost completely dependent on foreign sources for a food staple (Friedmann 2005, 235). As the foremost source of food calories, especially among working classes, bread from imported wheat became central to British industrialization in its role as a wage food. The conditions underpinning this shift included a number of overlapping changes. First, the UK’s free trade policy opened the British market to the flood of cheaper, North American grain, to the detriment of its domestic agricultural sector. Second, the adoption of roller-mills, which were ideally suited for hard North American wheat, revolutionized grain milling and baking. Third, changing patterns of food consumption conditioned demand for mass-produced white bread. Finally, emerging food manufacturing (baking) and retailing industries encouraged the shift from home-baked to store-bought bread. Each of these changes linked the emergence of the Canadian prairies as a ‘breadbasket’ to the transformation of British consumption, food industries, and food politics.

In a bid to provide cheap food for its urban working classes, the UK broke definitively with food self-sufficiency with the repeal of the Corn Laws in 1846. The UK embraced free-trade, staking its economic dominance on a strategy of food import dependence and trade. The ‘torrent of wheat’ from North America began in earnest in the 1860s (Jacob 1944, 296-7) and accelerated rapidly during the 1870s, surpassing 3 million tonnes by 1879 (Figure 4.3). The average annual quantity of wheat imported during the
1870s was nearly triple that of the 1850s (Figure 4.4). Even as the quantity of flour available per capita remained constant, the proportion of foreign wheat milled in the UK increased from less than 20% before 1860, to 71% by 1910-14 (Perren 1990, 425). With the huge influx of US wheat in the 1890s, UK wheat prices plummeted. North American wheat sold at one-half the price of domestic wheat, including transportation costs (Burnett 1989, 116). Between 1873 and 1893, English wheat prices declined from £2.91/quarter to £1.32/quarter, while the price of bread fell to as little as 6 pence for a 4 lb. loaf (Ibid.). The effect was to squeeze out domestic grain production in the UK, with a decline in cereal acreage between 1872 and 1913 of more than 3 million acres (Varty 2005, 79).

**Figure 4.3 - Total UK wheat imports, 1840-1914**

Figure 4.4 - Average UK wheat imports, by decade

Source: Mitchell and Deane 1962, calculated from Table 10.B, Agriculture.

Only after the beginning of the prairie wheat boom (1896) did Canadian exports begin seriously to compete with those from the US (Fig. 4.1). Average annual imports of Canadian wheat to the UK more than doubled from 1886-95 to 1896-1905, and nearly tripled from 1896-1905 to 1906-1915\textsuperscript{26}. British imports of Canadian wheat first surpassed those from the US in 1909, and exceeded 1 million tonnes in 1912 (Figure 4.1). The prairie wheat economy – which by the 1920s exported over two-thirds of the wheat crop\textsuperscript{27} – became heavily dependent on the British import market as wheat exports became a major source of foreign exchange earnings for Canada. Between 1896 and 1916, the

\textsuperscript{26} Calculated from data in Mitchell and Deane 1962, Table Agriculture 11, Principal sources of imports of wheat – United Kingdom 1828-1938.

\textsuperscript{27} In 1922, for instance, Canada exported 70% of its total wheat production. Calculated from data in Leacy 1983, Table M301-309, Agriculture.
dollar value of Canada’s total trade with the UK increased from $38 million to $201 million and accounted for over half of the value of all Canada’s domestic exports most years. By the 1920s, the roles of the US and Canada had reversed, with Canada becoming by far the most important supplier of imported wheat to the UK for four decades (see below).

By adapting flour and bread production to North American wheat, new milling technology introduced in the 1870s and 1880s became crucial in the massive shift towards wheat import dependence in the UK. Before the 1870s, all flour was produced by crushing grain between large millstones, which yielded flour containing all of the components of the grain including the bran and the germ (Drummond and Wilbraham 1958, 297-8). Under stone-milling, white flour could only be obtained by passing the flour through a number of cloth sieves in a cumbersome process (Perren 1990, 423). In roller-milling, wheat passes through a series of steel rollers that crush the grain rather than grinding it. As the wheat passes through different series of rollers, the flour is gradually reduced and separated from the coarser elements of the grain (the bran and the germ) (Perren 1990, 423). Although prototypes of the roller-mill existed as early as the 1840s (Drummond and Wilbraham, 1958, 297), the first use of rollers in UK milling occurred in 1862, with an invention that allowed the outer layer of the wheat to be ‘broken’ before it was stone-milled. Complete roller-milling systems, made of chilled steel, were introduced late in the 1870s (Tann and Jones 1996, 43-6; Perren 1990, 424). Because rollers could be used in combination with stone-milling, the shift to complete

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roller-milling occurred gradually, as more conservative millers made piece-meal improvements to the traditional process (Tann and Jones 1996, 68-9).

Changing supply factors were of crucial importance in the success of roller-milling, which, under the conditions of milling and bread making in late 19th century Britain, presented a number of advantages over stone-milling. The key was the shift from supplies of English soft wheats, which were more suitable to stone milling (Tann and Jones 1996, 41), to North American hard wheat. Hard wheat was poorly suited for stone-milling because the hard husk of the wheat kernel would get ground up with the rest of the grain and produce a “dark, unpalatable, low priced flour” (Perren 1990, 430). It was ideal, however, for roller-milling, in which steel rollers ‘broke’ the hard wheat kernel, allowing for the complete removal of the husk and yielding whiter flour than could be obtained using soft wheats (Perren 1990, 429). Because of the higher gluten (protein) content in hard wheats, the resulting flour produced a lighter and fluffier loaf of bread with less flour (Tann and Jones 1996, 67; Perren 1990, 429). At the same time, roller-milling completely removed the wheat germ from flour, allowing it to be stored longer²⁹ (Drummond and Wilbraham 1958, 297), and by extension, shipped further. Though roller-milling actually decreased the rate of flour extraction (i.e., the quantity of flour produced from a given quantity of wheat), millers found profitable outlets for the by-products of roller-milling by selling them as animal feed (Ibid.).

The increasing supply of hard North American wheat provided a strong economic incentive for adopting roller-milling (Perren 1990, 431). British flour imports from the US increased just as bread prices declined, placing greater competitive pressure on UK

²⁹ In stone-milling, the wheat germ gets ground up and mixed with the flour. Naturally occurring oils in the wheat germ were a major source of flour rancidity.
millers, who “realized that modern machinery was necessary for optimum exploitation of the new raw material [i.e., hard wheat]” (Ibid., 435). As the cost of the imported wheat declined, millers could better afford to invest in the new, more profitable technology (Tann and Jones 1996, 67). Though the pace of adoption was slower in the UK than in the US and Hungary, where wheat supplies were almost exclusively hard wheat (Perren 1990, 435), roller-mills radically reshaped the UK milling industry by 1914. The change occurred first in the large, coastal mills, which were few in number, but represented a large portion of national milling capacity (by 1887, 5% of the UK’s flour mills had converted to roller-milling, representing 65% of total flour production) (Tann and Jones 1996, 64). By 1907, the proportion of wheat milled in complete roller installations is estimated to have been 75% (Ibid., 66). The increased efficiency of the new technology drove concentration, as large coastal mills came to dominate the industry (Table 4.2)\textsuperscript{30}. While in 1910, the five largest UK milling companies represented 19% of flour production, by 1930, the top three firms accounted for 63% of production (Perren 1990, 432). Two firms that were to dominate the industry in decades to come -- Spillers and Rank -- were established during this period.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of mills</th>
</tr>
</thead>
<tbody>
<tr>
<td>1887</td>
<td>8814</td>
</tr>
<tr>
<td>1895</td>
<td>3000</td>
</tr>
<tr>
<td>1907</td>
<td>1254</td>
</tr>
</tbody>
</table>

\textsuperscript{30} Larger numbers of smaller ‘country-mills’ serving local markets survived in in-land areas for several decades (Perren 1990, 435; Tann and Jones 1996, 65).
Along with the flood of North American wheat and new milling technology, the transformation of the UK bread market depended on changing diets. The key changes were first, in the shift towards bread made of wheat rather than other grains, and second, in the explosion of demand for white bread. Wheat only became the dominant source of bread flour in the British diet around 1815 (Burnett 1989, 5), with rye bread accounting for as much as 40% of English breads in 1700, but as little as 5% a century later (Jacob 1944, 290). The preference for white bread, which in the 18th century had been a luxury of privileged classes, became commonplace across social classes by the early 19th century (Burnett 1989, 5). Insomuch as roller-milling allowed for the production of whiter flour, the new technology responded to the nearly universal preference for white bread. Using roller-milled flour from hard wheat also produced a fluffier loaf, which consumers preferred for its light texture (Ibid., 121). By the 1880s, nearly all British bread was made with white, wheaten flour (Burnett 2005, 52).

Bread consumption seems to have increased from the middle of the 19th century until the last quarter of the century, and declined thereafter. During the middle decades of the century, declining availability of meat and dairy in working-class diets – e.g., because of the cattle plague of 1865 (Drummond and Wilbraham 1958, 331) – “increased dependence on the cheapest filling food available, bread” (Burnett 2005, 52). For the diet-poor working class, part of the allure of white bread was that it was easier to digest and more palatable without meat or butter than brown bread (Ibid., 53). Because of the increased profitability of those millers who adopted roller-milling, white flour was in fact often less expensive than brown (Ibid.). Bread prices declined considerably between 1870 and 1890, after which time they remained fairly constant up until 1914 (Figure 4.5).
Though the diets of (especially urban) working people did begin to improve in the second half of the 19th century, bread remained the most important food (Drummond and Wilbraham 1958, 329-31). Indeed, up until 1914, “bread retained its place as the staple of English diet” (Burnett 1989, 113).

Figure 4.5 - London bread prices, 1870-1913

Source: Mitchell and Deane 1962, Table 14, Prices.

Even as mass-produced white bread responded to one, socially constructed, definition of quality – a whiter, lighter loaf – it significantly reduced the nutritional quality of bread. By 1890, the transition from stone-milled flour to roller-milled flour was already having a major impact on the nutrition of the British populace, as it significantly reduced the daily intake of vitamin B₁, niacin, and iron. The problem was worst for vitamin B₁, for which, based on a per capita rate of flour consumption of 280 lb. per year, intake was reduced by over half of the daily recommended level (Drummond...
and Wilbraham 1958, 388). For those poorest consumers relying heavily on bread consumption for food calories, wholemeal bread could provide just enough dietary iron, while white bread provided only about half the required amount (Ibid., 390).

The UK’s shift towards dependence on imported wheat produced new dynamics of social contestation over questions of bread cost, quality, and nutrition. The organized consumer movement of early 20th century Britain linked cheap white bread, free trade, and social justice in its opposition to resurgent protectionist sentiment (Trentmann 2001). Led by the Women’s Cooperative Guild, this ‘radical-liberal’ vision of consumerism equated free trade with “freedom of society from the state” (Ibid., 134) and a guarantee of affordable basic necessities. Bread played a central role in the imagery and discourse of the movement as “the cheap white loaf” became “the central icon … represent[ing] the material benefits of cheap ‘necessaries’ and the growth of citizenship rights, pacific sentiment, [and] democratic accountability” (Ibid., 129). Support for free trade was matched with suspicion of government regulation of food markets. In effect, the early British consumers movement was prepared to accept a trade-off between cheap food and a “weak state infrastructure” for regulating food safety and price stability (Ibid., 161).

Despite urban working class support for the cheap white loaf, a minority strand of the consumers’ movement decried the lack of nutrition in white bread in one of the first campaigns against industrial food. Concerns about the nutritional deficiencies of white bread emerged as early as the 1840s, but became more widespread with the establishment of the Bread Reform League in 1880, which launched a 40-year long campaign promoting the benefits of wholemeal bread over ‘impoverished’ white bread (Burnett 2005, 53). Responding to the controversy over bread nutrition, bakers introduced the first
‘patent’ breads claiming specific nutritional benefits, the most popular of which was Hovis (Ibid., 54). Needing to create demand for brown bread given the overwhelming preference for white, Hovis used extensive product branding (e.g., before the introduction of wrapped bread, by placing logos on bread baking tins) to create product awareness (Collins 1976, 29-30). Hovis was marketed as a health food, and though never exceeding 5% of the bread market, was more popular among middle-class consumers (Ibid., 30-1)31.

The height of the Bread Reform League’s success occurred in 1909-1911 with its campaign for government-mandated standards of bread nutrition. Taking its inspiration from government regulations for milk and margarine established earlier in the century, the League proposed that all bread contain flour of no less than 80% extraction, to be called ‘Standard Bread’ (Burnett 2005, 54). The proposal won the support of the medical journal the Lancet, and, in an influential editorial in early 1911, of the Daily Mail. Though Standard Bread became fashionable for a time, the sale of imitation loaves made from inferior and adulterated flour undermined consumer confidence (Ibid., 54). Ultimately, those consumers convinced of the nutritional superiority of brown bread preferred to place their confidence in the ‘patent’ breads of food manufacturers. The legacy of the Bread Reform League and early controversies over white bread was to produce a stable, but small market for healthier brown bread, the historical antecedent of today’s booming market for specialty health breads (Ch. 6). At the same time, the League’s proposal to regulate bread nutrition through flour extraction rates foreshadowed the state’s war-time interventions in public nutrition and bread quality (see below).

31 Probably the first bread brand marketed on the basis of nutrition and quality, Hovis is today one of the leading brand names for premium breads for one of the UK’s largest food companies. Hovis is the flagship brand of ‘healthy’ bread sold by Rank Hovis, the UK’s largest miller-baker, and a division of food giant Premier Foods.
The last key change linked to the radical shift in food provisioning in the UK of 1870-1914 is the rise of food manufacturing (baking) and retailing. The emergence of the modern baking and bread retailing industries marked the shift from home-made to store-bought bread, standardizing both production and consumption. The modernization of the baking industry began in the 1880s, with the introduction of new technologies such as mechanical dough-kneaders (Burnett 1989, 122) and the mechanical dough dividing machine, used for producing standardized loaves from precisely weighed parcels of dough (Jeffreys 1954, 212). These developments led to industry concentration and consolidation and the emergence of the first ‘multiple-shop’ bakeries, a product of the co-operative movement (Collins 1976, 27). Although by 1910 there were 21 such chains in the UK, with 451 branches in total (Burnett 1989, 122), the vast majority of bread sales were still made by small master bakers, with multiple-shop bakeries and food retailers accounting for only 3 to 4.5% of the market (Jeffreys 1954, 223).

The origins of the British ‘multiples’ – the ancestors of today’s supermarkets – can also be traced to the 1870s. In the UK, the co-operative societies were among the first to introduce multiple-shop chains, which allowed them to buy larger quantities of goods for less and pass the savings on to their members (Humphery 1998, 30). By 1900, the co-operatives represented 6% of the market for retail food and household goods, and by 1915, 19% (Ibid.). Some of today’s largest food empires (e.g., Lipton’s and Sainsbury) were founded during this period, as each established a chain of food retailing shops (Burnett 1989, 127). By 1900, there were 80 grocery companies with 10 branches or more, 7 of which had over 100 locations (Humphery 1998, 31). At the outbreak of WWI, Lipton operated approximately 500 stores and Sainsbury’s 115 (Ibid.).
multiples would experience dramatic growth in the interwar years, with the expansion of existing chains and competition from co-operative societies (see below). However, the introduction of modern self-service style supermarkets in the UK would only occur after World War II, lagging significantly behind the US where these were introduced in the 1920s and 1930s (Shaw et al. 2004).

By the outset of World War I, the UK was utterly dependent on food imports, the most important of which were imports of foreign grain for bread. Cheap, white bread, increasingly produced using industrial technology and purchased rather than home-baked, had assumed a central place in British diets. Though questioned on nutritional grounds by a minority strand of the consumers’ movement, the white loaf embodied the material benefits of free trade for working classes: access to cheap, foreign sources of calories. In turn, British food import dependence generated a political-economy centred on a ‘laissez-faire’ ethos, where the government played a minimal role in regulating food markets. Over the period 1914-1945, food crises – linked both to contradictions of unregulated industrial food production and to war-time conditions – would unravel consensus around the liberal political-economy of the first food regime.

**Food regime crisis: 1914-1945**

The period of world-wide political and economic turmoil of 1914-1945 entailed crisis for both the prairie wheat economy and the British food economy. World War I cemented Canadian ties to the British import market, as the UK mobilized colonial resources – among them grain and soldiers from the prairies – via the ‘imperial bond’ (Offer 1989). The war brought higher grain prices and a guaranteed market, fuelling optimism in the booming prairies, the flipside of which was anxiety over food supplies
and prices in the UK. By the 1920s, however, the economic and ecological contradictions of prairie agriculture threatened catastrophe. Wheat prices collapsed in the mid-1920s, marking the failure of farmer-led cooperative marketing in an unregulated private trade. Soil erosion on a massive scale – the result of intensive cultivation of soils that had been built up over eons under radically different ecological conditions (Friedmann 2000) – created the Dust Bowl conditions of the 1930s. These conditions were likely worsened by the extreme form of monoculture practiced on the prairies, with a single variety (Marquis) of a single crop (wheat) dominating seeded acreage (Kuyek 2007). The collapse of the wheat economy not only jeopardized the country’s financial stability, but also the survival of prairie farmers, now organized politically and economically. Wheat had become Canada’s foremost export sector and source of foreign exchange and the prairies, by virtue of its small population relative to its capacity for production, remained heavily dependent on world markets. In response to the crisis, the Canadian government searched desperately for a grain marketing policy that could satisfy prairie farmers and provide greater market stability.

Two factors were crucial in the search for a solution to the collapse of the wheat economy: the agrarian politics emerging from an increasingly influential class of prairie family farmers and Canada’s latent colonial ties to the UK, expressed in its war-time obligations. On the one hand, key components of the eventual solution to the grain marketing impasse – grain pooling and collective marketing -- emerged from the innovations of the prairie agrarian movement of the first food regime. On the other hand, it was Canada’s war-time obligations that ultimately caused a reluctant government to experiment with state marketing. On the basis of this experiment – which farmers
viewed favourably – farmers and the state would struggle over the question of grain marketing over the next three decades, eventually forging new conditions (Ch. 5).

Meanwhile, the period of crisis spanning 1914-1945 called into question both pillars of the UK’s strategy of food provisioning of the previous era: imported wheat and white bread. Vulnerable to interruptions of supply during the world wars, the UK would gradually increase domestic food production (foreshadowing Europe’s postwar strategy of import-substitution) and eventually abandon free-trade. At the same time, war-time food crises and the hardship of the Great Depression caused anxiety over the nutritional inadequacy of the British diet, prompting the state to play an increasingly important role in establishing food safety and nutrition standards. Throughout the period, bread retained a special status in the British diet and the UK’s war-time food policy. As scientific knowledge of nutrition improved and the state took a leading role in coordinating food supplies, the consumer movement increasingly looked to the state to implement food safety standards, price controls, and regulated trade (Trentmann 2001). This period also witnessed the consolidation and concentration of food processing (milling), manufacturing (baking), and retailing (grocery) industries.

**The emergence of the CWB**

**Early experimentation: The first CWB and the prairie wheat pools**

One of the key factors explaining the UK’s victory over Germany in WWI was its ability to secure adequate supplies of raw materials, particularly food (Offer 1989). The UK used its “political, financial, commercial, and ethnic ties” with its English-speaking allies, including Canada and the other Dominions, to enlarge both the UK’s demographic pool and economic power (Offer 1989, 403). The value of these ties lay not only in
secure access to raw materials, including wheat, but also in the fact that the proceeds of UK purchases of these raw materials allowed the Dominions to finance their war efforts (Ibid., 368). In Canada as elsewhere, the large number of recent British emigrants in the country strengthened the ties of imperial loyalty and inspired voluntary enlistment. At the same time, the imperial bond proved crucial in the UK’s ability to coordinate the supply of Canadian wheat, especially after 1917, when the all-out German submarine campaign made the North Atlantic shipping route (which was the shortest for wheat supplies) the UK’s life-line (Ibid., 369). In response to high prices and anticipated war-time demand, Canada intensified wheat production, expanding acreage by over 3 000 000 acres between 1914 and 1915 (MacGibbon 1932, 56-7). This era marked a turning point, as the prairies specialized ever more heavily in wheat production.

Canada and the UK displayed a high degree of coordination in the interests of securing war-time wheat supplies, even as the structure of decision-making retained its colonial character. At the outset of WWI, the UK imposed an embargo on British and Dominion exports to any neutral country, thereby restricting Canadian wheat exports to the UK, France and the United States (Wilson 1978, 58). Henceforth, all Canadian wheat exports were subject to an export license issued only with British approval. In the summer of 1915, the British expressed demand for huge quantities of grain in short-order, calling into question Canada’s ability to provide the necessary supplies. In order to prevent a drastic increase in the price of wheat on the open market, Canada commandeered the prairie wheat crop in the government’s first foray into direct control.

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32 Formal diplomatic relations retained their colonial structure as direct communication between Canada and the UK occurred through the governor-general and the colonial office in London, and Canada-US relations through the colonial office in the UK and the British ambassador to the US (Wilson 1978, 57-58).
of wheat marketing (Wilson 1978, 63-4). Canada and the UK thus cooperated in moderating price volatility in order to support the war effort.

For its part, the UK was able to avoid overt government control of wheat procurement for the first two years of WWI because of very large Canadian and American wheat crops in 1914-5 and 1915-6. The increasing disruption of Atlantic shipping and a smaller North American wheat crop in 1916 prompted the UK to establish monopoly government control over imports through the Royal Commission on Wheat Supplies (Wilson 1978, 73). Now dealing with a monopoly buyer in the UK, Canada attempted to negotiate a long-term bulk sale, but to no avail. When the UK’s monopoly buying agent cornered the Canadian wheat market in the spring of 1917, a breakdown in futures trading on the Winnipeg Exchange led to rapid price increases that threatened the ability of the UK to obtain adequate wheat supplies (Wilson 1978, 82-3).

This led the Canadian government to suspend trading on the Winnipeg Grain Exchange and, at the request of the UK (Wilson 1978, 118), establish a Board of Grain Supervisors (BGS) to coordinate distribution and execute contracts for wheat at fixed-prices. Part of the BGS’s role was to cap wheat prices, as it did in August 1917, in order to protect the UK’s ability to secure adequate supplies (Ibid., 97). With the end of the war in 1918, the UK refused to guarantee its purchase of the entirety of Canada’s exportable surplus. Having promised farmers a fixed price for the year’s crop and with much of the 1918 stocks still left to dispose of, the Canadian government extended the powers of the BGS such that it assumed a marketing function – i.e., the mandate to sell western wheat to any willing buyer (Ibid., 114), pre-figuring the CWB’s future marketing role.
After WWI, the Canadian government attempted to re-open the private wheat trade, but faced problems. Open marketing became dysfunctional in the immediate post-war context as Allied countries, which had maintained centralized control over buying, hesitated to enter the market, partly as a result of a lack of hard currency with which to make purchases (Wilson 1978, 141-2). With no purchases on the open market, the hesitance of Allied buyers threatened Canada’s ability to move the 1919 wheat crop before the end of the fall shipping season, prompting the refusal of Canadian banks and railways to finance the movement of the 1919 wheat crop (Ibid., 145). When the private trade was re-opened, speculative activity rapidly drove prices higher, compromising the ability of domestic and foreign buyers to make purchases. In response, the Canadian government closed the Winnipeg Grain Exchange, and, on July 31st, established the first Canadian Wheat Board (Wilson 1978, 135-6). The CWB would operate by offering a government-established initial payment to farmers, marketing the wheat crop collectively, and returning to farmers -- based on the quantity and quality of grain they had delivered -- any proceeds over and above the costs of the initial payment (Ibid., 149). Government initial payments allowed farmers to receive some cash immediately upon delivery of their grain and provided the financial lubrication necessary to reassure private financiers of the grain trade. The basic principles of grain pooling, based on the government’s monopoly marketing of the crop, would later become the pillars of the modern CWB’s single-desk structure.

This period thus produced two key legacies, an early form of collective marketing and close Canada-UK coordination. Although the principles of collective marketing had first been expressed by prairie farmers, their implementation occurred only when the
state experimented with monopoly control during and in the immediate aftermath of WWI. The operation of the first CWB (1919-1920) combined centralized marketing and grain pooling under government control and proved successful in providing greater income stability for farmers. Always understood by the government to have been a temporary measure, the first CWB was disbanded in August 1920, and private trading was resumed (Wilson 1978, 170). With the end of the war-time experiment, orderly marketing became a rallying cry for the farm movement. Yet the goals of the farmers’ movement had shifted, as struggles for the reinstatement of orderly marketing coalesced around the model of government control embodied in the first CWB rather than the farmer-owned and controlled monopoly envisioned in 1908.

The other key legacy was that of close coordination between Canada and the UK, as a leading world exporter and the largest importer, respectively. Though they were governed by an ethos of cooperation, state-state negotiation nevertheless embodied conflicts over prices and other terms for the massive transfers of wheat. Canada submitted to price caps and other restrictions on its wheat trade in a trade-off for price stability and a guaranteed outlet for increasingly massive yearly wheat crops. In turn, farmers responded enthusiastically to the ‘orderly marketing’ achieved through the CWB.

**Crisis and the return of state-marketing**

When the private grain trade was re-opened in 1920, prices fell rapidly. Farmers rallied around the reinstatement of the compulsory board, if not necessarily expecting a return to unusually high war-time prices, but for the greater stability and certainty introduced by orderly marketing (Irwin 2001, 94). The organized farm movement
struggled unsuccessfully for the reestablishment of the compulsory Wheat Board during 1920-2. By the early 1922, it had become clear that neither the federal nor provincial governments were willing to implement state-marketing, prompting farmers to experiment with cooperative grain marketing (Wilson 1978, 181). Farmers mounted campaigns in each prairie province to establish ‘wheat pools’, which, based on voluntary farmer deliveries, would market grain collectively and distribute returns via the pooling principle. The breakthrough came in 1924, with the Saskatchewan Wheat Pool’s success in signing-up 45,725 farmers for co-operative marketing (Fairbairn 1984, 40). During the 1920s, prairie pools in each of Alberta, Saskatchewan and Manitoba marketed the prairie wheat crop through a common central selling agency, the Canadian Co-operative Wheat Producers, which established overseas agencies in 15 importing countries (Wilson 1978, 219-221). By the 1925-6 crop year, combined deliveries to the prairie wheat pools accounted for over 50% of all prairie wheat deliveries (Wilson 1978, 225).

The principles of price pooling, pioneered by the first CWB, were thus translated, in the 1920s, into new forms of economic cooperation organized by the agrarian movement. Economic cooperation expressed farmers’ attempt to solve problems faced with the crisis of the UK-centred food regime of which they had been an integral part. Canada became the world’s largest wheat exporter in 1923, and over the period 1922-9 Canadian exports represented approximately 40% of the world wheat trade (MacGibbon 1932, 55). The years 1924-1929 were years of overall optimism in the prairie wheat sector, as large crops and high prices brought relative prosperity to western farmers (MacGibbon 1932, 73-4). By the end of the 1920s, however, the flaws of this approach became evident as cooperative grain marketing entered a period of crisis. When world
wheat prices collapsed in 1929, the pools responded by withholding wheat from the market, refusing to sell at depressed prices what was by recent historical standards a small, but very high-quality (i.e., high-protein) crop (MacGibbon 1932, 73-80). This pushed the pools, which depended on private loans to finance advance wheat purchases, to near insolvency. In response, Canadian banks demanded that the state guarantee loans advanced to the Pools for the 1930 crop year (Finkel 1979, 60; Morriss 1987, 32).

In 1931, the situation became desperate as prices remained depressed and Canada sat on a massive surplus of unsold wheat. The government assumed control of the Pools’ Central Selling Agency and its wheat stocks in a stabilization operation lasting until 1935. Through a single government agent, John McFarland, the government attempted to support wheat prices by withholding stocks and buying massive quantities of wheat futures (Wilson 1978, 491). This conservative selling strategy alienated overseas buyers by limiting their access to consistent supplies. Unable to dispose of surplus stocks in a depressed world economy and with private speculators operating at cross purposes, McFarland, once a staunch defender of the futures market, became a proponent of a re-instituted Canadian Wheat Board (Ibid., 460). Following McFarland’s advice, Prime Minister R. B. Bennett pursued the re-institution of the Canadian Wheat Board. The minority Conservative government introduced legislation to create a monopoly wheat board in June 1935, but in a political compromise with the Liberal party, agreed to implement voluntary wheat pooling and a government guaranteed initial price to farmers (Wilson 1978, 473). Established in 1935, the new CWB assumed responsibility for liquidating the 205 000 000 bushels of wheat stocks and futures contracts left over from the government’s 1930-35 support operation. By 1939, these surplus stocks had been
sold, realizing a net profit of $8 950 000. Overall, the support operation between 1931-5 was estimated to have added approximately $150 000 000 to prairie farm income (Wilson 1978, 448).

Between 1935-43, the government experimented with voluntary pooling, where farmers chose either to deliver to the CWB or to the private trade. Under this system, the CWB only received a large share of wheat deliveries when world market prices dropped below the floor price set by the initial payment, with losses incurred by the state treasury (Irwin 2001, 97). When world prices exceeded the floor price, the CWB received virtually no deliveries. Under voluntary pooling, the CWB thus functioned to provide a government-guaranteed minimum price. The CWB experienced a relatively small loss on the 1935-6 crop. A record low harvest in 1937 was followed by very large crop and the return of large surpluses the following year. With the initial price set at 80 cents per bushel, the price on the open market crashed, and farmers delivered virtually the entirety of the crop to the CWB, resulting in a loss to the government treasury of over $60 million (Wilson 1978, 565). The Liberal government, which had intended to maintain the Wheat Board only as long as necessary to dispose of stocks accumulated during the 1930-5 period, decided to retain the CWB as a means of supporting a minimum western farm income (Wilson 1978, 783). Unsatisfied by the inability of the voluntary CWB to provide a sufficient degree of orderly marketing, farm movements continued to press for monopoly control.

Running parallel to the search for a domestic policy, the Canadian government pursued international cooperation in an attempt to deal with the wheat marketing issue. Much as with the pooling principle, the first proposals for international grain cooperation
emerged from the early agrarian movement. The Canadian and American co-operative movement, led by the Prairie Pools, sponsored the first international wheat meetings in the late 1920s, setting a precedent as “prototypes of international wheat conferences to come” (Wilson 1978, 349). With the failure of the pools as co-operative marketing ventures and the onset of the Great Depression, governments began to pursue new avenues of international cooperation in the 1930s. As early as 1930, Prime Minister R. B. Bennett, an enthusiast of imperial economic cooperation, pursued a preferential wheat tariff from the UK. This was granted at the conclusion of the Imperial Economic Conference (held in Canada) of 1932, though the preferential rate was only modest, and was abolished as of 1938 (Ibid., 345).

The first attempt at truly multilateral cooperation, however, came when the economic depression and the burden of worldwide wheat surpluses led to the First International Wheat Agreement (IWA) in 1933. The IWA was negotiated in a series of international wheat conferences beginning in 1930, chaired by Canadian Prime Minister Bennett, which brought together the world’s major exporters and importers (Wilson 1978, 490). The agreement foundered when the principle exporters could not agree on final figures for each country’s allowable export quota (Ibid., 415). Despite its failure, the First IWA created a permanent body -- the International Wheat Advisory Committee -- headquartered in London that would provide a forum in which to pursue later agreements (Ibid., 415). International negotiations resumed in 1939 and had nearly been concluded when the outbreak of WWII suspended further talks (Ibid., 628).

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33 The only Canadian meeting occurred in 1928, in Regina, Saskatchewan, with delegates from the US, Canada, Australia and the USSR met in Regina (Wilson 1978, 349).
**World War II and monopoly control**

In a last echo of Canada’s colonial status vis-à-vis the UK in the first food regime, the CWB assumed its present form through its role in guaranteeing and coordinating supplies to Britain during World War II. The new roles acquired by the CWB during the war, which were the outcome of ad hoc government responses to emerging conditions, would form the basis of many of the permanent characteristics of Canadian grain marketing in the postwar period (Morriss 1987, 139). Early in the war, the UK asked the Canadian government to consider closing the private wheat trade and forming a government wheat monopoly. The Canadian government refused, hoping that depressed wheat prices would increase on the open market under war-time conditions (Ibid., 632). Market conditions worsened when, in 1940, the German invasion of north-eastern Europe cut off Canada’s wheat exports to the continent. With no overseas export outlets except the UK, and with very large wheat crops in 1939 and 1940, Canada faced the burden of huge surpluses (480 million bushels by the end of the 1940-1 crop year) (Ibid., 649). In response to the surpluses, the CWB implemented delivery quotas limiting the quantity of wheat each farmer would be entitled to deliver (Ibid., 686). By coordinating the timing and quantity of farmers’ wheat deliveries, the CWB effectively rationed farmers’ access to limited export markets. This also allowed the CWB better to coordinate the movement of the prairie wheat crop, which faced chronic inefficiency given Canada’s relatively constrained transportation system.

The government nonetheless refused to close the private grain trade until conditions changed drastically. This occurred in 1943, when conditions on the open market began to undermine the CWB’s ability to guarantee supplies to the UK. Demand for Canadian wheat increased rapidly when, driven by increasing meat and dairy
consumption and a short winter-wheat crop, US feed requirements\textsuperscript{34} surged (Wilson 1978, 762-7). At the same time, severe winter weather and a war-time labour shortage caused serious transportation problems in Canada. These conditions combined to dramatically reduce Canada’s available wheat stocks, causing wheat prices on the open market to rise. With prices on the open market substantially higher than the CWB initial price, nearly all wheat deliveries went to the private trade, compromising the CWB’s ability to provision the UK (Wilson 1978, 767). The government’s dilemma was compounded by its contradictory roles in the wheat market. On the one hand, the government served as a wheat marketing agent -- through the CWB – trying to sell wheat to the best advantage of prairie farmers. On the other hand, the government was purchasing huge quantities of wheat on the open market to sell to the UK and other Allies in a war-time Mutual Aid scheme. When in 1941 the UK had run out of Canadian dollars with which to pay for imports, the Canadian government provided interest free loans and other financial assistance to the UK (Morris 1987, 141), replicating Canada’s role in providing wheat on credit to the UK during WWI. Since Canadian grain was sold to the UK under this program, rising prices on the open market meant that the Canadian treasury had to absorb increasing spreads between the subsidized price and the open market price (Ibid.).

As the crisis mounted in the fall of 1943, the Canadian government suspended all trading on the Winnipeg Grain Exchange on September 27\textsuperscript{th} (Irwin 2001, 101). The government established a special Crown Account consisting of wheat stocks from 1940, 1941, and 1942, which it purchased from farmers at a fixed price. It would use these

\textsuperscript{34} The new demand for feed marked a major shift in world grain markets (Wilson 1978, 786) that prefigured the emergence of one of the major accumulation complexes of the post-war food regime, the livestock complex (Friedmann 1994, 267).
stocks to cover its Mutual Aid obligations as well as subsidized sales to the domestic milling industry (Wilson 1978, 776). By order in council, the government made deliveries of wheat to the CWB compulsory, thereby implementing the single-desk selling structure of the modern CWB. All deliveries for the 1943 crop would be marketed by the CWB to the best economic advantage of farmers (Ibid., 782). Though it incidentally satisfied the demands of organized farmers, the decision to implement the monopoly CWB was driven, in the immediate context, by the state’s preoccupation with controlling inflation (Wilson 1978, 782; Irwin 2001), which posed a problem not only for the domestic economy, but also threatened to undermine Canada’s war-time commitment to the Allied cause. Despite the end of its formal colonial status, Canada acted, as it had during WWI, to guarantee wheat supplies to the UK.

With roots in the inter-state rivalry and market chaos of the transition between food regimes, the single-desk CWB emerged from the experimentation of farmers and state actors facing the collapse of private grain marketing. In turn, these experiments were structured by colonial relations (formal, then latent) between Canada and the UK, which ultimately prompted the shift towards state-marketing. The establishment of the single-desk CWB would, in the mercantile-industrial food regime, become the local expression of a system-wide move towards state-regulated agriculture and mercantile trade practices (see Ch. 5). In Canada, the monopoly CWB completed the set of institutions regulating prairie agriculture through centralized marketing, public regulation of the grain trade, and government coordination of wheat quality via grades and control over wheat varieties.
Food regime crisis and the transformation of the British food sector

World War I: the state, nutrition, and rationing bread quality

The UK’s experience during World War I would fatally undermine the political-economy of the British food sector of the first food regime, centred on food import dependence and free trade. The key transformations were first, in the state’s direct coordination of the food supply; second, in its increasingly important role in public nutrition; and third, in the transformation of the consumers’ movement. At the outbreak of the war, the UK government was determined not to implement food control (Burnett 1989, 244). But as the German submarine campaign intensified during 1916, maritime traffic was seriously disrupted. Combined with rising prices, this led the government to relent, establishing a food Controller and eventually a Ministry of Food (Drummond and Wilbraham 1958, 433). Wheat and flour supplies being among the most important for general nutrition, the government established control over all flour mills in the spring of 1917 (Burnett 1989, 245). Thereafter, the government exercised monopoly control over wheat purchases, set flour prices, and introduced a bread subsidy.

Food control prompted the government, for the first time, to establish scientifically-based minimum nutritional requirements for the British population\(^{35}\) (Drummond and Wilbraham 1958, 433). By 1918, the government was forced to ration some foods. In order to maintain unlimited access to what was the cheapest source of

\(^{35}\) There were some antecedents to the state’s role in public nutrition in the UK’s war efforts in the earlier in the 20\(^{th}\) century. When army recruitment records for the Boer war suggested that as many as 40% of prospective recruits were physically unfit to fight, the government launched a number of scientific investigations into the diets and living conditions of the UK’s poorer classes (Drummond and Wilbraham 1958, 404-5). Because of their exclusive focus on the quantities of macronutrients (carbohydrates, protein, etc.) available in the typical diet, these studies tended to underplay the role of malnutrition (as opposed to hunger) in the lack of physical fitness of the British population. However, they set the stage for more the intensive preoccupation with nutrition during World War I, which “provided an opening for the first attempt to use the findings of science in the feeding of the nation” (Ibid., 431-32).
food energy, however, the Royal Society Committee persuaded the Ministry of Food not to ration bread (Drummond and Wilbraham 1958, 437). Instead, the government regulated flour extraction rates, the proportion of wheat converted to flour in the milling process, thereby producing a browner and more nutritious loaf (Ibid., 438). The extraction rate was raised from an average of 70-72% to a mandatory 81% in 1917, and again to 92% in 1918 (Burnett 2005, 54). The ‘War Bread’ of this era was unpopular among British citizens, but accepted as a war-time sacrifice.

By raising the extraction rate the government accomplished two things. First, a higher extraction rate meant more efficient use of wheat reserves, with a higher proportion of the grain converted to flour for human consumption, and a lower proportion used for animal feed. Second, raising the extraction rate increased the nutritional quality of the bread by including more of the vitamin- and mineral-rich wheat germ and bran. Thus rather than rationing bread quantity, the government – drawing on the emerging science of nutrition – regulated bread quality, essentially rationing the nutrients naturally available in the grain. This policy allowed the government to avoid restricting consumption (by quantity) of what was considered the most important staple food of the British diet. At the end of the war, the government began the ‘decontrol’ of food, ending rationing of most food and abolishing the Ministry of Food by 1921 (Drummond and Wilbraham 1958, 442).

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36 Standard white flour is produced with an extraction rate of between 70 and 74%, whereas ‘brown’ bread is made from flour of 80% extraction rate or above. By definition, wholemeal flour (in which the entire wheat kernel is converted to flour) has an extraction rate of 100%.

37 Though the role of vitamins (as yet unnamed) in nutrition was only beginning to be understood, an influential editorial in 1911 in *The Lancet* endorsed the consumption of brown bread based on the importance of “certain at present unrecognized food substances, perhaps in very minute quantities, whose presence allow our systems to make full use of the tissue-building elements of the grain” (cited in Burnett 2005, 54).
The food crisis of WWI also reconfigured consumer politics. During the war, the British consumer movement shifted away from the politics of cheap food and towards issues of nutrition, food safety, and protection from large industry trusts. The new food politics were embodied in war-time campaigns for safe and affordable milk, resulting in increased government regulation of the dairy industry and distribution of subsidized milk to mothers and children (Trentmann 2001, 139-143). The British consumers’ movement was split over the issue of decontrol. While some factions advocated for continued government control over the food supply through the Ministry of Food, others – notably the cooperative movement – sought quick decontrol. Here, the argument was that the cooperative sector, not the state, was the best guarantor of consumers’ interests and the best vehicle for opposing the power of trusts (Trentmann 2001, 149-50). Notwithstanding this split, the British consumers’ movement would, after WWI, eventually converge on a view of the state as the guarantor of consumers interests in a ‘social-democratic’ politics critical of the pre-war political-economy (Ibid., 153-4). This criticism extended to the UK’s free-trade policy, arguing that the public interest rested in government control of imported food purchases and international cooperation (Ibid. 148-9).

The interwar years

The experience with the food crisis during the war prompted further state involvement in scientific research on nutrition and food technology in the interwar years (Drummond and Wilbraham 1958, 442-3). The economic ravages of the depression caused a serious decline in the diets of the UK’s poorest classes, especially with respect to the ‘protective’ (i.e., vitamin rich) foods increasingly being recognized as key to health (Ibid., 444). In 1931, the government established an Advisory Committee on Nutrition to
report on the minimum quantities of protective foods necessary (Ibid., 445). The issue of adequate dietary intake preoccupied successive governments, and were reflected in government schemes for increased milk consumption.

In the years following World War I, the UK began to rethink its policy of food import dependence and free-trade. In response to the food crisis of the War, the government encouraged increased domestic food production. It continued with these efforts after the War, focusing particularly on improving agricultural productivity (Burnett 1989, 255). Domestic production nevertheless declined again during the interwar years and the UK remained dependent on foreign sources for about 60% of its food needs at the outbreak of WWII (Lang 1999, 172). Import dependence for wheat was higher still, at 88% between 1934-8 (Burnett 1989, 255). With the onset of the Great Depression, the UK began to turn away from the free-trade of previous decades by implementing tariffs and a policy of colonial preference (Ibid., 256-7), including a relatively small preferential tariff on Canadian wheat (see above). Only with the experience of WWII, however, would the UK shift definitively away from food import dependence.

The interwar years were also a period of industry consolidation and concentration for flour milling, baking, and food retailing. By the end of WWI, 300 large mills accounted for 90% of UK flour production. The three largest milling companies, Ranks, Spillers, and the Co-operative Wholesale Society accounted for approximately one-third of flour output. By contrast, at the outbreak of World War II, the top three millers would account for 66% of flour production, with the top firm – Ranks – accounting for between 24-30% of the market (Burnett 1989, 258-9). In the baking industry, the 1930s saw the
emergence of industrial ‘plant’ bakeries that would all but replace the smaller master bakers after WWII (Collins 1976, 27). Using ‘traveling ovens’ (conveyor belt ovens, first introduced just before WWI), plant bakeries turned bread making into continuous, line production. The introduction of mechanical bread wrapping (1920s) and slicing (1930s) gave plant bakeries a definitive edge over the small master bakers, who typically could not afford the new technologies. Bread wrapping introduced new opportunities for branding, which the plant bakeries quickly took up (Jeffreys 1954, 218). Whereas in 1937, plant bakeries accounted for approximately 10-12% of national bread production, their share of output increased to 35-40% by 1953, and 70% by the late 1960s (Collins 1976, 27).

National bread distribution was first achieved with the formation of Allied Bakeries, in 1935, the first of three major national firms that would come to dominate the UK bread market. Allied was founded by Garfield Weston, who, having established successful baking business in the US and Canada, sought to do the same in the UK. Weston bought and amalgamated several regional bakeries to form Allied, and relied exclusively on Canadian flour until 1939 (MMC 1977, 15-6). By 1938, Allied operated 28 bakeries and 217 retail outlets (Ibid.). The company acquired 9 bakery companies in 1938, and Weston Foods, a major manufacturer of biscuits in 1939 (ABF 2008). By 1950, Allied owned 32% of the total number of retail bakery outlets among firms with 25 branches or more (Jeffreys 1954, 216).

Plant bakeries produced bread for direct home delivery, for other retailers, for chains of restaurants and teashops, or for their own retail bakery outlets (Jeffreys 1954, 213-4). Those in the last category, the multiple-shop bakeries, grew rapidly over the
inter-war years, from 26 firms owning 628 branches in 1915, to 62 firms owning 2193 branches in 1950 (Ibid., 214). Up until WWII, most multiple-shop bakeries had fewer than 25 branches, and tended to operate locally or regionally (Ibid., 216). Meanwhile, multiple-shop bakeries were also rapidly expanding their share of the bread market, which in 1939 reached 30% of bread sales (Collins 1976, 27). This was an era of rapid growth and consolidation among the multiple-grocers as well. Between 1919 and 1939, Sainsbury’s grew from 123 branches to 244. By 1939, there were 26 firms with over 100 stores (Humphery 1998, 31) and the multiples and co-operative societies (increasingly competing with the former) accounted for approximately 50% of grocery sales in the UK (Burnett 1989, 260).

**World-War II**

At the outbreak of World War II, the UK was somewhat less food import dependent than prior to 1914, and the government played an increasingly important role in nutrition policy and food regulation. The outline of the modern British food industry, including the major capitalist interests in food processing, manufacturing, and retailing, was already discernible. Yet, it was the experience with WWII that made for the UK’s definitive break with the food and agriculture policy of the 1870-1914 food regime. The UK was much better prepared for war-time food controls in 1939 than it had been in 1914. It immediately resurrected the Ministry of Food (MOF) to coordinate food supplies (Burnett 1989, 289). At the same time, the government aggressively pursued increased domestic food production. Between 1939-44, domestic wheat production was increased by 90% (Ibid.) and the proportion of national food energy needs accounted for
by domestic sources increased from 30% before the war to about 40% in 1943-4 (Drummond and Wilbraham 1958, 453).

Again the government avoided rationing bread supplies, choosing instead to set mandatory flour extraction rates to improve nutrition and conserve grain. J. C. Drummond, who served as the Scientific Advisor to the MOF, stressed the importance of increasing the nutritional value of bread as key to maintaining adequate war-time diets (Drummond and Wilbraham 1958, 449). Based on government-established guidelines for minimum intake of key nutrients, the flour extraction rate was raised to a mandatory 85% in 1942 (Ibid., 453-4). Though the government succeeded in avoiding bread rationing during the war, severe grain shortages in the years immediately after the war led to bread rationing between July 1946 and July 1948 (Ibid., 451).

The success with which -- through rationing, increased agricultural production, and home-gardening schemes -- the UK was able to reduce foreign food dependence during WWII laid the groundwork for postwar food relations (Lang 1999). War-time food policy showed that greater self-sufficiency was both desirable and possible. Meanwhile, food control during WWII likely improved the nutrition of the UK population, especially for the bottom third of the population (Burnett 1989, 297). These successes legitimized an increasingly important role for the state in regulating the food sector. Moving well beyond its role in regulating food safety (established after WWI), the state would henceforth play a leading role in regulating the food supply, through support for agriculture, price control, and public nutrition.

Having staked its national development on a strategy of food import dependence for over 40 years, the two world wars and global depression provided a major shock to
the UK government and the British populace both. Restricted wartime food supplies revealed just how vulnerable the UK was to the interruption of the overseas food trade and the mass unemployment and economic hardship of the depression drove millions into food insecurity. Under these conditions, the state assumed unprecedented control over food supplies and urgently pursued improved scientific knowledge of nutrition and food technology. The legacy of this era was therefore to lay a framework for comprehensive government regulation of the food industry in the postwar years. These changes mirrored and complemented increasing state regulation of agriculture, both at home and abroad. As explained in Chapter 5, the legacy of war-time food control also contributed to the unique path taken in the development of the UK’s postwar food economy.

**Conclusion**

This chapter has traced the origins and transformation of the Canada-UK commodity chain for wheat bread during the first food regime and the period of crisis and experimentation that followed. The massive Canada-UK wheat trade was established as part of a the new international division of labour through which vast wheat growing areas in North America provisioned industrializing European states, particularly the UK, with inexpensive bulk food commodities. The new international division of labour drove radical changes on the Canadian prairies, which was transformed over the span of a generation into one of the world’s most important wheat producing regions and a settler-immigrant society, as well as in the UK food market, where cheap food displaced local production, changed diets, and shaped consumer politics.

In Canada, the legacy of the first food regime was to establish the set of institutions – independent commodity production, state-coordinated regulation of the
grain trade and wheat quality, and a private grain trade -- that consolidated the role of the prairie wheat economy in global circuits of money and food. Over this period, public regulation of the grain trade on the Canadian prairies served a twin purpose: to mitigate abuses arising from structural inequalities in the grain trade and to consolidate Canada’s position as the leading exporter of high-quality milling wheat. The establishment of wheat grades, benchmark varieties for export, and control over the introduction of new varieties established government coordination of wheat quality. These policies helped cement the prairies’ quality reputation, as constructed by the imperatives of new milling and baking technologies in export markets, and secured Canada’s rise as a major world exporter.

By the early 20th century, the prairie wheat economy was booming and Canada was poised to challenge the US’s pre-eminent position in world markets. The turning point in Canada’s ascent came during WWI, when Canadian wheat supplies became crucial to the British war effort, tying Canada ever more closely to the UK food market. After WWI, Canada became the world’s largest exporter as US agricultural capacity was increasingly diverted to domestic consumption. Until the end of the 1920s, Canada’s position as the world’s leading exporter seemed secure, as farmers and state actors assumed an essentially unlimited ability to sell prairie wheat into world markets, even as record yields and expanding acreage led to record crops (MacGibbon 1932, 418-20). This would prove to be a profound miscalculation.

The world-systemic crisis spanning both World Wars and the Great Depression radically called into question the state-economy relations forged during the UK-centred food regime. The success of the Canadian wheat boom of the early 20th century
(measured in record harvests and exports) could not mitigate the market chaos of the 1930s, when huge surpluses and worldwide economic depression combined to severely depress wheat prices. The collapse of wheat prices threatened not only farmers, but also the private interests that financed the wheat trade, and, because of the predominance of wheat exports in the Canadian balance of trade, the state. In the crisis of the first food regime, social actors searched desperately for a solution to the grain marketing problem, settling eventually on state-marketing under the CWB. After more than two decades of struggle, farmers finally secured collective marketing via government monopoly, understood to be the antidote to farmers’ lack of market power. Centralized marketing completed the institutional transformation of the prairie wheat economy, providing for coordinated public regulation of the grain trade, wheat quality, and exports, all in the name of farmers.

Each of these proved adaptive given the particularities of the prairie wheat economy: a natural edge in high-protein milling wheat, geographic remoteness, and dependence on a handful of export outlets for a single commodity, bread milling wheat. Comprehensive public regulation of the grain trade, including centralized control over wheat quality, helped secure Canada’s leading edge as a supplier of high-quality wheat, even as markets began to shift in the 1930s. At this moment, war-torn European countries began to impose tariffs on North American wheat in order to decrease reliance on imports. As the costs of importing grain increased, millers began increasingly to blend imported hard wheat with local, soft wheat varieties. In doing so, they sought to maximize the improving character of imported wheat by using the ‘strongest’ available, typically Canadian wheat. Between the 1930s and the 1960s, Canadian wheat would
dominate the market in ‘blending’ wheat, the top tier in world markets for wheat (see Ch. 5).

The transformation of the Canadian prairies throughout this period cannot be understood outside the context of its second-tier status in food regime relations, particularly its colonial ties to the UK. During the crisis of 1914-1945, Canada’s latent colonial ties to the UK were the catalyst for the emergence of the CWB as the solution to the collapse of grain markets. In this way, the ultimate solution to the grain marketing question expressed Canada’s junior status vis-à-vis the UK as hegemonic power and the tensions between cooperation and competition therein. A bond of imperial loyalty led the two countries to work cooperatively in order to coordinate wheat supplies for the Allied war effort, despite tensions involved in negotiating prices on a state-state basis. British war-time requirements were crucial in the experiments of WWI, including the first CWB. Paradoxically, even though state-control over wheat marketing served actually to cap wheat prices during the war, farmers seized upon the idea of government monopoly as the solution to the grain marketing issue. Here, farmers were prepared to accept the price stability and market power afforded by centralized marketing over (probably temporarily) inflated prices. The Canadian state re-instituted monopoly marketing, in the immediate context, in order to meet its war-time obligations to the Allied cause during WWII.

The history of bread and baking traced in this chapter sheds light on key threads of food consumption in the UK during the first food regime. The first food regime constituted a vast experiment in trade, food provisioning, and diet that tied distant farmers to British eaters via the massive transatlantic trade in first US, then Canadian wheat. The abundance of cheap, imported North American wheat drove the adoption of
roller-milling, resulting in the emergence of the UK’s first food industry giants – large, coastal mills. Roller-milling also shaped the consumption qualities (colour and texture) and nutrition (reduced vitamin content) of bread, producing the fluffy white loaf that became the mainstay of British bread consumption for decades to come. Prior to the 1870s, bread was an artisanal product that was either home-baked or purchased from one of tens-of-thousands of small craft bakers, and produced from hundreds of local wheat varieties controlled and multiplied by farmers. Technological changes over the first food regime turned bread into an increasingly standardized (i.e., manufactured) food product, made from a handful of varieties of a single type (hard, spring) of wheat. Food regime crisis reconfigured the political-economy of food in the UK. Faced with the crisis of food shortages during the wars, the state assumed new roles in food rationing and public nutrition, with a special role reserved for bread in war-time food policy. After the shortages and hardship of the world wars and depression, the UK would shift away from food import dependence, fundamentally reshaping its historic reliance on wheat imports and its relationship with Canada.

Historical controversies over bread nutrition illuminate the shifting interests of public (state) and private (social movement and corporate) actors in food politics over this period. Before 1914, food politics tended to hinge on questions of quantity rather than quality (both food safety and nutrition), as exemplified in the consumer politics of the white loaf. Here British social movements defended the UK’s free trade policy as the best guarantee of the working class’ access to cheap food, of which white bread was the chief symbol. The food crises of the world wars and the Great Depression fatally undermined public faith in food import dependence and created anxiety over the state of
public nutrition. War-time food control resulted in a new role for public (state) regulation of food safety and quality which would go uncontested until the 1980s. Acute grain shortages accomplished what the small but vocal Bread Reform League of the late 19th and early 20th century could not: mandatory flour extraction rates that improved the nutrition of the UK’s most important staple food. Despite its success, this policy would, after WWII, succumb to the imperatives of the postwar alliance between the state and the food industry.
Chapter 5 – The Canada-UK commodity chain for wheat-bread in the mercantile-industrial food regime

In this chapter, I trace the decline of the Canada-UK commodity-chain for wheat under the new conditions of accumulation and power after WWII. In the immediate post-war years, cooperation between Canada and the UK -- the world’s largest exporter and importer of wheat, respectively -- proved crucial in stabilizing the world wheat trade. Canada and the UK signed a massive five-year deal, allowing Britain to meet its huge post-war demand for wheat and providing predictable incomes for prairie farmers and price stability for the UK. The operation of this five-year pool illustrated the advantages of the single-desk in securing large, multi-year wheat deals and cemented the continuation of the CWB’s marketing monopoly. Moreover, the deal provided a framework for successive multilateral wheat agreements, which would regulate the commercial wheat trade for two decades. This marked a radical departure from the previous food regime, which had been premised on essentially unregulated trade in agriculture.

However important was the Canada-UK wheat deal in stabilizing the post-war wheat trade, major changes were underway that would cause the rapid decline of this historic relationship. Each actor was eventually displaced from its leading role in the wheat trade, as Canada was relegated to a secondary exporter, and Britain, a secondary importer. I address this puzzle by examining the dramatic transformation of the world wheat trade under a new food regime. In the post-war period, new relations of stability coalesced around select elements of the social experiments of 1914-1945. The key characteristics of the emerging, mercantile-industrial, food regime (1945-1973) were
state-led regulation of food production and consumption (here illustrated by the prairie wheat economy and the UK food market, respectively), the political construction of international trade under US hegemony, and the rise of powerful agrofood capitals. These changes redefined the role of Canada and the UK in food regime relations. The US’s re-entry into world markets -- an expression of its newfound political and economic hegemony -- demoted Canada to a second-tier exporter. Meanwhile, the UK re-oriented its food policy towards self-sufficiency and developed a national food sector typical of other industrialized states of the era, ending its former role at the centre of world wheat imports. In this transformation, the Canada-UK commodity chain for wheat-bread was drastically scaled down, but not abolished, retaining some of the characteristics of historic commodity-chain relations.

The CWB’s single-desk (i.e., monopoly) structure proved useful in helping prairie farmers adapt to the mercantile-industrial food regime and Canada’s new place within it. Inherited from the crisis of the previous food regime, state-marketing and public regulation of wheat quality formed the nexus of institutions and practices tying farmers, the state, and capital into stable agrofood relations. First, the CWB became an instrument for negotiating large, long-term sales with state-buyers. In the Cold War context, this provided Canada with a defence against the US’s aggressive re-entry into world markets. Second, Canada’s dominance in markets for high-protein milling wheat (defined in world markets as the ‘high-quality’ segment)38 allowed the CWB to play a pivotal role in maintaining multilateral cooperation through international wheat agreements. Third,

38 As explained in Ch. 4, this convention emerged during the UK-centred food regime, when wheat quality came to be defined according to properties making the grain amenable to industrial milling and baking, particularly gluten content. In this chapter, I use the term ‘high-quality’ to refer to this historical industrial convention, which must be distinguished from new quality conventions emerging with the differentiation of wheat varieties and bread products in the 1980s and beyond.
international price stability allowed the federal government to link the CWB’s pricing policy to domestic farm income targets. Each of these roles was underpinned by Canada’s unique quality advantage in world markets, a legacy of the centralized marketing and quality control institutions forged in the crisis of the UK-centred food regime.

By the late 1960s, however, Canada’s distinctive edge in the high-quality market segment began to decline, undermining each of its roles in the mercantile-industrial food regime. In turn, this eroded the CWB’s effectiveness in maintaining domestic farm income and international cooperation. Under conditions of full-blown food regime crisis after 1973, the CWB searched again to adapt to a radically changed environment. Here the CWB responded by implementing a more aggressive selling strategy and pursuing new forms of market development. From this point onwards, the CWB became less an instrument of state agricultural policy and more a commercial entity that -- through the mechanism of single-desk collective marketing -- helped prairie farmers adapt to more competitive conditions.

These changes were implicated with and mirrored in major shifts in the UK food sector during the mercantile-industrial food regime. In the aftermath of WWII, the state played a leading role in re-shaping the UK food sector, with comprehensive regulation of food standards, nutrition, and prices. Tying its fortunes more closely to the European Economic Community (EEC), the UK pursued a strategy of import substitution allowing it significantly to reduce wheat imports from Canada. In the early 1960s, a public-private research initiative provided the technological breakthrough essential to this strategy, a new baking process allowing British millers to drastically reduce the proportion of high-
protein Canadian wheat in milling grists for bread flour. As in other industrialized states, large food manufacturers – including vertically integrated miller-bakers -- came to dominate the food sector. British bread consumption declined as consumers turned to new, more highly processed foods (including breakfast cereal) and towards increased consumption of meat and fresh produce.

Beginning in the 1970s, the spectacular rise of British supermarkets posed a serious challenge to food manufacturers and reshaped the UK bread market. Of particular relevance to the large plant bakeries dominating the sector at the time, supermarkets introduced own brand bread and in-store bakeries and used bread as a cheap ‘loss leader’ fuelling devastating price wars. The radical changes to the bread sector in the 1980s provide the context for the premiumisation of the sector in the 1990s, driven by the resurgence of branded bread.

**The mercantile-industrial food regime**

Having largely retreated from the world stage as a major wheat exporter during the depression and World War II (Morris 1987, 208-9), the US emerged as the dominant agricultural power after 1945. In the new food regime, US power would be exercised through its ability to construct world trade according to its economic and political imperatives, via subsidies and food aid. This marked a radical shift from the UK-centred food regime, during which British power was expressed and realized through imports. The US achieved political and economic hegemony through its role in financing European reconstruction (through the Marshall plan) and the reconfiguration of monetary relations (with the $US as the new world reserve currency). Key elements of the new food regime were thus structured around the imperatives and particularities of US
agriculture, the most pressing issue being the disposal of huge agricultural surpluses (Friedmann 1993). In the context of a politically influential domestic farm lobby, the US sought to design food regime rules that at once protected farm incomes and helped dispose of the surpluses. The result was a central role for the US state -- and through imitation and diffusion, all states -- in regulating domestic agricultures and trade flows.

During the 1930s, a period of relative US isolationism, the US had maintained an average share of the world export market of only 11% (Morriss 1987, 209). Yet, it was during this time that the US implemented new farm programs -- as part of the New Deal response to the collapse of grain prices -- that would ultimately shape emerging food regime rules for domestic agriculture and trade. Commodity programs supported agricultural prices through massive government purchases of grain and other commodities. These programs provided incentives for farmers to produce more, which, perversely, put downward pressure on prices in the long-run (Friedmann 2005, 239). By the late 1930s, surpluses had become a chronic problem. War-time circumstances masked the problem of surpluses for a time, as the US first began to subsidize the diversion of wheat surpluses toward livestock feed in 1941 (Morriss 1987, 211). Immediately after WWII, European reconstruction created huge demand for grain, and the US committed to all-out wheat production (Ibid., 212). When world wheat production recovered in the late 1940s, however, the spectre of huge US grain surpluses returned.

Surplus disposal became the overriding principle in the establishment of new food regime rules – the implicit and explicit practices governing emerging agrofood relations. The first expression of this movement was in state’s central role in regulating domestic
agriculture, the impetus for which was provided by the legacy of market collapse during the inter-war years. As the US moved to protect its domestic agricultural sector, other states responded in kind. After decades of food import dependence, European states adopted import substitution, using import duties and increased production to achieve greater food self-sufficiency. This new strategy was embodied in the Common Agricultural Policy (CAP) of 1957, which became “the founding policy of European integration in the Treaty of Rome” (Friedmann 2005, 243). Government regulation of agriculture, including trade protection, price supports, marketing boards, income stabilization schemes, and intensified agricultural extension and research programs designed to increase efficiency (defined in productionist terms) became hallmarks of the new food regime. State intervention into agriculture was understood to be essential for protecting farmers from volatile prices and considered part and parcel of broader post-war social protections from naked market relations.

The imperative of surplus disposal also shaped new rules for international trade in agriculture. In a bid to reduce surpluses and reassert its role in export markets, the US implemented export subsidies, which depended on the use of the US dollar as the new world reserve currency. It used export subsidies to gain market share at the expense of competing exporters, relegating Canada to a subordinate position relative to the past food regime. At US insistence, agriculture was excluded from the General Agreement on Tariffs in Trade (GATT), the post-war framework for negotiated trade liberalization. This marked an important reversal of the generally unregulated trade of the UK-centred food regime.
The exclusion of agriculture from the GATT foreclosed other possibilities for regulating post-war agricultural trade. In the immediate aftermath of the war, Allied governments proposed the creation of a World Food Board (WFB), which would be given UN mandate to administer international commodity agreements for agriculture (Friedmann 2005, 239). The proposal was inspired by Depression-era international commodity agreements (despite the failure of the first IWA – see Ch. 4) and state-led coordination of agriculture and food provision during WWII (Ibid.). The WFB was defeated in 1947, however, when the US withdrew its support, fearing it would limit its ability to use export subsidies as an instrument of surplus disposal. A similar pattern was evident in US-led efforts to lay the groundwork for postwar cooperation on wheat during talks held in Washington in 1941-2 (Wilson 1978, 680-718). A member of the US delegation proposed forming an international wheat union, or World Wheat Pool, which would have implemented collective-marketing of all wheat stocks of the major exporters (Ibid., 693). Ultimately, the idea was considered impracticable in large part because of the strong objections of the CWB’s Chief Commissioner (Ibid., 707-8)\textsuperscript{39}. The 1941-2 negotiations did not produce an agreement, but a memorandum of understanding used to launch renewed negotiations after the war. Henceforth IWAs would be based on much more modest objectives of price coordination, and would apply only to commercial sales, not food ‘aid’, which as explained below, assumed a central role in the food regime.

Under the framework of new food regime rules, the US turned the institution of ‘food aid’ (an invention of Allied coordination of food supplies and financial assistance during WWII) into an instrument for surplus disposal and expanding market share (Ch.

\textsuperscript{39} A single international wheat union would have required the total cooperation of participating countries, and in the event of its breakdown, there would have been no private trade left to resume marketing functions.
2). ‘Concessional’ sales -- introduced under Public Law 480 in 1954 -- allowed the US dramatically to expand its share of the world wheat market at the expense of competing exporters, including Canada. By helping the US to dispose of its surpluses and increase its share of the world market, food aid helped appease powerful domestic farm lobbies and tied US exports to Third World industrialization. The US justified food aid on humanitarian grounds and as a means of creating new markets for American goods. By using its massive surpluses to pursue foreign policy, economic and humanitarian goals, the US instituted a set of essentially mercantilist trading relations, especially with the Third World (Friedmann 1993).

After the exclusion of agriculture from the GATT and food aid, the mutual trade embargo between the First World and the Soviet Bloc was the third plank in the politically constructed nature of the ‘world’ wheat market of this era (Friedmann 2005, 244). In the world wheat trade, the US maintained a strict embargo with the USSR and China that persisted for several decades. Canadian sales to the USSR and China breached the Cold War embargo, but were grudgingly accepted by the US in an implicit admission of the effect of US mercantile practices on Canadian market share (see below). In this way, the exclusion of agriculture from the GATT, the institution of ‘food aid’, and the Cold War blockade structured international trade in agricultural commodities around state-to-state transfers. Food regime rules and practices thus served to construct world markets for wheat in political terms.

Driven by state-led domestic and international regulation of agriculture, a productionist agricultural paradigm helped to create a class of large, mechanized farmers and powerful new agrofood capitals (Friedmann 2005). Encouraged by states and
embraced by farmers, the new ethos was guided by maximization of production through intensification, new technology, and expanding farm size. By mid-century, the mechanization of temperate farming (in North America, Europe, and the antipodes) was completed with the widespread adoption of tractors, tying agriculture to manufacturing and fossil fuels. War-time nitrogen production capacity was adapted to the production and widespread use of chemical fertilizers. In the shadow of mountains of cheap grain, food manufacturers processed grains into mass-produced foods and livestock feed, leading to an increasingly large and integrated food sector (Friedmann 1994). In the new food regime, agricultural production thus became increasingly industrialized, just as agricultural commodities increasingly became industrial inputs to food manufacturing and meat production. These factors produced national, and eventually transnational, agrofood sectors dominated by vertically-integrated firms, whose power and influence over food regime rules would eclipse that of farmers by the end of the food regime.

Canada as a second-tier exporter

Although conceived of only as a temporary solution to the grain marketing crisis, the single-desk CWB would become the centrepiece of Canada’s strategy for adapting to the mercantile-industrial food regime – helping both to stabilize agricultural industrialization domestically and adapt Canada to its role as a second-tier exporter. The Liberal government – which had only reluctantly acceded to monopoly state-marketing under conditions of war-time emergency in 1943 -- set an expiry date of two years on the CWB’s single-desk powers (Wilson 1978, 787). Yet, as social actors (the state and farmers) coalesced around monopoly-marketing as the best mechanism for positioning Canada in the emerging food regime, the CWB’s mandate was renewed at regular
intervals, and eventually made permanent (in 1967). During this period, the CWB played three key roles. First, the CWB became an integral plank of the state’s domestic farm policy. The system of initial payments established a government-guaranteed floor price for wheat, serving as insurance against market collapse and expressing the shift towards the national regulation of agriculture via marketing boards in Canada (Troughton 1989). Second, the CWB became a useful vehicle through which to negotiate and administer large multi-year grain deals after the war. Third, the CWB played a key role in supporting and administering international cooperation among world exports through International Wheat Agreements (IWA).

Each of these roles was foreshadowed in the Canada-UK wheat agreement following WWII. First, the UK’s massive post-war food needs provided an opportunity to experiment with large long-term international wheat deals. In 1946, the CWB concluded a four-year agreement with Britain for 500 million bushels of wheat (Morriss 1987, 170). This type of multi-year deal would become one of the key mechanisms through which Canada adapted to US mercantile practices, especially as the CWB pursued agreements with state-importers in communist countries (see below). The Canada-UK deal also foreshadowed tensions between Canada and the US, as they carved up the world wheat trade. In the confusing experiments of food regime transition, the British purchases of Canadian wheat after the war were financed by American Marshall

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40 Under the deal, Canada agreed to sell wheat at prices well below the world market price for the first two years, with the tacit understanding that prices for the last two years, which had yet to be negotiated, would compensate for Canada’s losses in the first two. The understanding was worded ambiguously in the final agreement such that the UK promised to “have regard” to differences between prices in the first two years of the agreement and the prevailing world prices during the same period. In the end, the UK refused to make any special provision to compensate Canada over and above the prices negotiated for the final two years of the agreement. Because of purported losses to Canadian farmers, the deal proved very controversial in the farm community. Morriss (1987, 180-6) argues that calculations of supposed losses are very difficult, and that in the end, the real value of the agreement had been to provide price stability in the immediate post-war context.
Aid (Ibid., 182). Arguing that the terms of the agreement had been set on a non-commercial basis, the US heavily criticized the Canada-UK deal, its displeasure heightened because of the financial aid it provided to the UK (Ibid., 171-2).

Second, the deal helped cement the retention of the CWB’s monopoly powers -- despite the reservations of the Canadian government -- as a means of achieving domestic farm policy goals. Because it would tie up almost all of Canada’s wheat stocks, such a massive deal made it impossible to reopen the futures market and justified retaining the single-desk (Morriss 1987, 168). The government of the day aggressively pursued the deal in the hopes that it would provide long-term price stability for farmers. The deal allowed the CWB to institute a five-year pool effectively guaranteeing initial payments received by farmers between 1945 and 1950 (Ibid., 174). Though the five-year pool would never be replicated, the CWB single-desk marketing mechanism would henceforth be used by Canadian governments to help meet domestic farm income targets.

Third, the Canada-UK wheat deal became the blueprint for future multi-lateral wheat agreements. In the early stages of international cooperation, Canada and the UK played a crucial role as the largest exporter and importer, respectively. The conclusion of the bilateral deal between Canada and the UK provided the impetus for restarting multilateral negotiations in 1947, after having been abandoned during WWII (Wilson 1978, 887), though a multi-lateral deal was not achieved for two more years. In the meantime, the Canada-UK deal stabilized international markets, serving as a bridge to the IWA of 1949 (Morriss 1987, 184-5). International cooperation responded to the complementary goals of the state and farmers’ movements. While the former sought to avoid the market chaos of the previous era and attain a minimum income for the western
wheat economy, the latter pressed for international wheat agreements as the second key plank of “orderly marketing” (Wilson 1978, 888).

In fulfilling each of these roles according to state imperatives and the aspirations of organized farmers, the CWB functioned differently from the system of price support and export subsidies in the US. Given the size of the wheat export sector in relation to the Canadian economy, direct production or export subsidies were considered prohibitively expensive (Kristjanson 1967, 1345). The CWB only served as a source of direct government subsidy to farmers under conditions where market prices fell below government established initial prices, a rare occurrence\(^{41}\). As opposed to direct subsidies, the CWB provided structural support to farm income by matching its price-setting behaviour to domestic farm income targets (Oleson 1979). The CWB could do this because of its market power, which depended on Canada’s dominance in the high-quality segment of world markets, a legacy of the first food regime that translated into a privileged role in key institutions of the new food regime (see below). In what follows I explain how Canada’s configuration of public grain marketing and quality control institutions helped adapt it to the mercantile-industrial food regime.

Spurred by the US’s use of food aid to shut competing exporters out of growing Third World markets, the CWB began to pursue new markets in the 1950s. Canada’s share of the world wheat market declined precipitously in the face of PL480, as US market share doubled over the first three years of the program (Morriss 1987, 219). The depressing effect was greatest in non-communist Third World countries, where Canadian exports declined both in percentage terms and in absolute quantities (Stam 1964, 818).

\(^{41}\) Pool account deficits for wheat have occurred only four times in the CWB’s history, in 1968-69, 1985-86, 1990-91, and 2002-03 (Furtan 2005, 98).
Canada’s early efforts to expand into new markets occurred just prior to the implementation of PL 480, with initial sales to Japan (over which the US and Canada would compete fiercely for market share in the coming decade) in 1952-3 (Morriss 1987, 232).

More significantly, the CWB established new trading relationships with China and the USSR in a display of foreign policy independence in the Cold War context. The CWB began to explore the possibility of wheat sales to the USSR in the early 1950s when the Soviet goal of self-sufficiency via increased production in Kazakhstan faltered. It concluded an initial three-year deal in 1956, in conjunction with the signing of a broader most favoured nation trade agreement signed between Canada and the USSR (Morriss 1987, 235). In 1963, with a crop failure in Kazakhstan, the USSR approached Canada with a pressing demand for a huge quantity of wheat. The result was a three-year deal for 198 million bushels, to that point the largest sale in Canadian history (Morris 2000, 39-45). An even larger three-year deal was signed in 1965 (Ibid., 69). These Soviet deals formed the prototype for deals with other state-trading countries, including those of Eastern Europe. Despite the large deals, Soviet demand for Canadian wheat remained somewhat erratic until the breach of the US-USSR Cold War dam in the early 1970s (Figure 5.1) (see below). Especially after the 1950s, the USSR pursued Bloc-based self-sufficiency in an inter-state division of labour structured by hierarchical relations among ruling communist parties (Friedmann 1998, 215).
Canadian wheat sales to China, beginning in the late 1950s, would be more consistent, and would soon outstrip those to the USSR. In the aftermath of the Korean War, which dramatically heightened Cold War tensions, Canada’s desire to trade with China became a very contentious issue in Canada-US relations. Canada supported the US in Korea and endorsed the US’s economic embargo of China until the mid-1950s, but questioned the wisdom of isolating the communist regime (Donaghy and Stevenson 2008, 2-3). Despite increasing Canada-US economic and political integration, Canada began to defy US policy on China as the US intensified its expansion of market share through mercantile practices. The decisive break with US policy came with the election of Canadian Prime Minister John Diefenbaker, in 1957. Campaigning on a platform of
greater foreign policy independence, Diefenbaker harnessed the resentment of prairie farmers against US agricultural policy.

This shift translated into the first Canadian wheat sales to China in 1958, as “trade trumped security” (Donaghy and Stevenson 2008, 3) in the political calculations of the new government. The US used various measures under the Foreign Assets Control (FAC) regulations of 1954 to challenge Canada’s emerging wheat trade with China. US companies and their Canadian subsidiaries were prevented by the regulations from participating in the deals as grain handlers and shippers (Ibid., 8-9). In light of Canadian objections of interference, a compromise was worked out whereby Canadian subsidiaries could trade with China provided they obtained a license from the US under FAC rules (Ibid. 11-12). The relatively small sales of 1958 were followed by the CWB’s first official marketing trip to China in 1960 (Morriss 2000, 9). At the conclusion of protracted negotiations through the winter and spring of 1961, Canada and China signed a two and a half year deal for between 3 and 5 million tonnes of wheat (Ibid., 19). This massive deal triggered a major diplomatic incident as Imperial Oil (a Canadian subsidiary of the US’s Standard Oil) refused to provide fuel to tankers transporting Canadian wheat to China for fear of violating FAC rules (Donaghy and Stevenson 2008, 16-7). Ultimately, the US backed down and relaxed the rules, allowing the vessels to sail.

However, when the US learned that the large Canadian wheat sale to China would be made on credit (see below), the US tried once again to obstruct the sale, this time by refusing to export American-made vessel loading equipment to Canadian ports (Ibid., 21). Risking a major rift with Canada, the measure was quickly overturned by US officials, marking the end of US interference in Canada’s wheat trade with China.
Implicitly acknowledging the harm its agricultural policy was causing to Canada, the US had “responded only incrementally to the Canadian challenge to its leading role in guiding Western economic relations with Beijing” (Ibid., 28-9). Although the US maintained its embargo with China in theory, it ultimately relented to Canadian wheat sales.

The CWB’s status as a state-marketing agency proved crucial in executing the deal with China. First, it allowed the CWB to make the deal based on government-guaranteed credit, with 25% of payments made up front, and the remainder due 18 months later, plus interest (Kristjanson 1967, 1347). Second, the CWB accepted payment from China in pounds sterling (mirroring the practice in US concessional sales), a result of China’s inability to obtain US dollars because of the US embargo (Ibid.). Third, the centralized decision-making authority of the CWB provided a sort of structural congruence with the Chinese importing agency, allowing small teams of negotiators on each side to coordinate these very large, long-term deals.

Canada’s approach to China proved successful in the years to come, and became a key outlet for expanding Canadian exports in the face of American concessional sales. By 1962, China had surpassed Japan in terms of Canadian export volumes, and by the late 1960s, had become Canada’s largest export market (Morriss 2000, 72). While these new sales allowed Canada to increase exports on an absolute basis, its share of the export market still declined in percentage terms (Stam 1964, 805). As “the ideal instrument for negotiation with the state purchasing agencies rapidly emerging as the principal buyers on world grain markets” (Morriss 1987, 237), the CWB thus replicated some elements of mercantile US trading practices, but with a twist. While allowing Canada to negotiate
with large communist importers one-on-one, the CWB’s sales policy and negotiating position remained at an arm’s length of Canadian government policy and depended on making sales at commercial prices.

The CWB also proved instrumental in negotiating multilateral wheat agreements that would govern ‘commercial’ – i.e., non-communist, and non-concessional -- wheat sales for nearly two decades. In particular, Canada would come to play a lead role in negotiating and maintaining multilateral price cooperation, especially via price-setting cooperation with the US. Here Canada’s role expressed its changing relationship to the US. On the one hand, it tied its fortunes much more closely to its North American neighbour, pursuing greater economic, political, and military cooperation. On the other hand, Canada and the US remained export competitors, creating latent tension in the re-structuring of world trade around US imperatives. After several false starts in early rounds of negotiation, an International Wheat Agreement was finally concluded in 1949. Modeled on the bilateral Canada-UK wheat deal (Wilson 1978, 1007), the IWA established price floors and ceilings as well as guaranteed quantities of exports and imports among signatories. Under the terms of the 1949-53 deal, Canada was the single largest exporter and Britain the principle importer. With Canada committed to international price cooperation for four years, the CWB’s monopoly mandate was extended for the duration of the agreement.

Canada played a pivotal role in the functioning of successive IWAs. Its leadership role derived first, from the size of its exports, which allowed it to support prices by withholding stocks from the market, and second, from its dominance of the high-quality segment of the world market for milling wheat. This high protein, hard
wheat was exported primarily to Europe, where it was blended with soft, domestic wheat to produce bread flour (Oleson 1979, 18). Up until the 1960s, the high-protein blending wheat market was distinct from the much larger but less lucrative market in non-blending soft wheat. Compared to other hard wheats (e.g., US dark northern), Canadian wheat maintained an advantage in industrial flour and bread production because of slightly higher protein content, product consistency, and reliability of supply (Oleson 1979, 98-9). Likewise, Canada retained centralized quality control and wheat standards established during the previous food regime. Because demand for high-quality milling wheat was highly inelastic and Canadian wheat unsubstitutable, Canada could withhold stocks from the market in order to support world prices (Oleson 1979, 93). Canada’s role in the IWA was therefore to manage the fluctuation of prices within the limits imposed by price ceilings and floors through stockholding and price setting behaviour.

This role was institutionalized in the practice whereby the CWB’s price, publicly announced every afternoon, served as the world reference price for wheat (Oleson 1979, 100). In this way, the CWB “essentially controlled the tap for grain leaving Canada by setting … prices daily on a fully transparent basis” (Oleson 1999, 512). This system implicitly recognized Canada’s quality advantage, as the price for the highest grade of Canadian wheat, in store at Thunder Bay (Canada’s principle export shipping point for wheat), became the reference price off of which prices for all other types and grades of wheat were set (Wilson 1978, 1010). The US, in turn, set export subsidies that established the price spread – a discount -- between top quality milling wheat and non-blending wheat, establishing the world reference price for this latter class (Oleson 1979, 101-102). The result was a pricing system “dominated by administrative decision” (Ibid.,
178) and maintained by agreement between the world’s two largest exporters – Canada and the US -- over the appropriate price spread between high-quality and low-quality wheat.

Unable to compete directly with Canadian sales of high-quality milling wheat, the US allowed Canada to serve as the price leader in the world market. By setting its export subsidies in relation to the Canadian reference price, the US attempted to balance competing imperatives of international cooperation (which demanded restraint in disposing of surpluses), domestic farm politics, and the costs borne by the US treasury in supporting agriculture (Oleson 1979, 96). During the early period of the IWAs, the US remained committed to international cooperation despite facing huge wheat surpluses. US strength was maintained, nevertheless, by its trump card, the threat of export subsidies. Export subsidies served as a policy instrument that, depending on the circumstances, could be used to increase its share of the world market (Ibid., 181).

The CWB’s leadership in international cooperation is the key to understanding its role in domestic farm policy during the mercantile-industrial food regime. The CWB assumed a crucial role in Canadian agricultural policy by matching its price-setting and stockholding behaviour with domestic farm income targets (Oleson 1979, 94). In the absence of any other comprehensive government income support, the CWB’s ability to support world prices served as the guarantor of a minimum Western farm income. This strategy nevertheless faced two major obstacles: limited sales outlets for high-quality wheat at any given moment; and Canada’s constrained transportation system, with a very high volume of grain passing through only two export points (to the east, via the St. Lawrence, and to the west, via Vancouver). The solution was essentially to *ration* prairie
farmers’ access to these lucrative markets. Two mechanisms were key. First, the *Temporary Wheat Reserves Act* of 1956 paid farmers to store their grain when stocks surpassed a given threshold, thereby allowing the CWB to time its sales with the best sales opportunities for high-quality wheat. Second, the CWB implemented a farmer delivery quota system (see Ch. 4), which, through coordinated selling and control over the timing and volume of farmer deliveries, allowed prairie farmers to share equally in sales to premium markets (Oleson 1999, 511).

At the height of the mercantile-industrial food regime, Canada and the US each played crucial, complementary roles in structuring the world wheat trade according to domestic and foreign policy goals. The division of the world wheat trade into the three ‘C’s’ – commercial, communist, and concessional sales (Morriss 1987, 254) – stabilized the world wheat trade and allowed for relatively cooperative relations among the world’s largest exporters. The US dominated Third World markets through concessional sales, Canada in sales to communist countries, and commercial sales were governed by the operation of IWAs maintained through Canada-US cooperation on stockholding and pricing. As a mechanism of domestic farm policy, the CWB proved useful insofar as it succeeded in securing major wheat deals in new markets and maintaining world prices through market power. As explained below, these conditions of cooperation and stability were gradually eroded by changing conditions of trade, technology, and farm politics.

**The UK food sector in the mercantile-industrial food regime**

In the UK, the key dynamics of the mercantile-industrial food regime were expressed in the decline of wheat imports, the rise of a powerful food manufacturing sector, shifting dietary patterns, and strong state involvement in the regulation of
agriculture and food, based on a corporatist-productivist model. Together, these changes transformed the UK food sector. I describe these changes, first, as an example of the transformation of relations of consumption, food politics, and state regulation of food sectors typical of the mercantile-industrial food regime, and second, as context for understanding the conditions under which the Canada-UK wheat trade would decline after the 1960s.

**Wheat supply, import substitution, and new baking technology**

Though the UK had begun, from the 1920s onward, to pursue reduced food import dependence through tariffs and expanded production, these efforts paid off only modestly until WWII. The UK remained heavily reliant on wheat imports, even though it had increased domestic production over the course of the war. After the war, the UK implemented a comprehensive policy of agricultural industrialization and price supports under the 1947 Agriculture Act (Lang 1999, 173) and pursued import substitution more vigorously through tariffs and industrial policy. UK agricultural trade policy was strengthened considerably as it joined the European Community in 1973, formalizing import substitution through the EU’s Common Agriculture Policy.

As the UK attempted to reduce its reliance on imported wheat, it faced a major obstacle in the baking industry’s historic dependence on hard North American wheat. Here new baking technology – an outgrowth of UK post-war industrial and trade policy – played a key role. In 1946, the UK launched a joint government-industry endeavour -- the British Baking Industries Research Association (BBIRA) – with the objective of developing new, more profitable technologies for the vertically-integrated milling and baking industry (now a leading branch of food manufacturing) and reducing its
dependence on foreign wheat. The initiative paid off when researchers developed a baking process, the Chorleywood Bread Process (CBP), which transformed the bread industry, and ultimately, ended the UK’s historic reliance on North American wheat (see below). For bakers, the breakthrough of the CBP was that it eliminated the need for dough fermentation, allowing large bread factories to save time and space. Just as importantly, the CBP required a much lower proportion of hard wheat in milling grists, allowing for more blending with soft (domestic) wheat (Cauvain and Young 2006, 11-13). The new method, which was commercially introduced in 1961, proved a major advantage to baking firms caught between high tariffs on imported wheat and post-war price controls on bread (Whitley 2007, 19).

The rise of the food manufacturers: milling and baking industries in the postwar era

The UK’s industrial and trade policies complemented the emergence of national food manufacturing industries, part of the ‘durable foods’ complex (Friedmann 1994) of the mercantile-industrial food regime. Here food manufacturers combined increasingly generic food inputs (fats, sweeteners, etc.) to create new marvels of food science, spawning an explosion of branded, nationally distributed processed foods for mass consumption. As in other industrialized countries, the food processing and manufacturing industries in the UK became increasingly consolidated, producing national and eventually multinational corporate giants such as Unilever, Grand Metropolitan, and Allied Lyons (Marsden et al. 1994, 109). The state supported the food manufacturing sector by implementing a policy of ‘resale price maintenance’ (RPM) according to which manufacturers set the final sales price of their goods in retail outlets (Flynn et al. 1994, 92). This policy protected the buoyant food manufacturing industry by eliminating price
competition among retailers (Burch and Lawrence 2007, 105) and provided a check on
the market power of larger retailers by protecting smaller players from the price-cutting
strategies of large retailers (Flynn et al. 1994, 92).

As part of the growth of food processing and manufacturing sectors after WWII,
the UK milling and baking industries experienced rapid technological change, industry
concentration, and consolidation. In the process, the milling and baking industries
became among the UK’s largest food manufacturing and processing sectors. Between
1951 and 1955, the share of the bread trade controlled by the large plant bakeries
increased from about one-third to 40% (Evely and Little 1960, 256). The UK’s largest
plant baker, Allied, continued to expand during the 1950s with the acquisition of 10 more
British bakeries (Ibid., 258), the acquisition of Australian interests in 1949, and
expansion into South Africa in 1955 (ABF 2008). Meanwhile, large firms initiated the
vertical integration of the baking and milling industries. When government control over
flour ended in 1953, Allied bakeries sought discounted flour rates for large bulk
purchases from the two largest millers – Ranks and Spillers. When the millers refused,
Allied responded by sourcing a much larger quantity of its flour (eventually 50%)
directly from Canada and Australia rather than through the British millers. Having lost a
major customer in Allied bakeries, Ranks and Spillers each acquired their own baking
interests (British Bakeries and United Bakeries, respectively), to serve as a guaranteed
outlet for flour sales (Evely and Little 1960, 258). In 1961, Allied acquired its own
milling interests, thereby achieving backward integration with the flour industry (MMC
1977, 27).
Driven by the new milling-baking giants, industry consolidation continued over the next two decades. In 1960, Allied bakeries became Associated British Foods, which by 1964 could boast having become the world’s largest baking company (ABF 2008). In 1962, Ranks acquired Hovis McDougall, the product of a 1957 merger between Hovis bakeries and McDougall flour (McDougalls 2008), and became RHM. Both RHM and ABF would eventually become very large, diversified food manufacturing corporations. By the early 1960s, three vertically-integrated milling and baking firms (Allied, British Bakeries, and Spillers) dominated the UK market. In the decade between 1965 and 1975, the three companies increased their share of the milling market from 60% to 79%, and in the bread market, from 51% to 62% (MMC 1977, 51, 61).

Under the imperatives of industrial efficiency and national distribution, bread was transformed into a product of sophisticated food science. The large manufacturers used new chemical additives and production processes to extend shelf life, thereby narrowing the gap between bread’s status as a semi-fresh, manufactured food, and a ‘durable’ food. The Chorleywood Bread Process (CBP) (see above), which would eventually dominate in the British baking trade, required a number of specialized ingredients and additives in order to achieve desired characteristics of texture and ‘freshness’ (i.e., decreased perishability). Aside from flour, water, salt, and yeast, a CBP loaf included many or all of the following: flour treatment agents, bleach, reducing agents, emulsifiers, preservatives, and other processing aids (Whitley 2007, 18). The result was “‘industrial’ bread: a technological marvel combining production efficiency with a compelling appeal to the lowest common denominator of taste” (Ibid., 17). The growing list of chemical additives necessary for industrial bread production, as in other branches of the food
manufacturing and processing sector, more closely tied the baking industry with other branches of industry. At the same time, the chemical transformation of bread necessitated changes to the list of ingredients permitted by government food standard regulations (Fallows 1986, 119). With bread able to stay ‘fresh’ for a few days, industrial bread overcame previous barriers to distribution over a wider geographic area.

**State regulation of the food industry**

In the aftermath of the crisis of 1914-1945, the state assumed an increasingly important role in regulating the burgeoning UK food sector. The government’s leading role was in large part a legacy of the state’s war-time role in coordinating food supplies, rationing, and scientific research in nutrition and food technology (Drummond and Wilbraham 1958, 455). In 1947, the government established a Food Standards Committee to regulate food contaminants and additives as well as to oversee the nutritional claims of food manufacturers. The Food and Drugs Act and the Food Hygiene Regulations of 1955 entrenched into law consumer protection from adulterated food, false nutritional claims, and food contamination (Drummond and Wilbraham 1958, 455), making the state the chief guarantor of a safe food supply.

Originally under the purview of the Ministry of Food (MOF), regulation of the food industry was merged with agriculture in 1955 under the Ministry of Agriculture, Fisheries, and Food (MAFF). Although this caused concerns that consumer and distributors’ interests would be subordinated to those of farmers (Marsden et al. 1994, 113), MAFF developed close ties with the food industry – a legacy of close government-food industry cooperation during the war (Lang 1999, 173). MAFF provided, for

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42 The use of these chemical additives, particularly a whole class of dough ‘improvers’ used as processing aids, was permitted by legislative change in 1963.
instance, significant industry influence on the Food Standards Committee and its successors (Marsden et al. 1994, 113-4). Government oversight of the food industry reflected, on the one hand, the increasing economic importance and complexity of the sector, and, on the other hand, changing consumer politics, with the organized consumer movement calling for strong state involvement in regulating prices, trade, and food safety (Trentmann 2001, 153-4).

In the bread sector, post-war governments regulated bread prices, composition, and nutrition. Though price controls on flour were removed in 1953 and on bread in 1956, the government continued to monitor prices very closely in both industries (MMC 1977, 44). Between 1959 and 1965, price increases for bread were overseen by the Ministry of Agriculture, in consultation with the baking industry, and had to be justified in terms of increased production costs. In 1964, the government introduced price and wage control legislation making prices subject to official government review through the National Board for Prices and Incomes (NBPI). With a change in government in 1970, price changes reverted to a system of voluntary notification (Ibid., 46). By the mid-1970s, however, both flour and bread would become subject to much tighter price control and the reintroduction of the bread subsidy.

The government resolved (for a time) the decades-long controversy over bread nutrition by instituting mandatory bread fortification. Fortification depended, first, on the identification and recognition of important vitamins in the wheat kernel (during the 1920s), and second, the ability to chemically synthesize these compounds (beginning in the 1930s) (Fallows 1986, 118). Again, war-time experience proved important, as the
government first mandated flour fortification with thiamine in 1940\textsuperscript{43} (Ibid.). Mandatory fortification with calcium carbonate (in response to reduced supply of dairy foods) was implemented in 1943. At a Conference on the Post-War Loaf, the government endorsed mandatory minimum nutritional levels in flour, but expressed a preference for fortification over retaining the high-extraction National Loaf (Collins and Oddy 1998, 451). Comprehensive fortification measures were introduced with the end of National Flour in 1953, when the government passed a law requiring the fortification of all bread of less than 80% extraction with iron, calcium, thiamine, and niacin (Ibid.).

Fortification became emblematic of the state’s involvement in nutrition policy in the mercantile-industrial food regime, emphasizing both its role as custodian of national nutrition and its corporatist ties to the food industry. Having raised extraction rates during the war, the government sought to ensure that the public health gains of healthier bread would not be lost after decontrol (Sharpe et al. 2008, 135). The new policy provided a technoscientific (fortification) rather than regulatory (mandatory extraction rates) fix to the question of bread nutrition, favouring the commercial imperatives of millers and bread manufacturers, which marketed their products according to consumer demand for white bread. White bread made of fortified flour would represent the benchmark of bread nutrition for three decades.

**Shifting patterns of consumption**

In the UK, changing postwar eating habits were conditioned by the experience of wartime food controls, which were not fully removed until the mid 1950s (Drummond and Wilbraham 1958, 456). Bread had been rationed between 1946 and 1948, and

\textsuperscript{43} By 1942, the increased extraction rate mandated by the government made this measure redundant since higher extraction flour contained sufficient naturally occurring thiamine.
mandatory flour extraction rates (the National Loaf) remained in place until 1956 (Fallows 1986, 118). Despite (or perhaps because of) the de facto ban on white bread during the war years, white bread resumed its place as the preference of UK consumers when mandatory extraction rates were abolished. As of 1960, white bread accounted for 92% of bread consumption (excluding ‘other bread’ such as rolls, fruit breads, etc.) (calculated from Table 49 in Burnett 1989, 306) and the preference for white bread over brown would not fall below 90% until the mid-1970s (Figure 5.2). With the overwhelming dominance of industrially-produced, store-bought bread, this period marked the apogee of standardization in bread consumption. Overall bread consumption declined precipitously after 1950 (Table 5.1), however, even as bread continued to be an important staple of the British diet (the largest single source of energy) (Burnett 1989, 308). The postwar economic boom allowed households with higher incomes to increase their consumption of fresh fruit and vegetables, frozen and processed foods, and meat (Table 5.1).
Figure 5.2 - Purchased quantities of bread, UK households, 1974-2006

Table 5.1 – UK food consumption by category – 1942-1981

<table>
<thead>
<tr>
<th></th>
<th>1942-51</th>
<th>1952-61</th>
<th>1962-71</th>
<th>1972-81</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average (g/person/week)</td>
<td>1722</td>
<td>1459</td>
<td>1128</td>
<td>926</td>
</tr>
<tr>
<td>Change</td>
<td>-</td>
<td>-15%</td>
<td>-23%</td>
<td>-18%</td>
</tr>
<tr>
<td>Total fresh fruit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average (g/person/week)</td>
<td>345</td>
<td>476</td>
<td>529</td>
<td>524</td>
</tr>
<tr>
<td>Change</td>
<td>-</td>
<td>38%</td>
<td>11%</td>
<td>-1%</td>
</tr>
<tr>
<td>Canned vegetables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average (g/person/week)</td>
<td>-</td>
<td>130</td>
<td>201</td>
<td>258</td>
</tr>
<tr>
<td>Change</td>
<td>-</td>
<td>-</td>
<td>55%</td>
<td>29%</td>
</tr>
<tr>
<td>Frozen vegetables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average (g/person/week)</td>
<td>-</td>
<td>-</td>
<td>37</td>
<td>99</td>
</tr>
<tr>
<td>Change</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>169%</td>
</tr>
<tr>
<td>Breakfast cereal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average (g/person/week)</td>
<td>32</td>
<td>49</td>
<td>65</td>
<td>91</td>
</tr>
<tr>
<td>Change</td>
<td>-</td>
<td>51%</td>
<td>34%</td>
<td>40%</td>
</tr>
<tr>
<td>Total meat and meat products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average (g/person/week)</td>
<td>757</td>
<td>973</td>
<td>1085</td>
<td>1083</td>
</tr>
<tr>
<td>Change</td>
<td>-</td>
<td>29%</td>
<td>12%</td>
<td>0%</td>
</tr>
</tbody>
</table>


The shift away from bread consumption and towards breakfast cereal in the post-war period was emblematic of changing dietary habits. Though some North American brands of ready-to-eat (RTE) breakfast cereal were imported and distributed in the UK before WWI, the British market for RTE cereal only took off after 1920 with the establishment of cereal manufacturing plants for US brands in the UK (Collins 1976, 31-3)\(^4\). RTE cereal consumption grew rapidly between the world wars and -- though the pattern was interrupted by WWII -- resumed its growth after the end of war-time

\(^4\) Among the largest breakfast cereal firms, only Weetabix was indigenous to the UK.
controls, doubling between 1942-5 and 1972 (Ibid., 34-5). Whereas in 1938, between 80 – 90% of people ate bread, rolls, or toast at breakfast and 20% or less ate cereal, by 1976 it was estimated that 40% ate cereal for breakfast and only 25% ate bread (Burnett 1989, 275, 314). Cereal consumption thus displaced one important component of bread consumption, reflecting the shift towards ‘socially engineered’ food products deriving from new food technology, innovative marketing techniques, and large advertising budgets (Collins 1976). Representing the ‘old’ and the ‘new’ in food manufacturing, the bread industry combined limited product development with a focus on manufacturing efficiency, whereas the breakfast cereal industry combined constant product innovation with marketing efficiency and branding (Ibid., 38). As explained in Chapter 6, product differentiation, branding, and new quality conventions would only begin to transform the bread industry under crisis conditions during the 1980s, when volume-based competition proved to be a disastrous strategy for large manufacturers.

**Origins of the UK ‘retail revolution’**

Just as food manufacturers and processors were reaching the pinnacle of their power and influence in the food industry, the emergence of the first supermarkets in the UK foreshadowed the coming transformation of British food retailing. Diffusion of the supermarket model of food retailing – to become a key institution of the mercantile-industrial food regime – occurred through deliberate efforts to spread American organizational forms and business practices to the UK. The first antecedents of the supermarket were in the emergence of ‘self-service’45 grocery stores in the US in the first decade of the 20th century. The first true supermarkets –combining self-service with

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45 In self-service stores, customers were free to shop the aisles of the store, handle and compare goods, and collect them in a basket until ready to pay at a checkout stand.
much larger floor space, a wider selection of products, and cheap prices – were introduced by independent US retailers in the 1920s and experienced rapid growth and expansion in the 1930s (Konefal et al. 2007, 270). As American grocery store chains adopted the supermarket model, the format spread so rapidly that by 1950 approximately 70% of retail food sales were controlled by supermarkets (Ibid.). The rise of new forms of food retailing complemented the growth of food manufacturing, as supermarkets institutionalized a new form of shopping in which consumers were to compare and choose among an increasingly large array of branded, manufactured products (Konefal et al. 2005, 271).

With virtually no self-service grocery stores prior to WWII, the emergence of the supermarket in the UK lagged behind the US by about two decades. After the war, however, the UK government allied itself with some sectors of the grocery trade to remake food retailing in the image of the modern US industry. The government reasoned that self-service would benefit consumers through cheaper prices and, by freeing up workers, would help alleviate the UK’s labour shortage (Shaw et al. 2004, 571). An influential international business council, the Anglo-American Council on Productivity (AACP), played a key role in the process. The AACP was a creature of the Marshall plan and advised the UK on its overall strategy for modernizing the British business sector (Ibid. 568). In 1952, the AACP published a major report extolling the benefits of American-style self-service food retailing, helping to catalyze the coordinated push to introduce self-service over the next decade (Ibid., 572).

Despite increasing interest in the concept in the 1940s, the spread of self-service was delayed until the removal of war-time controls (food rationing, price controls, and
restrictions on building materials) in 1954 (Shaw et al., 573). The number of self-service stores exploded thereafter from only 500 in 1950 to 3000 by 1956 (Ibid., 574). The supermarket format was next to spread, increasing from approximately 367 in 1960 (Ibid., 575) to over 1000 in 1963 (Humphery 1998, 73). Though the co-operative societies were the first to introduce supermarkets, by 1960 the food retailing multiples dominated the sector with over 60% of supermarkets (Shaw et al. 2004, 574.). Throughout the 1960s, supermarkets spread especially rapidly in ‘edge-of-town-locations’, as they tracked the growth of suburbs (Ibid., 73-4). By 1966, the top five supermarket firms in the UK accounted for approximately 60% of sales (Burch and Lawrence 2007, 105).

As supermarkets eclipsed other forms of food retailing, bread sales shifted from corner shops and multiple-shop bakeries into the supermarkets. During this period, the major national bread manufacturers, Allied Bakeries and British Bakeries, supplied the bulk of bread to supermarkets. Smaller bread manufacturers continued to sell mostly through their own retail shops and corner shops. As of the mid-1970s, only approximately 20% of Warburtons bread sales were through supermarkets (The Grocer 1986). Though they would not begin seriously to threaten the market share of the large bread companies until the 1990s, supermarkets introduced the first ‘in-store’ bakeries in the late 1960s (see below).

Contradictions of the mercantile-industrial food regime

In this section, I outline the tensions arising from the way in which Canada, the CWB, and by extension, prairie farmers were integrated into stable food regime relations. First, Canada-US cooperation proved fragile as changing market conditions and
increasing Canadian sales to communist states eroded conditions of mutual interest between the two countries. Second, the structure of world wheat markets changed dramatically as Europe shifted from major food importer to exporter and Canada lost its ability to segregate the market for high-quality blending wheat. Third, the transformation of the class of prairie farmers implied in the industrialization of agriculture eroded the CWB’s agrarian base of political support.

In the world wheat trade of the mercantile-industrial food regime, communist sales served as Canada’s outlet for disposing of wheat reserves outside of the IWA, whereas concessional sales served the same role for the US. The US tolerated Canadian sales to communist countries in an implicit recognition of the harm caused by its concessional sales under PL-480. The tension inherent in this arrangement was that sales to communist countries were made at (or near) world market prices, and concessional sales at discounted prices. The advantages of this arrangement for the US therefore declined in step with the growth in sales to communist countries. Gradually, this eroded the US’s interest in international price cooperation, and the US opted for expanded market share over price stability.

Under conditions of continuing surpluses during the 1960s, the US had become increasingly frustrated with its inability to obtain a larger share of the world market, especially with increased sales to China and the USSR by competing exporters (Oleson 1979, 111). Canada’s massive sale of wheat to the USSR in 1963 served as a tipping point, reinforcing the disadvantage at which the US had placed itself through laws forbidding trade with communist countries (Morriss 2000, 49). With the USSR’s unprecedented demand for wheat that year, the US, under Kennedy, had been prepared to
make an exception to the embargo and sell up to 4 million tonnes of wheat to the USSR (Morriss 2000, 47). The deal faltered, however, under US shipping regulations specifying that at least half the shipments be made by US vessels. Unwilling neither to absorb the extra cost involved nor to allow US ships into its ports, the USSR turned down the deal with the US, and met much of its needs by purchasing Canadian grain.

By the mid-1960s, the US felt increasingly justified in using export subsidies to increase its market share (Oleson 1979, 113-4). In response to a Canadian sale of discounted lower-grade wheat to China in 1965, the US immediately increased its export subsidies (Morriss 2000, 59). This triggered a string of mutual price cuts and, by the end of the 1965 crop year, the IWA had effectively collapsed, with major exporters selling at well below the prevailing price minimum (Morris 1987, 254). When the IWA officially expired in 1967, Canada attempted to hold the price line by adhering to the terms of the International Grains Agreement (IGA) of 1968, a last attempt at international cooperation (Morriss 2000, 62-5). The pressure to abandon international cooperation was compounded by a glut of grain on the world market caused by record world wheat crops in the late 1960s (Ibid., 64). By 1969, having suffered a sharp decline in market share and a pool account deficit of nearly $40 million, Canada relented and the IGA collapsed (Ibid., 73).

Meanwhile, one of the CWB’s key levers for supporting world market prices was becoming, by the 1960s, an increasing burden on government coffers. The cost of the Temporary Wheat Reserves Act, which paid farmers to store surpluses in times of lower prices, became increasingly unmanageable (Menzies 1971, 13). As the CWB’s ability to

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46 Small quantities of US wheat were sold to the USSR via multi-national grain companies Cargill and Continental (Morriss 2000, 47-48). These sales prefigured a similar scenario to be played out in the aftermath of the landmark US-USSR deals of 1972 (see below).
isolate markets for high-quality milling wheat declined, the financial burden of stockholding therefore became increasingly problematic. It was during this difficult period that the federal government implemented the two-price wheat policy (1967), which set minimum and maximum prices paid by domestic millers and processors for Canadian wheat. Two-price wheat supported CWB prices in the domestic market, and tied the CWB to domestic food processing and milling interests.

Europe’s shift from the world’s principle importer to a net exporter caused a second major structural change to the world wheat trade. European grain production soared under the protection of the CAP (see above), leading to self-sufficiency and exportable surpluses in several commodities by the 1970s (Butler 1986, 32). With the commercial introduction of the CBP, Canadian exports to the UK declined rapidly from the mid-1960s onward (Figure 5.3). Though the UK continued to import a small quantity of Canadian wheat, this shift ended Canada’s historic role as the predominant supplier of milling wheat to the UK. The decline of wheat exports to Europe only intensified Canada’s reliance on new export outlets in Asia and elsewhere.
The introduction of the CBP made Canadian wheat increasingly substitutable, thereby eroding the distinctive edge held by Canadian wheat varieties in relation to competitors such as US hard red winter wheat (Oleson 1979, 112). As a result, Canada could no longer keep the market for high-quality blending wheat isolated from the rest of the world market by withholding stocks. This undermined the price setting behaviours that had dominated since the early 1950s (Ibid., 114). In a reversal of the previous practice, price formation – from the mid-1960s onwards – was based prices for medium-quality wheat, with a premium for high-quality wheat set in relation to the latter (Ibid., 115-7). By pricing its high-quality milling wheat off highly visible US prices, Canada became a price follower instead of a price leader (Ibid., 173). Over time, this reduced...
Canada’s ability to rely on its market power to support international prices, undoing the link between its price-setting behaviour and farm income targets.

Meanwhile, conditions of relative prosperity among prairie farmers masked deep-seated changes to domestic agrofood relations that would also erode the CWB’s role. The pre-eminent role of wheat on the prairies began to decline, as production shifted towards crops used as inputs to emerging, industrial food complexes. Prairie farmers expanded livestock production and shifted towards other crops, especially, those marketed outside of the authority of the CWB such as canola (Figure 5.4). On the prairies, these changes translated into declining wheat acreage, and by extension, the declining importance of wheat in prairie farm income, opening the door for increasing tensions over the CWB’s role.

![Figure 5.4 - Seeded area, wheat and canola, Prairie Provinces, 1945-1970](image)

Source: Statistics Canada, Table 001-0010 - Estimated areas, yield, production and average farm price of principal field crops, in metric units, annual.
Over the same period, the industrialization of agriculture, based on a productionist paradigm of intensification, undermined and transformed the class of family farmers that supported the CWB. As farms applied chemicals, machinery, and new crop varieties to intensified production, farm sizes increased and farm numbers declined (Figure 5.5). The very success of farmers at rationalizing production implied their disappearance, as only the largest and most efficient operations survived. The result has been the concentration of farm land and resources in fewer and fewer hands, a trend already evident in the early 1980s when 25 percent of Canadian farms accounted for 74 percent of total farm sales (Winson 1992, 91). Marketing boards provided market power and some price stability to farmers, but did little to counteract the overall process of rationalization. Even though the CWB exerted a mild form of supply management (e.g., through delivery quotas that allow farmers equal access to available export capacity), which helped improve prices and limit production, it had “only a slight curbing influence on the rationalization of Prairie agriculture” (Troughton 1989, 373). In turn, social and economic differentiation has eroded the political effectiveness and solidarity of family farms as a class (Winson 1992, 92).
Food Regime Crisis: 1973 - present

By the mid 1970s, latent tensions in the mercantile-industrial food regime exploded into full-blown crisis. The triggering event – a massive US-USSR grain deal in 1972 – caused chaos on agricultural markets as well as a global food crisis. The Cold War blockade had been a key condition underpinning stability in the postwar food regime, as it allowed the US to accumulate and dispose of its grain surpluses behind the dam (Friedmann 2005, 244). In turn, this was a condition of the US’s ability to use its surpluses as an instrument of foreign policy and economic power. The end of the Cold War dam cleared world grain surpluses, at least temporarily, sending food prices soaring.
Food aid – premised on mutually complementary goals of surplus disposal and political influence in the Third World – dried up in the aftermath.

Even as the acute crisis passed, the conditions of stability of the previous food regime did not return, as once implicit rules and relations became the object of overt conflict (Friedmann 2005). The result has been a long-term crisis of food regime relations marked by increasingly destructive competition among exporters, a legitimacy crisis for state-led regulation of agriculture and food sectors, the consolidation of corporate power in agrofood commodity chains, and new forms of farm and food politics. In this section, I describe how the crisis of food regime relations since 1972 has expressed itself in the transformation of the prairie wheat economy and the UK food sector.

**Crisis of the prairie wheat economy**

The single-desk CWB had helped Canada adapt to the mercantile-industrial food regime by assuring Canada’s place in world markets for wheat structured by US hegemony, interstate cooperation, and the Cold War blockade. The crisis of the mercantile-industrial food regime was therefore no less a crisis for the CWB. The CWB entered the decade of the 1970s facing a much more competitive international environment, the end of its role as the dominant supplier of high-quality milling wheat, and growing differentiation among farmers. This placed increasing strain on the postwar consensus linking the state and a relatively united farm lobby in a set of institutions – of which the CWB was the centrepiece – regulating Canada’s role in world markets for wheat. By the 1980s, major exporters and domestic governments embraced neoliberal ideals of free trade and deregulation that have posed contradictions for the CWB. On the
one hand, Canada and the CWB advocated for freer trade in agriculture, hoping for an end to aggressive European and US export subsidies that severely depressed grain prices. On the other hand, neoliberal restructuring began to undermine the institutional structure of prairie agriculture -- which had complemented the role of the CWB -- and increased domestic and international pressure to end the CWB’s monopoly.

The US-USSR wheat deal caused a seismic shift in world wheat markets that changed conditions of competition for the CWB. Following smaller purchases from Canada, Australia, and France in 1971, the USSR entered the world wheat market in 1972 with a huge demand for wheat. As part of the US’s foreign policy shift towards détente, the Nixon administration relaxed government rules forbidding sales to the USSR. By July 1972, the US and the USSR had concluded a three-year deal for over $750 million of grain, accounting for nearly one-third of the US’s exportable surplus (Morriss 2000, 113). The deal sent wheat prices soaring, causing fear of inflation and rising food costs. As domestic wheat prices in the US rose, so did the cost of export subsidies, which were designed to cover the difference between the domestic price and a competitive export price (115). Under mounting financial pressure, the US ended the export subsidy program in September, 1972. In the immediate aftermath of the US-USSR grain deal, the CWB enjoyed a reprieve from the price-depressing effects of the US export subsidy, and was able to dramatically reduce its surplus (Morriss 2000, 117). However, these events ushered in a period of increasing price volatility and competition that posed major challenges for Canada as a second-tier exporter.

Assuming the end of the problem of surpluses, the US encouraged expanded agricultural production and increased export subsidies during the 1970s. By the time
surpluses returned in the 1980s, the US was dependent on ever-more costly export subsidies to maintain market share, and surpluses had become a liability instead of an asset (Friedmann 1993, 42). Major agricultural exporters began to reframe food aid as ‘dumping’, and export subsidies became more contentious. By the 1970s, the EC had become an exporter in its own right, and by the 1980s, the EU and the US were locked in a costly conflict over competing export subsidies (Friedmann 2005, 246). Unable seriously to compete with the deep pockets of the EU and the US, Canada and other smaller, less powerful exporters pressed for an end to so-called ‘trade distorting’ subsidies (Ibid.). The Cairns group, as it came to be called, included Australia, Argentina, and Canada, whose share of grain markets was battered, during the 1980s, by subsidies under the US Export Enhancement Program (EEP) (Schmitz and Furtan 2000, 71-3).

Under conditions of increasing trade conflict in the 1980s, the leading Northern agro-exporters agreed that agriculture be brought under the purview of international trade rules via its incorporation into the GATT. For the US and the EU, bringing agriculture into the GATT would purportedly allow a means of ending mutually destructive competition over export subsidies. Meanwhile, members of the Cairns group sought a ‘level-playing’ field on which smaller exporters could compete against the EU and the US. The inclusion of agriculture thus became one of the principle goals of the Uruguay Round of GATT negotiations (1986-1994), which culminated in the creation of the World Trade Organization (WTO). Paradoxically, the implementation of free-trade in agriculture through the WTO and regional trade agreements has only heightened conflicts among world exports, including political conflicts over the CWB’s single-desk (Ch. 6).
The conditions of market volatility brought on by the crisis of the mercantile-industrial food regime intensified domestic political conflicts over the CWB. Canadian farmers, like those in the US, had expanded production, during the 1970s, based on heavy borrowing. The return of surpluses and subsequent price collapse of the 1980s caused a financial crisis for many farmers. With farmers caught between increasingly powerful agribusiness corporations on both the input and output sides of agriculture, farmers increasingly faced the ‘cost-price squeeze’ of depressed prices and increasing input costs (Mitchell 1975, 18-21). The conditions of the 1980s culminated in the chronic income crisis from which prairie farmers have yet to fully escape (Figure 5.6). Longstanding processes of rationalization also led to increasing farmer differentiation, as an increasing share of farm receipts went to a smaller and smaller pool of large, efficient, and sophisticated farm operators. Each of these conditions undermined the basis of farmer support for the CWB, as faith in the ability of governments to regulate agriculture to the benefit of prairie farmers declined. The first forms of organized opposition to the CWB emerged in 1970, with the formation of the Palliser Wheat Growers Association on a platform of transportation reform and open marketing (Fairbairn 1984, 214-5). Later to become the Western Canadian Wheat Growers Association (WCWGA), the organization has led domestic opposition to the CWB. The WCWGA found support among business-oriented farmers who embraced neo-liberal ideals of market efficiency and distrust of government intervention.
Source: Statistics Canada, Table 002-0009 - Income of farm operators from farming operations, annual.

Just as farmers faced greater price volatility, increased international competition, and continued farm rationalization, policy-makers began to re-imagine the role of governments in agriculture. In Canada, these changes were first expressed in the landmark Task Force on Agriculture of 1970, which reframed the problems of agriculture as questions of efficiency and competitiveness, and called for a vastly reduced role of governments in supporting small and medium producers (Department of Agriculture 1969). Though elimination of the CWB’s single-desk was not on the agenda, the Task Force report symbolized, for Canada, the beginning of the neoliberal restructuring of agriculture.
The rationalization of Canada’s export-oriented grain transportation system became a focal point over the 1970s and 1980s, culminating with the elimination of statutory freight rates by the mid-1990s. Statutory rates had been introduced in 1897, under the Crow’s Nest Pass agreement, in response to farmer demands, and had served as a key condition of the opening of the West for wheat exports (see Ch. 4). By the 1970s, however, rail companies began to exert pressure on the federal government to overhaul the system, as the Crow rate covered a decreasing proportion of actual freight costs (Schmitz and Furtan 2000, 164). The government introduced piecemeal reforms in the 1980s, in the form of a subsidy to the railways in order to cover the difference between the Crow rate and actual freight costs. In the 1990s, the system would be completely abolished under the auspices of North American free trade (Ch. 6).

As, one by one, key institutions of government regulation of agriculture from the mercantile-industrial food regime were dismantled, the CWB’s single-desk increasingly became the focus of debates over the future of prairie agriculture. For those supportive of the CWB, the single-desk represented the last major post-war institution providing a concrete advantage to prairie farmers. For opponents of the CWB, the single-desk represented the last obstacle in the wholesale restructuring of the prairie grain industry. Despite these early manifestations of growing farmer discontent, the real test of the CWB’s existence would not emerge until the 1990s. As described in Chapter 6, growing farmer discontent combined with increasing international pressure, via the implementation of free trade policies, to heighten conflicts over the single-desk.
**Transformation of the CWB: 1970s**

Faced with a crisis in the role it had come to play in the previous food regime, the CWB embarked on a major transformation, during the 1970s, by adopting a new commercial orientation. Abandoning its old strategy of pursuing particular price targets through international wheat agreements and stockholding, the CWB focused on increasing sales and creating demand for new products. The result of this transformation was for the CWB to consolidate its role as a supplier of a larger number of quality-differentiated, branded products. To this end, centralized marketing (through the single-desk) and quality control proved useful, as the CWB and other public institutions of the Canadian grain worked cooperatively in a ‘Team Canada’ approach to capturing limited premium markets (Oleson 1999). In particular, centralized marketing and quality control helped achieve a coherent strategy for product development and branding, allowing prairie farmers to benefit from investments in new markets and a unified Canadian brand reputation. In this way, the single-desk mechanism was adapted to new food regime conditions.

The turmoil of the late 1960s and early 1970s prompted the Canadian government to review its grain marketing policy, particularly the role of the CWB. Several changes provided the rationale for the review. Canada’s pre-eminence as a supplier of high-quality milling wheat was declining as competing exporters began to offer hard milling wheat of comparable quality. Canada had recently experienced record surpluses because of bumper crops in the late 1960s, prompting the government to implement a

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47 There are strong parallels between both the circumstances and substance of this transformation and that of other state-marketers, particularly the New Zealand Dairy Marketing Board (NZDB). In the 1970s, the NZDB responded to the end of its historic preferred market relationship with the UK in a program of organizational and institutional change focused on market differentiation, new products, and branding (Gray et al. 2007, 9-10). Further changes to the NZDB in the 1980s and 1990s, including organizational restructuring and governance changes offer other apt comparisons of the CWB’s more recent transformation (Ch. 6).
controversial acreage reduction programme called operation LIFT (Lower Inventories For Tomorrow) (Morriss 2000, 86-90). At the same time, policymakers were beginning to realize that Canada’s strategy of withholding stocks in order to support prices was imposing significant costs on the government and farmers both (Menzies 1971, 21).

Based on these considerations, the Menzies report of 1971 recommended a major shift in the role and strategy of the CWB. Overall, the report urged the CWB to become more ‘market oriented’ by changing its selling strategy and re-orienting itself towards end-users. The key change required a shift away from stockholding towards more competitive pricing. Historically, the CWB had treated grain production and inventories as separate questions from that of marketing: “the general assumption was that there would be a need somewhere for everything that could be produced” (Menzies 1971, 21). This had been a sound policy when Canada could corner the market on high quality milling wheat, but when this advantage was eroded, stockholding had begun to impose huge costs on the system (Menzies 1971, 23).

In effect, the report acknowledged that the CWB’s role in maintaining prairie farm income had become increasingly ineffective as the CWB could no longer match its price-setting and stockholding behaviour to specific farm income targets. The report outlined three major changes to be made to CWB selling strategy. First, new competitive market conditions meant that the CWB would henceforth have to focus on moving excess grain, when necessary even by discounting high-quality milling wheat. Second, the CWB’s sales strategy needed to become much more sensitive to the substitutability of high-quality milling wheat, depending on market conditions (Menzies 1971, 36). Third, a more competitive selling strategy required putting an end to pricing transparency, i.e., the
CWB’s practice of publishing its prices daily. This would allow the CWB to undercut US prices, when necessary, in order to sell more competitively (Oleson 1979, 183).

The new strategy outlined in the Menzies report – to be implemented over the next few years – implied a major shift in federal agricultural policy. Even though it was recognized that the CWB helped prairie farmers exact higher returns from world markets, the single-desk mechanism could no longer be relied on to solve the farm income problem. To make up for the vacuum created by the CWB’s inability, on its own, to maintain farm incomes, the Menzies report recommended a separate federal government farm income stabilization scheme (Menzies 1971, 27). The first such programme was introduced, after three years of contentious debate, in 1974 (Morriss 2000, 91-99). Since that time, income stabilization schemes and special aid packages -- called upon to bail out a grains sector chronically in crisis -- have been a mainstay of federal agricultural policy (Skogstad 2007, 36).

The second set of changes outlined in the Menzies review was the need for the CWB to re-orient itself towards meeting the more exacting specifications of customers. These more sophisticated quality requirements arose from the adoption of new baking and milling technologies, especially the CBP. As the CBP reduced European millers’ reliance on imported hard milling wheat, buyers became much more particular about the smaller quantities of high-quality wheat they required (Menzies 1971, 14). Specifically, millers had come to rely on protein grading\(^{48}\) to calculate precise proportions of imported and domestic wheat to use in their grists. Because, historically, Canadian wheat had been

\(^{48}\) Here a sample of grain is assigned a protein level as a percent of the grain’s weight to distinguish it from grain of the same end-use (e.g., bread milling wheat) and grade (e.g., No. 1, No. 2, etc., referring to dimensions of grain quality such as cleanliness, freedom from foreign material, soundness of individual kernels).
non-substitutable, the CWB had lagged behind other countries in adopting protein grading (Menzies 1971, 13). In effect, up until this moment, buyers of Canadian grain could assume that its top-grade bread milling wheat was the highest-protein grain available on the world market. Since this no longer held true, the Menzies report recommended that Canada move immediately to implement protein grading – as the US and Australia had already done – in order better to respond to shifting customer requirements (Ibid., 30-1). Under a wider restructuring of wheat classes, protein grading was implemented in 1972 (Morris 2000, 99).

As part of the new commercial direction implemented as of the early 1970s, the CWB pursued a more coordinated approach to market development. To this end, the Canadian International Grains Institute (CIGI) was founded in 1972, with funding from both the CWB (i.e., farmer revenue) and the federal government. Recognizing that, because of average distance to port, Canada would never be a low cost wheat producer, CIGI was envisioned as a means of further developing Canada’s quality reputation and linking it to a premium branded product (Interview 035). The Institute combines applied research (in an in-house pilot test-bakery) and customer seminars used to promote Canadian wheat and barley products. CIGI seminars, begun in 1972, involve intensive programs (some lasting several weeks) for prospective overseas buyers, including in-depth sessions on the functioning of the CWB, the grain industry, as well as more specific information on product properties. CIGI has been crucial for helping to introduce new wheat and barley varieties with end-uses designed to satisfy emerging markets, e.g., the soft winter wheat for Asian noodle manufacture in the 1980s.
The last key innovation of the era was the shift towards centralized supply chain coordination by the CWB, in cooperation with other grain industry actors. As Canada moved towards a more aggressive commercial role involving large deals with key buyers, the CWB and other grain industry actors developed a ‘block shipping’ system allowing grain shipments to be closely coordinated with sales and customer requirements (Oleson 1999). This change marked the shift from a ‘push’ to a ‘pull’ system in grain shipping, where grain movement would be driven by the CWB sales program. This was particularly important in Canada’s constrained rail transportation system, where a small number of carriers ship along a single east-west corridor. The transition to block shipping required close cooperation among grain industry actors and developed new capacity in supply chain coordination for the CWB. Henceforth, the CWB would play a much larger role in coordinating grain movement from countryside to port position.

The innovations of the early 1970s – the CWB’s more commercial orientation, concerted market development efforts, and early branding initiatives – foreshadowed the changes to come. First, the CWB was early to anticipate the importance of country and product branding. Recognizing that Canadian wheat could no longer dominate the high-quality wheat market on its distinctive milling properties alone, the CWB and other grain industry actors moved to promote Canadian wheat on the basis of product consistency, cleanliness, and the level of service provided by the CWB. Canada’s ability – along with other single-desk sellers like Australia – to develop a differentiated product depended on the relatively centralized system of quality control (the Canadian Grain Commission), single-desk selling (the CWB), and market development (CIGI) (Steers 1990, 12-13). Working together in a coordinated capacity, these public institutions ensured that the
benefits of market development and branding accrued directly to prairie farmers. Second, these changes prefigured the increasingly exacting specifications that would emerge in the 1990s, when new quality conventions would be developed to serve niche markets (Ch. 6). Third, the CWB’s close involvement in supply chain coordination would prove to be a major benefit when, in the 1990s, it implemented new forms of privately regulated supply chains for prominent buyers such as Warburtons (Ch. 6).

Crisis of the UK food sector: supermarkets, in-store bakeries, and bread as a loss leader

The relatively stable configuration of practices and relations underpinning the growth of the UK food market was undermined by the conditions of the 1970s and 1980s. By the 1970s, cracks were appearing in the productivist and state-centred model of food and agriculture regulation in the UK, reflecting the ascendance of new actors and interests in the food system. Supermarkets overtook the giants of food manufacturing/processing as the leading actors in the food system, with increasing economic power and influence over industry supply chains. The rise of supermarkets, in turn, reflected changing consumer demands and shifting food politics, where consumer interests – especially in light of inflation and recession – began to eclipse those of farmers. As the UK faced fiscal deficits, political discourse shifted sharply to the right in the neo-liberal ethos of the Thatcher era, calling into question the state’s role in regulating agriculture and food. Food safety crises in 1980s and 1990s compounded the state’s crisis of legitimacy, paving the way for the ‘private interest regulation’ of the food sector, led by supermarkets (Marsden and Wrigley 1996, 33). These changes help contextualize the crisis faced by bread manufacturers by the end of the 1980s, especially
that posed by the introduction of in-store bakeries, rising supermarket power, and price wars.

**The rise of supermarkets**

Over the 1970s and 1980s, UK supermarkets surpassed the major food manufacturing firms in power, influence and profitability. The rise of the supermarket sector was such that by the 1980s, there had emerged a small group of retailers “whose turnover, employment levels, profitability, and sheer market and political power came to rival the largest industrial corporations in any sector of the UK economy” (Marsden and Wrigley 1996, 33). Government actions (in some cases, inaction) played a key role in supermarkets’ spectacular rise, and reflected the growing influence of the retailer-consumer nexus over food manufacturers and farmers. By the 1980s, the political clout of the farm lobby was in serious decline, as farm numbers fell and the economic importance of the sector diminished (Marsden and Wrigley 1996, 39). Corporatist relations between farmers and the state became increasingly strained as deficit politics called into question state support for agriculture and growing consumer and environmental awareness increased critical public scrutiny of productionist (i.e, intensive, industrial) agriculture. By contrast, the rise of supermarket power was interpreted favourably through the lens of neo-conservative ideology as “the embodiment of Thatcherite free-market growth” (Marsden and Wrigley 1996, 39).

The conditions for supermarket ascendance were put in place by the UK government during the 1960s and 1970s. First, it removed a key obstacle to the exercise of retail market power by abolishing ‘resale price maintenance’ (RPM) (see above), marking the reversal of decades of government policy. Major retailers of the day waged
a successful political campaign against RPM, succeeding in having pricing restrictions repealed in the Retail Sales Act of 1964 (Burch and Lawrence 2007, 105). These changes were mirrored in the bread sector with the end of intermittently direct and indirect state regulation of bread and flour prices at the end of the 1970s (see below). Second, a permissive interpretation of anti-trust laws opened the way for increasing concentration among the country’s top retailers (Marsden and Wrigley 1996, 34). The Monopolies and Mergers Commission and the Office of Fair Trading conducted reviews of industry concentration in the late 1970s and 1980s, but neither review found retailer concentration or commercial practices to warrant government intervention (Flynn et al. 1994, 93-4). Industry concentration increased over the 1980s, with the share of the market controlled by the top five firms increasing from 43% in 1984 to 61% in 1990 (Flynn et al. 1994, 92).

By facilitating supermarket concentration, state policy favoured a successful economic sector and helped to keep food prices relatively low in difficult economic times. As industry concentration increased, supermarkets exercised their oligopsonistic buying power to buy more cheaply from their suppliers (including food manufacturers), in turn passing some of the cost savings onto consumers. Though the UK experienced increasing unemployment and run-away inflation in the mid-1970s and into the 1980s, food remained relatively cheap. Compounded by the oil and food shocks of 1973-4, annual inflation reached 24% in 1975 (O’Donahue, McDonnell and Placek 2006) and unemployment reached 12% by 1983 (Burnett 1989, 300). Although food prices climbed slightly more rapidly than the Retail Price Index (RPI) during the 1970s (O’Donahue et al. 2006, 41), food expenses as a proportion of total household expenses
continued to decline as they had throughout the postwar decades, reaching 20.2% in 1985 (Burnett 1989, 302).

The increasing influence of supermarkets over the 1970s and 1980s led to a significant re-ordering of power relations in the UK food supply chain. Given their extraordinary buying power, supermarkets succeeded not only in obtaining lower prices from suppliers, but developed new forms of control over upstream actors (especially food manufacturers). Using new information technologies designed for sophisticated inventory coordination and tracking, supermarkets imposed on food manufacturers new supply conditions that conformed to retailer distribution systems, passing the risks and costs associated with inventory holding onto upstream actors (Marsden and Wrigley 1996, 35). Retailers also assumed more control over production standards, quality, product innovation and design, especially as a result of the expansion of ‘own brand’ lines (Foord et al. 1996, 87), which became a key commercial strategy of supermarkets (Burch and Lawrence 2005). UK supermarkets introduced own brands in the early 1960s in order to circumvent RPM, since own brand products were not subject to the pricing restrictions imposed on branded goods (Burch and Lawrence 2007, 105). By offering an increasingly wide array of own brand products, supermarkets forced manufacturers of nationally recognized brands to compete for shelf space. Furthermore, own brands allowed supermarkets to exercise tighter control over product design and food quality, thereby increasing control over upstream food manufacturers. Own brand products were produced both by smaller manufacturers specializing in their production as well as by established food manufacturers producing both branded and own brand products (Burch and Lawrence 2007, 106). As a consequence of both their extraordinary economic power
and the rising popularity of own brands, supermarkets had, by the 1980s, revolutionized supply chain power relations.

**Regulating agriculture and food: the UK experiment with ‘private interest’ regulation**

Supermarket power coincided with changing government imperatives for regulating agriculture and food in the UK. By the 1980s, the farmer-centred corporatist approach to agriculture and food was in crisis. In place of the farmer-driven politics of the mercantile-industrial food regime, consumer-driven politics increasingly occupied the attention of political actors and key state agencies (the Ministry of Agriculture, Fisheries and Food [MAFF]). At the same time, neo-conservative governments sought to transfer key aspects of state oversight of the food system to private actors, notably the large food retailers. The result is a form of ‘private interest’ regulation in which supermarkets are the lead actors in constructing as well as safeguarding consumer rights, framed as the ‘right to consume’ (Marsden and Wrigley 1996). With the crisis in government regulation of the food sector, food safety and quality became a value marketed by food retailers in their competition for market share, rather than a public good guaranteed by government (Marsden et al. 1994, 118).

The shift towards private interest regulation of the British food sector emerged from a two-pronged crisis of legitimacy facing government regulation in the 1980s. First, neo-conservative free-market discourses portrayed government regulation as excessive and inefficient. In the agriculture and food sector, this resulted in a deep antipathy between the Thatcher Conservatives and the National Farmers’ Union that undermined the traditionally close relationship between farmers and the MAFF (Marsden et al. 1994). As a result, the MAFF increasingly drew away from its corporatist relationship with
farmers and towards consumers during the 1980s. Second, food safety scares of the
1980s and 1990s severely eroded confidence in public regulation of the food supply. In
its response to ‘mad cow disease’ (Bovine Spongiform Encephalitis, or BSE) and
salmonella outbreaks of the late 1980s, the MAFF downplayed the risks to human health,
even in the absence of strong evidence that the food supply was safe (Marsden et al.
1994, 118). In the aftermath, retailers distanced themselves from the food crises by
implementing their own, private quality guarantees. In this way, guarantees of food
safety and quality became increasingly commoditized, a product dimension marketed by
the large food retailers.

The crisis of legitimacy in the UK food sector produced a new regulatory regime -
- embodied in the Food Safety Act (FSA) (1990) -- that assigned a leading role to private
actors, especially supermarkets. Framed in a neo-conservative discourse of market
efficiency, the FSA enshrined new principles of industry-led regulation designed not to
‘overburden’ the market (Marsden and Wrigley 1996, 40). The FSA placed the
predominance of responsibility for food safety on the due diligence to be exercised by
food retailers, thereby conferring on them a new ‘custodial role’. Much as the
Agriculture Act of 1947 had established corporatist ties between farmers and the state in
the mercantile-industrial food regime, the FSA provided the “statutory legitimation of
[retailers’] leading and directive role” vis-à-vis food regulation (Ibid., 40). As a result of
the FSA, retailers would henceforth play a key role in constructing as well as
safeguarding consumer interests (Ibid., 43). The shift towards ‘private interest
regulation’ of the food chain opened the way for retailers and food manufacturers
increasingly to differentiate their products on the basis of quality, health, and food safety
claims. In the bread sector, this shift was expressed in the drive towards premiumisation, with growth in bread sales led by premium, organic, and ‘healthy’ bread lines.

**Crisis of the UK bread sector**

In the UK bread sector, rising supermarket power during the 1970s and 1980s led to the declining power of plant bakers *vis-à-vis* retailers, downward pressure on prices, and increasing competition from own brand bread and in-store bakeries. Together these conditions generated a crisis in the British baking industry, the response to which included the ‘premiumisation’ of the sector, led by Warburtons (Ch. 6). During the 1960s and 1970s, three leading players – British Bakeries, Allied Bakeries and Spillers – competed fiercely for market share in the bread sector, still dominated by the market for standard wrapped white bread (Bowlby, Foord and Tillsley 1992, 143). By the end of the 1970s, increasing supermarket power was transforming the sector.

Government attempts to regulate food prices during the UK’s 1970s inflation crisis (which coincided with oil and food shocks) led to increasing conflicts between retailers and bread manufacturers. The government imposed tight controls on bread and flour prices beginning in 1972, and in 1974, it introduced a bread subsidy (a reincarnation of war-time policy) paid to bakers and meant to limit price increases for bread (MMC 1977, 46). The same year, the government imposed a statutory reduction in gross margin reference levels of 10% on food retailers, also as an anti-inflationary measure. Retailers used losses in the bread sector to absorb a large proportion of the reduction in allowable margins, which put considerable pressure on bakers to provide discounted bread. When a discount war among the bakers ensued, the government imposed restrictions on the level of discounts bakers could offer, which remained in effect between 1975 and 1977. In
early 1977, however, the provision limiting these discounts was removed, opening the door once again to fierce competition among the large plant bakers over discounts provided to the major retailers (Ibid.).

From the late 1970s onwards, supermarkets thus increasingly relied on their market power to use bread as a loss leader – a cheap staple product used to increase traffic through stores. With most bread sales made through a small handful of very large retailers, supermarkets exerted downward price pressure on their suppliers in order to cut retail bread prices (Bowlby et al. 1992, 143). By the late 1970s, declining profit margins for the large plant bakeries led to industry crisis, with the exit of Spillers (one of the ‘big three’) from the market in 1978 and significant industry rationalization, including job cuts and plant closures (Ibid.). Another price war ensued in the early 1980s, when plant bakers – facing serious over-supply caused by increasing production in in-store bakeries – began providing supermarkets with standard bread at discounts of up to 30% (Churchill 1982).

In the 1980s, retailers led the way in shaping and responding to changing patterns of demand for bread products. Though plant bakeries pursued some forms of product innovation during this period (see below), they were generally ill-positioned to take advantage of the diversification of bread consumption given their heavy reliance on standardized ‘high-volume’ products. As part of the shift towards consumption of ‘authentic’, high-quality, and ethnic foods, consumption of specialty and artisanal breads increased (Bowlby et al. 1992, 143). Because most of these new bread types were not amenable to industrial plant baking, supermarkets typically sourced these new products from smaller, independent regional bakers (Ibid.). Plant bakers would remain at a
disadvantage until the 1990s, when the ‘standard loaf’ itself became subject to rapid product proliferation based on health, environmental (i.e., organic), and quality claims defining niche market segments (Ch. 6).

Meanwhile, the increasing importance of health concerns in consumer food choices drove changing consumption patterns, calling into question the post-war resolution of the question of bread nutrition, i.e., fortified white bread. In 1984, a government report on the health benefit of dietary fibre put renewed focus on the nutritional shortcomings of white bread (Maslowska 1991). Brown bread consumption rose sharply after the release of the report, driving growth and renewed competition in this segment of the market. Hovis (a British Bakeries brand) had dominated the market until the early 1980s, when Allied bakeries entered the field with their own brand, VitBe, which had a softer texture more closely resembling white bread (Maslowska 1991, p. 71). The trend in brown bread consumption was short-lived, however, as the industry devised a way to deliver more fibre in white bread. The beginning of the end came in 1986 with Allied Bakeries’ introduction of softgrain white bread, which contained significantly more fibre than ordinary white bread (Ibid.). The softgrain white bread market, which surged in the late 1980s, foreshadowed the return of white bread, and the premiumisation of the sector that was to follow in the 1990s. Paralleling wider trends in the manufacture and marketing of ‘health’ foods (Pollan 2008), the bread sector shifted from the paradigm of ‘fortification’ (in which the state guarantees minimum levels of basic nutrition) to that of ‘nutrification’, in which health claims are based on the presence or addition of single nutrients (e.g., fibre, omega-3 fatty acids, etc.) (Whitley 2006, 35-6).

49 When in 1983, the Thatcher government implemented new Flour and Bread Regulations that ended mandatory flour fortification, the ensuing uproar led the government to reinstitute fortification the next year (Collins and Oddy 1998, 452).
Two retailer innovations – own brand bread and in-store bakeries – would radically transform the bread sector over the 1980s. As the range of supermarket own brand products of all kinds proliferated, supermarkets introduced own brand bread products in the early 1980s. In 1983 alone, leading supermarket Tesco launched 60 own brand bread products (Marketing Week 1983). Much as with other food products, traditional bread manufacturers – in this case, Allied Bakeries and British Bakeries – became involved in producing supermarket own brand products alongside their flagship, national brands. The popularity of own brand bread, largely due to its rock-bottom prices, increased throughout the decade. By 1989, own brands accounted for 41% of the wrapped bread market by sales (Marketing 1989). The growth of the own brand bread market posed a dilemma for the large bread manufacturers, benefiting them to the extent that they were the major suppliers of own brand bread to supermarkets, but also driving bread prices lower and competing with the plant bakers’ nationally established brands.

In-store bakeries were the other key retailer innovation of this period. In the highly competitive environment of the 1980s, supermarket chains used in-store bakeries and other new fixtures (butchers shops, delicatessens, etc.) to differentiate themselves from other chains. Safeway was the first supermarket to install an in-store bakery, in 1968, while Tesco followed in 1969, and Sainsbury’s in 1973 (The Grocer 1989; Maslowska 1991). The real take-off occurred during the 1980s, with the number of in-store bakeries increasing from 621 in 1984, to over 1000 by 1990 (Supermarketing 1988 and Oct. 11, 1991). By the early 1990s, most supermarket outlets for each of the major chains contained in-store bakeries (Table 5.2) and bread from in-store bakeries accounted for approximately 20% of the market (Supermarketing 1992).
Table 5.2 – In-store bakeries in UK supermarkets, 1990

<table>
<thead>
<tr>
<th>Supermarket chain</th>
<th>Number of in-store bakeries</th>
<th>Percentage of total stores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safeway</td>
<td>255</td>
<td>84%</td>
</tr>
<tr>
<td>Tesco</td>
<td>220</td>
<td>58%</td>
</tr>
<tr>
<td>Sainsbury’s</td>
<td>216</td>
<td>74%</td>
</tr>
<tr>
<td>Asda</td>
<td>184</td>
<td>90%</td>
</tr>
<tr>
<td>Gateway</td>
<td>100</td>
<td>14%</td>
</tr>
<tr>
<td>Presto</td>
<td>50</td>
<td>24%</td>
</tr>
<tr>
<td>Total</td>
<td>1025</td>
<td>48%</td>
</tr>
</tbody>
</table>


As with own brand bread, the phenomenal growth of in-store bakeries also had mixed implications for large bread manufacturers. Vertically integrated milling and baking companies such as Allied and British Bakeries were able to capture some of the added-value from in-store bakeries by supplying supermarkets with specialized flour mixes and doughs used in ‘bake-off’ production. Yet, offering a large range of ethnic, specialty, and ‘artisanal’ bread, in-store bakeries nonetheless posed a challenge to the major plant bakers. Under conditions of stagnant bread consumption, in-store bakeries further segmented the market, leading to declining market share for standard wrapped bread. However, in-store and standard wrapped bread responded to somewhat distinct consumer needs, the former for ‘fresh’, higher-quality bread for weekends or special occasions, and the latter for daily consumption at breakfast or in sandwiches. Even as they lost market share to in-store bakeries, bread manufacturers therefore benefited from the increasing attention brought to the bread sector. Indeed, in the late 1980s the value of the bread sector as a whole was increasing, even though sales volumes remained steady, as consumers shifted to higher value products (Table 5.3). In the 1990s, this would lead

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50 In-store bakeries come in essentially two formats, bake-off and scratch production. In scratch production, bread and confectionary products are produced fresh from basic ingredients whereas in bake-off production, bread and other products are baked starting with unbaked or partially baked frozen dough. Scratch production units tended to be installed in larger format supermarkets, whereas bake-off units in smaller locations.
the plant bakers aggressively to pursue the development of premium lines of wrapped, sliced bread (Ch. 6). This premium market would be defined, on the one hand, by expensive varieties of sliced, white bread marketed on the basis of superior consumption qualities, and, on the other hand, by the proliferation of new health- and environmentally-oriented products. These changes in the bread sector mirrored wider changes in food consumption, as the standardization of diets over the mercantile-industrial food regime gave way to increasing differentiation and fragmentation of diets, often across class-lines.

Table 5.3 - Value of the UK bread market, 1986-1990

<table>
<thead>
<tr>
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<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Millions of £</td>
<td>1 757</td>
<td>1 794</td>
<td>1 915</td>
<td>1 975</td>
<td>1 994</td>
</tr>
<tr>
<td>% change over previous year</td>
<td>-</td>
<td>2.1</td>
<td>6.7</td>
<td>3.1</td>
<td>1.0</td>
</tr>
</tbody>
</table>


Conclusion

The CWB’s unique role in the mercantile-industrial food regime depended on its dominance in markets for high-quality milling wheat. This position was a legacy of the UK-centred food regime, during which wheat quality came to be defined by industrial conventions in which Canada had both geographical/biophysical (i.e., protein levels) and socially constructed (i.e., the centralized marketing and quality control system) advantages. On the one hand, this advantage underpinned Canada-US cooperation on pricing, in turn the foundation for the stability of successive IWAs. Canada-US wheat relations, which combined Canadian market power with US economic and political leadership, were stable as long as the US could not directly compete with Canada for premium markets. When Canada’s distinctive edge in these markets declined, the incentives for Canada-US cooperation dissipated, and a new era of export competition
began. Meanwhile, Canada’s historic dominance in exports of high-quality milling wheat to Europe had given the CWB the market power it needed in order to match prices with domestic farm-income targets. As European demand declined and Canadian wheat became increasingly substitutable, the CWB’s role in maintaining farm incomes also declined.

By the time of the crisis of the mercantile-industrial food regime, the strategies of adaptation – for farmers and Canada – involved in the operation of the CWB were losing their effectiveness. The radical restructuring of world markets for wheat led to the loss of Canada’s dominant role in markets for high-quality milling wheat, which undermined the basis for multilateral cooperation and Canada-US price coordination. In turn, the CWB mechanism became increasingly ineffective at maintaining domestic farm income targets, as farmers were subjected to a new era of price volatility, increasing input costs, and financial crisis. The CWB’s reinvention, during the 1970s, was to pursue a new strategy of market development, branding, and quality differentiation that would adapt the collective marketing mechanism to a principally commercial role. While this adaptation provided an advantage to farmers, continued farmer differentiation, chaos in world markets, and neoliberal restructuring would culminate in a more serious crisis for the CWB by the 1990s.

I have used changes to the UK bread sector as a lens on changing forms of food production, state regulation, consumption patterns, and food politics during the mercantile-industrial food regime of 1945-1972. During this period, the UK shifted decisively away from its strategy of free trade and food import dependence of the previous food regime, marking the beginning of a drastic decline in the Canada-UK
wheat trade. The UK increased domestic agricultural production and invested in food science research designed to reduce millers’ dependence on hard wheat. By the 1960s, these efforts were beginning to bear fruit, as British millers were able to substitute domestic wheat into milling grists and still obtain – given an infusion of new chemical additives – the desired bread characteristics. More sophisticated baking processes required a more precise calibration of the mix of hard and soft wheats in milling grists, leading millers to make increasingly exacting demands of wheat suppliers for different dimensions of wheat quality.

Meanwhile, the transformation of bread into a fully industrialized food product reflected the rise of the durable food complex, driven by the ascendance of large, vertically integrated food manufacturing corporations. New methods of bread production, on the one hand, eliminated the time required for dough fermentation (perhaps the last hold-over from artisanal production), and, on the other hand, added a number of chemical dough improvers and conditioners. With changes to the chemical composition of bread, manufacturing became more efficient, and the natural perishability of bread was reduced, allowing it to be distributed and sold over larger spans of space and time. Britain’s milling and baking interests became vertically integrated and the bread sector was dominated by only three major firms selling branded products through their own retail outlets and, increasingly, in supermarkets.

Finally, the story of bread tracks state regulation of food safety, nutrition, and prices in the UK. After the end of war-time food controls, the state and influential private actors (the milling and baking industries) reached a new consensus on bread nutrition in the policy of fortification. This policy reconciled the state’s role in guaranteeing basic
levels of nutrition with the commercial imperatives of the baking and milling industries in responding to consumer demand for white bread. Meanwhile, the state regulated bread prices in one form or another as a part of a cheap food policy and limited the market power of food retailers through Resale Price Maintenance. Comprehensive state legislation over food additives and composition established public guarantees of food safety, not seriously called into question until the 1980s.

Each of these features of the mercantile-industrial food regime in the UK was called into question by the 1980s. The UK’s productivist alliance collapsed with the ascendance of neo-conservative governments in the 1970s. State support for agriculture declined, and consumers’ interests became more prominent with food safety scares and increasing health consciousness. Under the Food Standards Act, the UK implemented a new form of private interest regulation of the food sector, foreshadowing the broader shift towards privately guaranteed food standards theorized in the economy of qualities thesis. During the same period, the rise of a handful of powerful food retailers eroded the influence of major food manufacturers. The UK bread sector entered a period of crisis, beset with the combined pressures of market segmentation resulting from supermarket in-store bakeries, the introduction of ultra-cheap own brand bread lines, and the ability of the retailers to demand deep discounts of their bread suppliers.

The next chapter chronicles the response of the CWB and Warburtons to political and commercial crises in their respective industries. Warburtons -- until the 1990s, a small, regional baker -- has led in the ‘premiumisation’ and, ultimately, the bifurcation of the bread sector. In light of supermarket dominance of the food sector, the resurgence of a market for premium, branded bread provides evidence of complexity in the
development of the emerging economy of qualities. Because its corporate strategy has been forged, partly, on its unique sourcing arrangement for prairie wheat, Warburtons’ story is interwoven with that of the CWB’s bid for relevance and renewal during the 1990s. The CWB-Warburton’s story brings full-circle the significance of Canada and the UK’s relationship as mediated through the wheat-bread commodity chain. Though never again to approach historic levels, Canadian wheat exports to the UK began to increase again in the 1990s, this time organized as an identity-preserved supply chain linking prairie farmers – via the CWB and a national food manufacturer – to consumers of premium bread.
Chapter 6 – The CWB and Warburtons in the emerging economy of qualities

This chapter traces the creative reconstitution of the Canada-UK commodity chain for wheat-bread during the 1990s. During this period, the CWB and Warburtons pioneered an innovative identity-preserved sourcing relationship linking prairie farmers to consumers of premium bread in the UK. I interpret the CWB-Warburtons contract as an instance of adaptation by two agrofood actors in the shift towards the economy of qualities. This relationship emerged in response to crises, on the one hand, of the Western Canadian grain industry and, on the other hand, of the UK bread sector, as each actor confronted new conditions of accumulation and contestation. Today, the CWB and Warburtons are leading in the creation of privately regulated supply chains for premium bread, suggesting a surprising role for wheat in the shift towards differentiated quality foods. I trace the significance of this contract for commodity chain relations, prairie farm politics, organizational change at the CWB, and the reconfiguration of the UK bread market.

Entering the 1990s, the CWB faced a series of challenges that, while originating with the crisis of the mercantile-industrial food regime of the 1970s (Ch. 5), were only then reaching full fruition. First, the profile of the CWB’s most important customers – large state-buying monopolies – changed radically, as the Soviet Union dissolved and as debt-ridden countries of the South implemented the liberalizing policies of international lenders. Now dealing with a far larger number of private buyers with increasingly sophisticated quality demands, the CWB pursued new opportunities to supply niche markets and satisfy the exacting demands of particular customers. The CWB’s strategy –
exemplified here in the Warburtons contract – has provided a unique interplay between collective marketing and new commercial relations with downstream actors.

Second, the CWB faced an increasingly severe crisis of legitimacy as state-marketing came under attack from domestic and international actors. In 1998, the government of the day transformed the CWB into a farmer-controlled body, hoping the restructuring would solve the domestic political impasse over the CWB. With majority control of the organization entrusted to elected farmer-directors, the new structure allowed farmers to set the organization’s commercial and strategic direction. This transformation has helped mediate farmer conflicts over the CWB, providing it with more legitimacy in light of the decline of government regulation of agriculture. Yet, the restructured CWB is still vulnerable to pressure from competing exporters, who have targeted single-desk marketing as an ‘unfair trade practice’, and to changes in Canadian government policy. In this way, the fractious politics of the single-desk reflect Canada’s contradictory position as it emerged from this period. While Canada has embraced the neoliberal ethos for deregulation and free trade, key actors have been loath to abandon the commercial and social advantages of the CWB system.

Meanwhile, the crisis of the UK bread sector provides context to the spectacular rise of Warburtons since the 1990s. Up until the 1990s, the bakery was only a regional player in the UK. Over the last fifteen years, it has expanded production nationally, invested large sums in new facilities, and gained a remarkable brand presence. In the face of severe price competition and the rise of supermarket power, Warburtons staked its corporate strategy on offering more expensive premium products. Its innovation in sourcing arrangements, beginning with its identity-preserved contracts with the CWB,
has been a key part of Warburtons’ success. By contracting with the CWB and select farmers for specific varieties of Canadian wheat, Warburtons has been able to match wheat quality with its sophisticated, high-throughput baking facilities. Warburtons has led in the bifurcation of the UK bread market between premium products – defined by price, consumption qualities, and often (though not always) ecological, nutritional, and food safety claims -- and cheap, undifferentiated supermarket brands. Its success provides insight into how, in the context of supermarket dominance, a food manufacturer is leading the change.

**Crisis and transformation of the CWB: 1990s**

The 1990s was a decade of turbulent change and adaptation for the CWB. The farm income crisis begun in the 1980s fuelled farmer differentiation and declining farm numbers. More difficult economic conditions in turn undermined the political consensus of previous decades, centred on a productionist ethos combining state support and agricultural industrialization. As farm politics became ever more fractionated, opposition to the CWB’s monopoly marketing mandate became stronger. Just as divisive domestic conflicts intensified, the CWB faced altogether new challenges in the radical changes to the commercial environment in world markets for wheat. The deregulation of state-importing monopolies in communist and Third World states demanded a major re-orientation of the CWB’s commercial strategy. Meanwhile, trade liberalization opened the door to political challenges to the CWB from competing exporters.

A strategic review of the CWB in 1990 (The Steers Report) identified both sets of challenges as crucial to the organization’s survival. First, it emphasized the need to modernize the agency’s governance structure and provide more accountability to farmers
(Steers 1990). Second, it recognized the major challenges posed to the CWB in processes of trade liberalization and globalization, including increasingly stringent end-user demands and the potential for free trade to undermine the CWB’s international legitimacy. In the uncertain political and commercial environment of the 1990s, key CWB officials thus came to link organizational survival to its commercial re-orientation and the need to create a sense of farmer ‘buy in’ for the agency (Interview 036, former CWB official). In what follows, I describe how the CWB’s attempts to adapt to changing commercial and political environments during the 1990s comprised a strategy for positioning prairie farmers in an emerging economy of qualities.

**Legitimacy crises and organizational change**

The first major challenge facing the CWB in the 1990s consisted of dual crises of legitimacy stemming from domestic and global processes of neoliberal restructuring in agriculture. On the domestic scene, the declining role of government support for agriculture and increasing farmer disaffection led to an acute political crisis for the CWB. This crisis would drive a process of rapid organizational change as the CWB was transformed into a farmer-controlled entity. Internationally, the CWB increasingly came under attack from competing exporters, as trade liberalization changed market dynamics and undermined the legitimacy of state-marketing institutions. Here, the farmer-controlled CWB has become a vocal defender of Canada’s unique marketing and quality control institutions on the international stage. CWB leaders and farmer-directors see these institutions as a legitimate basis for establishing a competitive strategy based on exports of quality-differentiated wheat.
**Domestic conflicts.** Political conflicts over the CWB, a latent feature of prairie politics since the late 1970s, intensified in the mid-1990s. A minority of prairie farmers saw the CWB’s centralized marketing as an impediment to a more efficient, de-regulated grains sector and, in particularly, resented the obligation to sell their products through the CWB and not individually. By the 1990s, these grievances were aggravated by North American free trade, as US markets became more attractive to prairie farmers (see below), especially those living near the US border. Opponents of the CWB lobbied strenuously for the right to deliver grain directly to US elevators, where, depending on market conditions, spot prices were sometimes higher. In 1993, the federal government of the day attempted to end the CWB’s monopoly by executive order, but was thwarted by a successful legal challenge (Skogstad 2005, 538).

With a change in government later that year, the new federal government undertook extensive consultations on the future of the CWB under the Western Grain Marketing Panel (WGMP). Reporting in 1996, the WGMP recommended the partial deregulation of the CWB’s marketing monopoly powers for barley, prompting heightened controversy in the farm sector. In order to address the impasse, the Minister Responsible for the CWB of the day, Ralph Goodale, devised a two-pronged strategy. First, he called a plebiscite among prairie farmers on the question of monopoly marketing in barley. Farmers voted by a two-thirds majority to retain the CWB’s single-desk powers. Second, he introduced sweeping reforms to CWB governance and operations by re-writing the agency’s governing legislation, the CWB Act. The new CWB Act, passed into law in 1998, formalized the requirement to subject any major changes to the CWB’s marketing mandate to a farmer plebiscite and introduced a new governance structure.
Henceforth, the CWB would be controlled by a board of directors comprised of 10 elected farmers and 5 government appointees. These reforms introduced the principle of democratic farmer-control over the CWB.

According to Skogstad (2005), the changes of the late 1990s constituted “a strategic cultural adaptation” on the part of the CWB and its allies to a period of intense institutional ‘bombardment’ (544). The changes embodied some compromises – allowing farmers more marketing options -- while preserving the core principles of collective marketing. Perhaps more significantly, the 1998 governance changes, by turning the strategic direction of the CWB over to farmers and making the organization directly accountable to farmer-directors, provided an impetus for substantial commercial and organizational change. The farmer-elected board of directors helped create a new ethos of farmer-control and renewal at the CWB:

… when you get … ten farmers who’ve worked their tails off to get to the board of this organization, they’re incredibly focused in terms of what they want to see. And it’s created quite a synergistic role between management and the board. … … they have far exceeded my expectations in terms of what I expected to happen relative to what I thought at the time. (Interview 015, senior CWB official)

The shift to direct farmer-control, according to Ralph Goodale – the political architect of the changes – has accelerated the pace of change at the CWB:

you had producer-directors around that table that came not from the grain Exchange down the street in Winnipeg, or the Chamber of Commerce, or the Business Club, they came from the farm. And they had an anticipation, personal experience of what farmers needed and wanted, and I think that innovation is a direct result of ten farmers being elected and sitting around the table and identifying the problems, identifying the way to solve the problems. (Interview 044, former Ministers Responsible for the CWB)

One result has been an improvement, according to annual CWB producer surveys, in farmers’ perceptions of the CWB. The proportion of farmer-respondents indicating that
their views are ‘very close’ or ‘somewhat’ close to those of the CWB increased from 53% to 66% from 1999 to 2007 (Gandalf Group 2007, 15). While farmer opposition to the CWB remains, a senior CWB official believes that, overall, the governance changes have helped democratize the CWB and improved farmer buy-in for the organization (Interview 015, senior CWB official).

The changes also produced major operational and strategic changes at the CWB. First, the CWB introduced more flexible marketing options for farmers called Producer Payment Options (PPOs). These specialized contracts allow farmers to market their grain using pricing instruments that mimic those available on the open market. Because the grain sales still flow through the pool account, the CWB is able to operate these programs without negatively affecting pool returns. While take-up was slow when they were originally introduced, by 2006-7 more than 20 000 producers were using one of the CWB’s PPOs (Table 6.1). The introduction of greater pricing flexibility has helped dampen farmer disaffection with the CWB, especially among younger farmers with larger operations (Interview 017). Second, the CWB’s governance changes redefined its relations with government. With a more arms length relationship from government, the CWB, and indeed individual farmer-directors, have been freer to oppose the government and take on a more politicized role as farmer advocate. Among the key instances here have been the CWB’s vocal opposition to the introduction of GE wheat (Ch. 7) and its public relations campaign defending the legitimacy of the single-desk in the context of WTO negotiations (see below). Third, the new structure has contributed to the CWB’s new commercial strategy. The farmer-elected board have directors has provided the initiative behind a blueprint for the CWB’s future, the *Harvesting Opportunities*
proposal, which would further distance the CWB from government and take the organization in new commercial directions (see Conclusion).

Table 6.1 – Growth of CWB PPOs, 2001-2007

<table>
<thead>
<tr>
<th>Crop Year</th>
<th>Contracted Tonnes</th>
<th># of Producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>186,509</td>
<td>921</td>
</tr>
<tr>
<td>2002-03</td>
<td>203,274</td>
<td>1,176</td>
</tr>
<tr>
<td>2003-04</td>
<td>3,443,592</td>
<td>13,658</td>
</tr>
<tr>
<td>2004-05</td>
<td>4,540,649</td>
<td>18,990</td>
</tr>
<tr>
<td>2005-06</td>
<td>3,702,993</td>
<td>17,890</td>
</tr>
<tr>
<td>2006-07</td>
<td>4,889,434</td>
<td>21,239</td>
</tr>
</tbody>
</table>

Source: CWB official, personal communication.

The 1998 governance changes succeeded in increasing farmer control over the organization, mitigating farmer discontent, and providing for greater organizational responsiveness. While the changes have in some ways made the CWB more adaptable and resilient, they have left it vulnerable to shifting political tides. Since 2006, the Conservative government has sought to implement a longstanding policy of ending the CWB’s monopoly marketing power. Recent conflicts between the federal government and the CWB between suggest contradictions in the model of farmer-control enshrined in the new CWB Act (Magnan forthcoming). The government has challenged the independence of the CWB in a series of actions that have undermined both the spirit and the letter of the law governing the CWB. These conflicts culminated in the government’s attempt to end the CWB’s marketing monopoly in barley by executive order, a gambit that ultimately failed when struck down by the Federal Court of Canada in July, 2008. Though this decision has given a reprieve to the CWB, the recent round of conflicts has arguably weakened the organization and re-politicized its role.
International conflicts. Conflicts among grain exporters arising from the liberalization of agriculture under global and regional free trade have also severely challenged the CWB. In response to the US-EU grain subsidy wars of the 1980s, agriculture was brought under the purview of multilateral trade rules via its incorporation into the GATT (see Ch. 5). The 1986-1994 Uruguay round of GATT negotiations resulted in founding the WTO as a permanent global trade body charged with implementing and enforcing global free trade. In agriculture, the Agreement on Agriculture (AoA) (a sub-agreement of the WTO) implemented minimum market access rules, converting agricultural subsidies into tariffs scheduled for gradual reduction and reducing export subsidies (Rossett 2006, 25-9). Far from resolving the tensions in agrofood trade, WTO negotiations became a venue for increasingly heightened conflicts, as old problems persisted and new players emerged.

The restructuring of global agrofood trade via the WTO has been part of a larger neoliberal project that privatizes ‘food security’, making it a function of trade and market relations (McMichael 2005). The catch is that commodity prices are politically constructed as a function of state and corporate power, the effect of which has been to marginalize countries in the South, and farmers everywhere (Ibid., 278-80). The US and the EU have used their economic clout and negotiating power to redefine their subsidies as ‘non-trade distorting’, even while maintaining high levels of agricultural support. Thus, free trade has complemented the goals of transnational agrofood corporations, which, having outgrown the constraints of nationally-regulated agriculture, sought greater access to cheap, globally sourced grains. At the same time, even under WTO reforms, the EU and the US have redefined subsidy schemes in such a way as to continue their dominance in export markets.
Canada, and by extension, the CWB has been caught in a contradictory position. Canada has lobbied strenuously, via its role in the Cairns group (see Ch. 5), for an end to the US and Europe’s trade-distorting subsidy regime. Once the champion of international cooperation, the CWB now favours free trade and considers a new WTO agreement crucial to expanding markets and a more level playing field for prairie farmers, who compete against much more heavily subsidized European and US producers (CWB 2008d). Yet, the WTO regime has created a new venue through which other exporters, in keeping with the neoliberal ethos, have lobbied for the weakening or wholesale elimination of single-desk marketers such as the CWB. Under pressure from transnational grain corporations, the US in particular has sought dismantle the CWB in the Doha round of WTO negotiations (CWB 2008b).

State-trading enterprises (STEs) are currently allowed under WTO rules as long as they can be shown to operate without distorting trade (Schmitz and Furtan 2000). While Canada maintains that, since it cannot influence world prices, the CWB does not distort trade, the US argues that the CWB engages in unfair trade practices. As a concession to the US during the Doha Round negotiations, the Canadian delegation agreed to eliminate the government’s financial guarantees on the CWB’s borrowings and initial payments. If implemented, the end of the government’s guarantee on borrowing – which allow the CWB to borrow money at the same rates as the government of Canada – would significantly increase the CWB’s operating costs, and by extension, reduce farmer returns. Losing the guarantee on initial payments, meantime, would require that the

51 The term ‘state-trading enterprise’ does not very accurately describe the CWB’s role, since its marketing mandate has always been formally independent of government policy. The term was chosen during early GATT negotiations, when no better term could be devised, and during a period when state regulation of agriculture enjoyed much greater legitimacy (Interview 036). In recent international conflicts, the term STE has served as a convenient label for those wishing to paint the CWB as an arm of government.
CWB establish a capital base to insure against any potential pool account deficit (CWB 2006)\textsuperscript{52}.

In the North American context, free-trade (through NAFTA, and its predecessor, the Canada-US Free Trade Agreement) led to the dismantling of two key pillars of government regulation of prairie agriculture. First -- at a cost to prairie farmers -- Canada ended its two-price wheat policy (in 1988), which had provided government-subsidized preferential wheat prices for the domestic processing industry (Schmitz and Furtan 2000, 99). Second, continental integration put increasing pressure on the system of statutory freight rates for prairie grain. A program put in place during the 1980s to phase out the system of historic statutory freight rates (see Ch. 5) placed an increasing strain on government budgets and, under NAFTA, these expenditures were defined as export subsidies. The Crow rate system was finally abolished in 1995, resulting in a doubling of freight rates for prairie farmers (Schmitz and Furtan 2000, 166).

At the same time, free-trade paradoxically made Canada more vulnerable to US trade actions against the CWB. When Canada eliminated the Crow Rate in order better to comply with NAFTA, the resulting higher transportation costs provided an incentive to sell into markets closer to home (Schmitz and Furtan 2000, 117). Meanwhile, the US Export Enhancement Program (EEP), implemented in 1985 in an aggressive bid to increase US world market share, artificially inflated domestic US prices in relation to the world market price, making the US market more attractive for Canadian exports (Schmitz and Furtan 2000, 73). The resulting increase in Canadian exports to the US has been the subject of a long string of trade challenges (14 to date), many of which were undertaken

\textsuperscript{52} The CWB estimates that the organization would require $1.5 billion in capitalization in order to be able to borrow at competitive rates and insure against potential pool account deficits in the absence of federal government guarantees (CWB 2006, 20).
through the dispute resolution mechanisms of the WTO and NAFTA. In 2003, the US imposed a steep tariff on spring wheat, effectively shutting out Canadian exports until 2006, when a NAFTA dispute resolution panel ruled in Canada’s favour (CWB 2008a). Free trade has thus had contradictory effects on the CWB. As a commercial entity that sells into world markets and competes directly with the world’s largest grain companies, the CWB has embraced free trade. The hope has been that the WTO and other free trade regimes can end the price-depressing and anti-competitive practices of the US and the EU. As a state-sponsored, monopoly marketer, the CWB has become increasingly vulnerable to domestic and international discourses of neoliberal restructuring.

**Changing commercial environment**

The second key challenge to the CWB during the 1990s arose from the rapid disappearance of state-importers, which led to major shifts in world markets. The dissolution of the geo-political bloc structure of the Cold War and the transformation of the global South entailed a major shift in the customer profile of the CWB, as state-marketing firms were replaced by a much larger number of private buyers. This posed a significant organizational and commercial challenge to the CWB, dependent as it was on large sales to these agencies as a mainstay of its marketing program. The shift towards smaller and more numerous private buyers also meant that wheat customers’ quality specifications became much more exacting. Ever larger and more technologically sophisticated milling and baking facilities demanded increasingly stringent specifications for wheat quality and consistency. These changes fuelled doubts as to whether a state-

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53 The US has failed in all 14 trade challenges to prove that the CWB is an unfair trader. Paradoxically then, the free-trade era has only worsened Canada-US trade relations, at a cost of many millions of dollars to Canadian farmers.

54 In a ruling on October 20, 2008, the US was ordered by the US Court of International Trade to repay Canada for the tariffs illegally collected between 2003 and 2006 (CWB 2008c).
marketing agency like the CWB could be effective in this new environment characterized by niche demands (Steers 1990, 1-2). The CWB’s response to these changes therefore entailed a major strategic re-orientation.

Over the course of the mercantile-industrial food regime (1947-1973), world wheat buying power had concentrated to an extraordinary degree in monopoly state-buying firms as governments took a leading role in coordinating purchases of food staples for their populations. The single-desk structure of the CWB provided an advantage in this environment because of the structural congruence and institutional linkages between the single-desk agency and monopoly importers in communist and Third World states. Between the 1960s and the 1980s, Canadian sales to China and the USSR – both state traders – accounted for a very large proportion of total annual sales and afforded stability to the CWB’s year-to-year sales program. At their peak, exports to the USSR accounted for nearly 40% of total Canadian exports of wheat (Figure 6.1). Over the ten years between 1982 and 1992, Canada averaged exports of 4.2 million tonnes per year to the USSR55.

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55 Source: Statistics Canada, Table 001-0015 - Exports of grains, by final destination, computed annual total.
Monopoly importing declined rapidly in the early 1990s as a result, first, of the dissolution of the Soviet Bloc. Cracks in the bloc structure of the USSR and its satellites appeared beginning the 1970s when the Soviet system became increasingly permeable to western flows of money, energy and grain (Friedmann 1998). With the disintegration of the USSR in 1991, the Russian monopoly state-importing agency was privatized. Other Eastern European countries – Poland, Romania, Slovakia -- did likewise in the early 1990s (Abbot and Young 1999, 123-4). Canadian sales to Eastern Europe plummeted to negligible amounts, with small sales to Russia in 1993 and 1997, but no others since (Figure 6.2).
Figure 6.2 - Canadian wheat exports (excluding durum) to selected countries, 1972-2005

Second, countries of the global South rapidly dismantled their state buying monopolies under the neoliberal restructuring of the ‘debt regime’ (McMichael 2007) of the 1980s and 1990s. Multilateral lending institutions (the IMF and the World Bank) imposed policies of privatization and market liberalization that targeted, among other things, statist institutions (including food importing monopolies) implemented during the 1960s and 1970s. In Latin American countries, the impetus for reform came from a combination of Structural Adjustment Plans imposed by multilateral lending agencies and free-trade agreements (NAFTA and Mercosur) (Abbott and Young 1999, 122). Mexico, Colombia, Ecuador, Peru and Venezuela all ended monopoly control over imports in the late 1980s or early 1990s. Brazil – an increasingly important buyer of Canada’s in the 1990s – ended monopoly control of wheat imports in 1991 (Abbott and Young 1999,
Through both sets of changes, the proportion of global wheat imports occurring through state-importing declined precipitously, reaching about 40% by 1996, compared to 91% in the mid-1970s (Ibid., 122).

During the same period, advances in the scale and sophistication of production in milling and baking industries meant that key buyers placed increasing importance on product consistency and quality (Interview 036, former CWB official). This change reflected two trends. First, today’s largest automated milling and baking plants, with very high production capacity (e.g., Indonesia’s largest miller, Bogasari processes 10 000 metric tonnes of wheat per day), place a premium on uniformity and consistency within and across wheat shipments (Interview 011, CWB official; Interview 036, former CWB official), now considered crucial even for the production of standard quality bread. In these forms of highly automated production, even slight variability in the physical and chemical profile of the grain as a raw material can cause costly disruptions, as production settings have to be re-calibrated. Requirements of consistency and uniformity thus constitute new *industrial* conventions of wheat quality, impinging on the nature of the grain as raw material for an industrial process. Second, the emergence of *premium* bread markets in wealthier countries has driven key customers to demand quality specifications above and beyond the baseline guarantees of cleanliness, uniformity and consistency afforded by Canada’s centralized quality control system. These demands have driven the development of new *market* conventions tying greater control over wheat quality and production practices to consumption qualities of premium bread. In the early 1990s, the CWB identified the need for greater flexibility in satisfying niche demands for Canadian wheat as one of its key challenges for the coming decade (Steers 1990).
For the grains sector, the shift to niche marketing on the basis of quality is rife with contradictions, however, since grain is typically handled and traded as a homogeneous commodity. As the key ingredient to bread, wheat is nonetheless different from other grains. Somewhere between processed and fresh food, bread is culturally significant, suggesting the potential for marketers to capitalize on quality claims. Though it was traditionally treated in theory (agricultural economics) and in practice (on spot markets in commodities trading) as a homogeneous commodity, new dimensions of wheat quality had become an increasingly important concern of buyers (millers, processors and bakers) by the 1990s (Kennet 1997, 2). For bakers, various properties of specific wheat varieties bear on bread qualities such as loaf volume, flavour, and crumb texture (Kennet 1997, 12). In the context of bread market premiumisation (see below), tight control over wheat quality has opened the way for new forms of quality-differentiation in wheat.

**The CWB’s commercial re-orientation**

The CWB’s response to the emergence of new customers and new quality demands was three-fold. First, the CWB devised a new commercial strategy for recently deregulated import markets based on exploiting new opportunities for quality-differentiation. Second, the CWB developed a more comprehensive approach to branding Canadian wheat. Third, the CWB re-oriented its sales program to the requirements of private buyers. Its innovative relationship with Warburtons, described below, is emblematic of this change, and may provide a template for future initiatives likely to become more important in the shift towards quality chains.
Paradoxically, the CWB was able to benefit from the shift away from monopoly state-importers by responding to the more exacting quality specifications of private importers (WGMP 1996, 62). Monopoly importers had tended to broker long-term agreements for very large quantities of wheat, often with less regard to specific wheat grades or qualities. In response to the decline of monopoly importers, the CWB sought to capitalize on Canada’s longstanding reputation for wheat quality:

It was a change which we welcomed because when you are selling to a state trading enterprise they are less focused on quality and more focused on price because they don’t have to actually process the product. So what we found in each of these marketplaces when that occurred was we moved from selling a generic grain … to very specific qualities which worked well from how we market because we are interested in marketing products not commodities. (Interview 015, CWB official, emphasis added)

The case of Brazil is illustrative. Under monopoly importing, millers each purchased wheat at the same government-established price, and so competed on the basis of the efficiency of flour extraction (Interview 011, CWB official). With the break-up of the state-importer, individual mills now increasingly compete on the basis of quality, allowing the CWB to charge different prices to customers seeking premium wheat and those seeking lesser grades (Interview 011, CWB official). Through the early-mid 1990s Canada was able to maintain market share in Brazil, despite the end of monopoly importing, as it launched a concerted sales and market development program (Kraft, Furtan, and Tyrchniewicz 1996)56. In all, Canada increased its market share in seven countries that liberalized their state-importing agencies -- Mexico, Peru, Brazil, Colombia, South Korea, Pakistan and the Philippines (Abbott and Young 1999, 132).

56 Since that time, trading preferences under MERCOSUR have meant that Brazil procures most of its wheat from Argentina (Interview 011).
As part of its new commercial strategy, the CWB has also implemented a more concerted approach to branding. The CWB has been branding Canadian wheat on the basis of its quality reputation since its earliest years (Ch. 4). These early campaigns coincided with a period when Canadian milling wheat was indispensable to European milling grists and, as of then, non-substitutable. Over the decades since, the CWB continued to promote Canadian wheat as a quality-differentiated product. When, by the 1970s, Canadian wheat had become increasingly substitutable and had thereby lost its distinctive edge in markets for milling wheat, the emphasis on branding and market development assumed a new importance (Ch. 5). Former CWB officials jokingly recalled wishing they could imprint ‘a maple leaf on every kernel’ in an effort to promote Canadian wheat (Interview 036). The CWB’s branding efforts over the last decade have become much more sophisticated, with an increasing emphasis on linking Canadian wheat quality, quality ingredients, and consumer products.

The CWB has begun to develop branding initiatives with particular food manufacturers such as Malma, a Polish pasta maker, and Tsingtao beer in China, which uses at least 50% Canadian barley (CWB 2004, 15). Building upon these initiatives, the CWB launched a comprehensive branding strategy -- approved in 2005 -- which included creating a new senior management position, Director of Brand Development (Interview 034, CWB official). Recognizing the difficulties of branding a bulk commodity, the CWB’s strategy emphasizes the role of Canadian wheat as an ‘ingredient brand’. The key is to link wheat quality to the quality of the end product, bread:

… western Canadian wheat and barley are essential to product quality. Product quality, of course, is a highly desirable marketing tenet that drives sales and profit. Put another way, we need to strive to be the wheat equivalent of “Intel
inside” – the guts of most personal computers in the world. (CWB Director, Brand Development, cited in CWB 2007a, 5).

Among the recent initiatives, the CWB has developed new ‘co-branding’ logos used to identify content of Canadian wheat in flour and pasta products (CWB 2007b:1). Meanwhile, the CWB is expanding branding opportunities in South America, with initiatives in Equador and Colombia (CWB 2007a). Despite the obstacles facing the quality differentiation and branding of wheat, the CWB has thus succeeded in convincing some downstream actors of the value of the advertising their use of Canadian wheat. In this way, CWB actors are attempting to transcend the basis of Canada’s quality reputation on industrial conventions alone. On the one hand, branding initiatives of this kind play into market conventions of wheat quality (where a link is drawn between high-quality ingredients and differentiated consumption qualities). On the other hand, they draw upon conventions based on ‘reknown’ (see Morgan et al. 2006, 22) in the way they link prairie wheat to a longstanding tradition of ‘quality’ and even Canada’s overall image in the world.

CWB officials attribute the success of these branding initiatives to Canada’s distinctive grain marketing institutions. Because all prairie wheat and barley is marketed through the single-desk, the CWB is able to maintain a coherent brand image for Canadian products. In turn, the centralized coordination of variety registration and quality control provides for the product quality and consistency that support the brand image (Interview 011, CWB official). In other words, customers of the CWB know exactly the end-use characteristics and other properties of each shipment of Canadian wheat based on the quality guarantees afforded through centralized quality control. Until its recent break-up and privatization, the Australian Wheat Board (AWB) was the only
other major wheat exporting entity capable of similarly linking marketing, branding, and quality control. CWB officials and farmer-directors see this as a major advantage of Canada’s unique grain marketing environment.

Yet, the question of how best to respond to changing customer requirements and niche markets proved complex given Canada’s relatively centralized approach to quality control and variety registration. This system, of which the CWB is an integral part, was designed in the early decades of the prairie wheat trade to guarantee predictability and overall quality in exports of milling wheat. For many decades, this system provided a low-cost and reliable way of segregating wheat classes throughout the bulk handling system and allowing end-users to predict the performance of a shipment of Canadian wheat by visual inspection. Since the 1990s, however, this approach has come under strain from critics contending that -- because it was designed around the imperatives of bulk export -- the segregation system is too crude to meet the increasingly stringent demands of end-users and ‘niche markets’ (see Carter et al. 2006b, 56).

One limitation of segregation by visual inspection was that since any given wheat class encompasses several distinct wheat varieties, the milling or baking properties of the wheat class were actually a function of a variable blend of varieties. The extremely sophisticated milling and baking technologies of today’s end-users means that, under some circumstances, there is demand for only particular varieties within a single wheat class (Kennett 1997, 25). To compound the issue, the number of varieties commercially available for farmers to grow has increased substantially in recent years. Whereas for

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57 In Canada, this system is referred to as ‘kernel visual distinguishability’ (KVD). Under KVD, kernel shape, colour and size of each class of wheat provide a visual marker setting it apart from other classes. In effect, the intrinsic qualities of the wheat (e.g., the high gluten content and protein levels of milling wheat) were mapped onto the appearance of the kernel (Kennett 1997, 22).
many decades two or three varieties of bread milling wheat accounted for the vast majority of all production at a given time (CIGI 1993), today the top five varieties of bread milling wheat account for only between 50 and 60% of production (CWB 2009a).

The Canadian government is now pursuing the deregulation of segregation by visual inspection. On August 1, 2008, visual inspection was replaced by an affidavit system, wherein farmers must sign a document legally declaring the identity of the wheat variety they have grown when delivering their grain. The CWB has urged caution in the shift to the new system, fearing that misidentified varieties of lower grade wheat could contaminate supplies of milling wheat.

Over the 1990s, the CWB was able to leverage serious challenges – commercial and political – to its advantage, showing its ability to adapt to a rapidly changing environment. On the one hand, political conflicts over single-desk marketing prompted major organizational change resulting in greater legitimacy for the CWB as a farmer-controlled entity. On the other hand, the CWB’s commercial transformation – including closer attention to end-user quality demands and intensified branding – positioned the CWB favourably in a shifting world market. Building upon the legacy of Canada’s centralized quality-control and marketing institutions, this commercial strategy comprised a bid for survival in the contradictory terrain of agricultural trade liberalization. Providing a quality-differentiated, branded product for discerning customers has allowed Canada to carve out a competitive space amidst US and EU trade intransigence.
The Rise of Warburtons and the premiumisation of the UK bread sector

... the Warburtons story is that they have converted the English consumer from buying what you would call ‘cheap and cheerful crap’, produced from mainly UK wheat to one where the UK consumer is willing to pay more for a premium product, which Warburtons happens to make at least 50% or 60% from Canadian wheat. (Interview 013, CWB official)

Up until the 1990s, Warburtons was a relatively small regional player based in Northern England. The bakery was founded in Bolton, in 1876, when the Warburtons family converted its failing grocery store into a bakery (Warburtons 1976, 4). Over the next few decades, the bakery expanded its operations -- based mostly on local bread delivery -- and adopted modern baking technology in its installations. Warburtons moved into bread retailing during the 1930s (Ibid., 26-8), establishing a chain of shops that would grow to over 100 outlets by the 1980s (Warburtons 1988, 24). During the 1960s and 1970s, Warburtons embarked on a string of takeovers and facilities expansions, resulting in a larger regional presence (Warburtons 1976, 31). By this time, it was also diversifying into other branches of food manufacturing (including croutons, potato chips, and meat pies) as well as less obvious industries including carp farming and jewellery (Warburtons 1988, 23). Beginning in the 1980s, Warburtons embarked on a major corporate transformation. Over the last 15 years, the company has experienced phenomenal success and has transformed the UK bread industry. Far from its regional roots, Warburtons is today the UK’s leading national bread manufacturer.

By the early 1990s, the UK bread industry was in crisis. The sector was dominated by two vertically-integrated bread manufacturing giants, Allied and RHM, whose power was being severely eroded by the increasing economic clout of retailers. With most bread sales made through a small handful of very large retailers, supermarkets
used their market power to cut retail bread prices, severely decreasing bread manufacturers’ margins (Bowlby et al. 1992, 143). The increasing popularity of supermarket in-store bakeries segmented the bread market and cut into sales of wrapped bread, the mainstay of the bread giants. By 1991, in-store bakeries accounted for approximately 20% of the UK bread market (Supermarketing 1992). In the market for wrapped bread, cheap, undifferentiated supermarket own brand products eclipsed more expensive branded products, accounting for an estimated 53.4% of the market in 1995 (Eurofood 1995). The growth of the own brand bread market posed a dilemma for the major bread manufacturers. As suppliers of own brand bread to supermarkets, it helped increase their sales volumes. Yet, the trend drove overall bread prices lower (through product discounts demanded by supermarkets) and own brands took away from sales of the large manufacturers’ more expensive national brands.

The use of very cheap bread as a loss leader fuelled a series of price wars in the 1990s. The precipitating event was the entry of continental ‘deep discount’ chains (e.g., German chain Aldi) into the British retail market. In 1991, Aldi slashed the price of a standard white loaf to 25p in a price war with the established UK supermarkets (The Grocer 1992). It dropped the price to 21p in 1993 (The Grocer 1993) and the price war continued into 1994. During the price war of the early 1990s, the value of own brand bread sales increased 31% and its share of the wrapped bread market to 58% (SuperMarketing 1998). The price wars took their toll on the two major bread manufacturers, cutting the pre-tax profits of RHM’s baking and milling division by 62% (Hollinger 1992) and limiting profits for Allied bakeries to very low margins (Tehan 1993). After a brief reprieve, the UK bread market experienced a second devastating
price war in 1999, with the price of a loaf of bread reaching its nadir at 7 pence (Wallop 2007a). As the price of bread reached rock bottom, reports emerged of UK sheep farmers substituting loaves of cheap bread for standard livestock feed (Merriman 1999).

During this period, the introduction and growth of premium bread lines provided a glimmer of hope in the UK bread sector. The brief success of wholemeal bread in the mid-1980s served as an early precursor to the premiumisation of the sector, as consumers took a greater interest in bread nutrition. By the 1990s, however, it was new lines of premium white bread that were driving the trend (Preece 1993; The Grocer 1992). Marketed on the basis of ‘superior’ consumption qualities such as taste, light texture, ‘spreadability’ (ability to withstand spreading without tearing), and ‘toastability’, premium white breads became a valuable market segment, worth £80 million by 1991 (Maslowska 1991). Sales of premium white bread by volume increased by 45% between 1994 and 1996 (SuperMarketing 1998). Branded manufacturers – Warburtons’ included -- aggressively pursued expanded sales of premium white bread in order to overcome declining bread consumption and low prices. In the early 1990s, the large national brands dominated the premium white category with supermarket own brands accounting for as little as 10% (The Grocer 1992). After declining during the 1980s, consumption of white bread increased again after 1986 (see Fig. 5.2), and despite the severe price wars and overall declining consumption, the value of the bread market grew (SuperMarketing 1992).

Together the popularity of extremely cheap own brand bread and growing demand for premium bread drove the bifurcation of the UK bread market. As in other food commodities, key actors in the bread sector adopted a strategy of quality-
differentiation leading to distinct market segments for ultra-cheap and premium bread. With the decline of close government regulation of food quality and nutrition, however, quality claims have largely been defined according to the marketing strategies of private actors. This helps to explain the popularity of premium, white varieties, which have led the segment. Manufacturers have also capitalized on consumer demand for healthier, ecologically-oriented products with the introduction of neutraceutically ‘enhanced’, multi-grain, and organic breads. The result is that the premium market segment is itself differentiated according to the various quality claims made by bread manufacturers.

Warburtons’ success would be in its unique strategy for responding to and constructing the bifurcation of the bread market. In the face of the crisis conditions of the late 1970s and early 1980s, when it faced severe competition from the national plant bakers selling discounted bread to supermarkets, Warburtons maintained a commitment to a higher-quality, more expensive product (Warburtons 1988, 22-3). Warburtons’ strategy rested on the assumption that offering its premium bread – standardized, but quality-differentiated and branded products -- alongside cheap varieties increased overall bread sales without significantly reducing sales of standard bread (The Grocer 1986). This allowed the bakery to distinguish its approach from that of the two major bread manufacturers, RHM and Allied: “We have made it our firm policy not to try to compete with the two giants on equal grounds. We are obviously not the same as them so it is essential we should take a totally different approach to the market” (Jonathan Warburton, quoted in The Grocer 1986). The bakery was thus an early leader in the premium bread market, but, as explained below, without some of the liabilities of the national bread giants.
The transformation of Warburtons: 1990s

Building on this core philosophy, and with totally new leadership as of 1991, Warburtons pursued a comprehensive overhaul of corporate strategy in the early 1990s. The company divested itself of its many smaller business ventures, which the new generation considered a distraction from its core business (Wallop 2007a). The capital freed up in these sales allowed Warburtons to invest heavily in marketing and in new technology and baking facilities (see below). With an eye to national expansion, Warburtons’ corporate strategy rested on offering a line of premium products, with expensive varieties of white, wrapped bread among its best-known products (Wainwright 2007). Its bread has traditionally traded at a premium of about 15p to its direct competitors (Weaver 2005). During the severe price wars of the 1990s, Warburtons’ held the price line, selling at 70p even when the cheapest bread sold one-tenth the price (Wallop 2007a). In 2006, Warburtons was the first bread manufacturer to break the £1/loaf barrier (Wallop 2007b).

Two pillars of Warburtons’ corporate strategy most clearly distinguished it from its rival bread manufacturers, RHM and Allied: its refusal to produce own brand bread for supermarkets and its unique sourcing arrangements. During the 1980s, the national bread giants turned to own brand production as supermarket lines became more popular and the industry faced overcapacity in light of declining consumption. By contrast, Warburtons has focused exclusively on branded products, arguing that it could not compete with Allied and RHM on cost (Wallop 2007a). Closer ties to supermarkets through own brands eventually became a liability for the traditional national manufacturers, as supermarkets used their economic clout to drive bread prices lower. By the mid 1990s, the popularity of own brand bread had peaked. Whereas in 1996 own
brands accounted for 60% of the wrapped bread market, by 2004, its share had declined to 36% (Bainbridge and Brightwell 2005). As own brands began their decline, branded manufacturers introduced new ‘super premium’ bread lines, hoping to capitalize on consumers’ desire to ‘trade up’ from generic to high quality, indulgence-based products (Whalley 1998). By focusing exclusively on premium, branded products throughout the rise and fall of own brands, Warburtons maintained an edge on the traditional bread manufacturers.

The second pillar of Warburtons’ strategy distinguishing it from the traditional bread manufacturers is the way in which it used innovative sourcing arrangements as a key dimension of its emphasis on quality-differentiation. The company’s unique sourcing needs are a product of both its use of highly sophisticated baking technology as well as its tight control over ingredient quality. The company has continually invested in new baking technology allowing it to build cutting-edge baking plants, high-throughput facilities that require strict control over flour quality and consistency (see above). As part of the corporate overhaul of the early 1990s, Warburtons began a research program devoted to specifying exact blends of Canadian and UK wheat varieties best suited to its baking technology and yielding desired bread characteristics (Kennett 1997, 59-60). The research would ultimately lead to the successful identity-preserved sourcing program for prairie wheat, beginning in 1995 (see below). Since that time, the Warburtons program has grown to account for a significant portion of Canada’s wheat exports to the UK.

**National breakthrough**

Several measures provide evidence of Warburtons’ success. The bakery pursued an aggressive program of expansion, beginning in the late 1980s, and accelerating in the
mid-1990s (Table 6.2). Warburtons’ first expanded into the Midlands (1995) and Scotland (in 1998), regions both in which Warburtons would become the leading bread brand by 2001 (Eurofood 2001; Nottingham Evening Post 2001). Next it targeted the London market, which it entered in 2003 with the construction of a £30 million plant bakery in Enfield, North London (Barry 2002). With a ten-fold increase in sales out of the Enfield bakery in the first three years, Warburtons expanded the operation in 2006, increasing capacity to 8400 loaves per hour (Food Manufacture 2006). In 2005, Warburtons opened its £50 million ‘super-bakery’ -- Europe’s largest -- in Tuscany Park, West Yorkshire, with a capacity of 194 000 loaves per day (Wainwright 2007). Having gradually expanded its geographic reach, Warburtons first achieved national distribution in 2006 (BakeryInfo 2006).
Table 6.2 – Warburtons’ expansion 1990-2008

<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
<th>Investment (millions £)</th>
<th>Baking capacity (loaves)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>Newcastle</td>
<td>-</td>
<td>120 000 bakery products/day</td>
</tr>
<tr>
<td>1995</td>
<td>Eastwood, Nottingham</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1998</td>
<td>Bellshill bakery</td>
<td>10</td>
<td>700 000/week</td>
</tr>
<tr>
<td>2000</td>
<td>Wednesbury, West Midlands</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>2003</td>
<td>Enfield, North London</td>
<td>30</td>
<td>400 000/week</td>
</tr>
<tr>
<td></td>
<td>Bellshill bakery (expansion)</td>
<td>14</td>
<td>1 500 000/week</td>
</tr>
<tr>
<td></td>
<td>Wednesbury, West Midlands (expansion)</td>
<td>13</td>
<td>2 250 000/week</td>
</tr>
<tr>
<td>2004</td>
<td>Wakefield, Yorkshire</td>
<td>60</td>
<td>2 000 000/week</td>
</tr>
<tr>
<td>2006</td>
<td>Stockton (acquired)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2007</td>
<td>Rogerstone, Wales (acquired and refurbished)</td>
<td>10</td>
<td>150 000/day</td>
</tr>
</tbody>
</table>

Sources: Trade sources, Factiva on-line; Warburtons website.

Warburtons has also enjoyed high rates of growth, increasing market share, and remarkable brand recognition. Its share of the national market more than doubled from 5.4% in 2001 to 12.2% in 2004 (Datamonitor 2002; Datamonitor 2004) and had increased to 26.6% by 2006 (Carmichael 2006). Meanwhile, it has achieved impressive growth in revenues and profits, especially since the turn of the century (Table 6.3). The company surpassed £50 million in profits for the first time in 2006 (The Mail on Sunday 2007) and, in 2006-7, posted a growth in sales of 17.7%, far ahead of the 9.7% growth in sales of the wrapped bread industry in general (McFarlane 2007). In 2004, Warburtons became the UK’s largest bread manufacturer (The Grocer 2004) and by 2007 Warburtons had
become the second most recognized food brand in the UK, behind none other than Coca-Cola (Wainwright 2007). Through its success, Warburtons has driven the expansion of a lucrative, highly quality-sensitive segment of the UK bread market. The next section describes how Warburtons, the CWB, and other key actors in the prairie grain industry forged the successful wheat-bread quality chain that has underpinned Warburtons’ success.

Table 6.3 - Warburtons annual revenues and profits, select years, 1986-2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenues (£ million)</th>
<th>Profits (£ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>80</td>
<td>-</td>
</tr>
<tr>
<td>1995</td>
<td>156</td>
<td>-</td>
</tr>
<tr>
<td>1996</td>
<td>170</td>
<td>-</td>
</tr>
<tr>
<td>2001</td>
<td>203</td>
<td>23.1</td>
</tr>
<tr>
<td>2002</td>
<td>230</td>
<td>32.5</td>
</tr>
<tr>
<td>2004</td>
<td>297.5</td>
<td>-</td>
</tr>
<tr>
<td>2005</td>
<td>-</td>
<td>48</td>
</tr>
<tr>
<td>2006</td>
<td>517</td>
<td>50</td>
</tr>
<tr>
<td>2007</td>
<td>609</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Trade sources, Factiva on-line.

The CWB-Warburtons sourcing relationship

During the 1990s, the CWB and Warburtons forged a new wheat-bread commodity chain from what was a very old relationship linking prairie farmers to British consumers. The relationship was reconstituted around new principles (new industrial and market conventions arising from niche requirements) and by different actors (a transformed CWB and a national food manufacturer). The significance of the program is three-fold. First, the program provides evidence of diversity in terms of the type of agrofood commodities and actors at the centre of the shift towards the economy of qualities. Second, it has played an important role in the transformation and renewal of
both organizations, as each responded to crisis conditions in their respective political-economic environments. Third, it has shaped new social relations among supply chain actors, and driven processes of institutional, regulatory, and economic change on the Canadian prairies.

The origin of the CWB–Warburtons sourcing contract was in each organization’s response to the conditions of the 1990s: the CWB’s need to respond to the niche requirements of more sophisticated end-users of high-quality wheat and Warburtons’ drive towards the premiumisation of the UK bread sector and national expansion. With a higher proportion of Canadian wheat in its milling grists than any other major UK bakery, Warburtons had been a customer of the CWB’s for many years. As part of its corporate transformation in the early 1990s, Warburtons invested in refining its production processes, quality control, and sourcing arrangements with an eye to improving product quality and consistency. One result was new baking technology that demanded very specific wheat quality characteristics in order to maximize performance.

The impetus for establishing the CWB-Warburtons program came from these new, more specific wheat quality requirements combined with a changing wheat-quality profile on the prairies. With careful monitoring of wheat quality in Canadian shipments, Warburtons noticed increasing variability in the milling and baking properties of wheat, a result of the introduction of several new varieties of bread milling wheat during the 1980s-1990s (Kennett et al. 1998, 162). This variability translated into declining product consistency for the baker, a major concern given the cut-throat competitive environment of the early 1990s (Rance 2000). As a result, Warburtons began an extensive search for specific wheat varieties that would be most compatible to its sourcing requirements. After
testing the compatibility of several milling-wheat varieties, Warburtons determined a formula for a precise blend of three wheat varieties that would yield the best baking results. Given that Canada’s public variety control and segregation system segregates by wheat class (defined by end-use, e.g. bread baking, noodle manufacture, feed) and not by individual variety, this created a sourcing problem for the baker. In other words, traditional industrial conventions for wheat quality (embodied in the public quality control and grading system) could not deliver the precision sought by Warburtons in its new sourcing needs.

The solution was to establish an identity-preserved (IP) program, beginning in 1995, allowing Warburtons to source particular quantities of its three select varieties from contracted farmers. Identity-preservation ensured that the contracted wheat varieties would be kept separate from the bulk-handling system, allowing Warburtons to blend only the selected varieties according to its specific formula. Through contracts administered by a grain company or cooperative, farmers committed to devoting a specific acreage to the production of the specified wheat varieties. The key benefit for farmers was a premium over the CWB’s payment for its highest class and grade, set at $30 per tonne for the first year of the contract. In the second year, the premium was decreased to $20 per tonne, to be redeemed in part as credits for purchases of farm input supplies from the grain company, MPE (Kennett 1997, 62). Today, two grain companies, Patterson Grain and Viterra\textsuperscript{58}, administer the contracts. According to the arrangement, grain companies are responsible for sourcing the grain (selecting and contracting with

\textsuperscript{58} Viterra was formed, in 2007, through a merger of Saskatchewan Wheat Pool and Agricore United, and, after a wave of privatizations and mergers since the mid-1990s, is the only surviving descendant of the original prairie grain handling co-operatives (United Grain Growers, Manitoba Pool Elevators, Saskatchewan Wheat Pool, and the Alberta Wheat Pool).
farmers) and ensuring the identity preservation of shipments throughout the handling process. For this service, participating grain companies receive a management fee from Warburtons (Kennett 1997, 62).

Given that it is the single-desk seller of Canadian wheat, the CWB played a key role in approving, designing, and implementing the Warburton’s IP program. First, the CWB was instrumental in designing production contracts between farmers and grain companies (Kennett 1997, 60). As part of this process, the CWB helped negotiate price premiums and production requirements on behalf of prairie farmers. As explained below, this entailed reconciling the specialized sourcing arrangement with the CWB’s traditional grain pooling function, a problem involving both operational issues and questions of fairness. On the technical side, the CWB coordinated the logistics of implementing an IP program within the bulk handling system (Interview 013, CWB official). Here, the CWB’s central role in supply chain coordination -- a legacy of its adaptation to changing conditions during the 1960s (Ch. 5) – played a key role. The CWB closely coordinates grain movement from the countryside to port position in an effort to match wheat supplies to sales opportunities, a major challenge given the need to move a large volume of grain through a relatively constrained transportation system. This very active role in grain shipping logistics has become a key advantage in establishing more sophisticated forms of supply chain coordination (Oleson 1999, 512), including identity-preservation under the Warburtons contract.

Over the following years, the program grew considerably, and marked important successes for both the CWB and Warburtons. In 1995, the CWB shipped 46 000 tonnes of wheat through the program (CWB 1998, 12). By 2006, the program had essentially
quadrupled, at just under 200,000 tonnes (Interview 013, CWB official). In recent years, the Warburtons sourcing program has accounted for as much as half of the total of UK imports of Canadian wheat (Carter et al. 2006b, 54). Despite early misgivings about its potential effects on grain handling logistics and the pooling system (Interview 013, CWB official), the Warburtons program has become a high profile success story for the CWB. Indeed, the program has in some respects improved the image of the CWB in the eyes of farmers, as it suggests the board has the flexibility to meet specific end-user demands (Interview 013, CWB official). For participating farmers, the Warburtons contract provides a significant premium over pool prices, thus providing some security amidst the generalized income crisis in prairie agriculture.

For Warburtons, the value of the program has been in securing supplies of Canadian wheat meeting the quality specifications tailored to its production process. The program has allowed the bakery to have “absolute knowledge and consistency of what we were getting in the shipments of Canadian wheat through to the UK” (Interview 045, Bob Beard, Warburtons purchasing director). The program incorporates both new industrial conventions (intended to link aspects of grain quality to its performance in industrial bread manufacture) and market conventions (grain characteristics tied to the differentiation of bread products by consumption qualities). Though quality requirements and consistency were the original impetus for the program, guaranteed supply of specific quantities of wheat has become among the most important benefits of the relationship. During years of crop failure or poor quality, when wheat supplies have been short, the CWB has been able to offer Warburtons continuity of supply for high-quality milling wheat (Interview 045). Access to guaranteed supply has been particularly important
during the bakery’s phase of rapid national expansion in the UK. Despite the price premium it pays, running the program through the CWB allows the bakery to reduce the coordination costs involved in identity-preservation and supply chain logistics. The CWB’s single-desk serves as a “one-stop shop” for high-quality Canadian grain, which because of centralized supply chain coordination, is likely cheaper than would be the case in a multiple seller environment (Bob Beard, Warburtons purchasing director, as cited in CBC News 2006). These features of the arrangement suggest that, quite aside from new quality conventions, inter-organizational conventions based on trust, working relationship, and special consideration help explain the success of the CWB-Warburtons program.

Warburtons considers its Canadian sourcing program essential to its overall marketing strategy, based on selling a quality-differentiated, premium product:

… Canadian wheat has been the bedrock of [our] quality platform … Whether it’s the facilities that we’ve continued to build or invest in, or whether it’s the equipment that we use that’s unique to Waburtons, or whether it’s the standards we have for the distribution of that product through the supply chain, all of those together add up to the quality proposition that we’re getting on shelf. It starts with the raw material, but it’s not just about the raw material. (Interview 045, Bob Beard, Warburtons purchasing director)

Though the unique sourcing program for Canadian wheat has become a part of its overall brand image, Warburtons has not emphasized Canadian wheat in its marketing to consumers. As the bakery’s purchasing director explained, there is presently no way that Warburtons “can lever a unique selling point in talking about imported wheat coming into the UK” (Interview 045). A key plank of Warburtons’ marketing strategy in the UK has been to emphasize its roots as a regional, family-run business. The bakery has exploited notions of Northerners’ unassuming and down-to-earth nature, for instance, by
featuring Warburtons family members in its advertisements. Given its investment in this regional identity, any reference to its Canadian sourcing program, however important it might be to product quality, poses the possibility of incoherence in its marketing approach.

The CWB-Warburtons program accounts for only a small fraction of Canada’s total wheat exports. Yet, as an example of a successful identity-preserved quality chain for prairie grain, the program has attained remarkable prominence in discourses of change in the Canadian grain industry. It has also driven processes of institutional and regulatory change, suggesting the increasing influence of prominent down-stream actors over supply chains. The program highlights the ways in which identity-preserved quality chains for Canadian grain have changed relations among social actors, including farmers, grain companies, end-users and the CWB. In what follows, I track some of the most important instances of change driven by the CWB-Warburtons contract.

**Mediating the integration of farmers into quality chains for wheat-bread**

One of the CWB’s major concerns in implementing the Warburtons’ contract was to ensure that the program would not undermine its mandate to maximize pool returns for Western farmers (Kennett 1997, 64-5; Interview 013, CWB official); in other words, to ensure that it would provide a net economic benefit to all prairie farmers. The program posed a potential problem, since pooling is designed to return the same payment to all farmers delivering the same grade and class of wheat for sale through the CWB. By offering a premium to a small group of farmers (today, approximately 800), the CWB risked violating the principle of equity built into grain pooling.
These issues raised a question of fairness for CWB leaders (Interview 013, CWB official). Ultimately, the CWB’s solution was to make a condition of approving the arrangement that it provide a net benefit to the pool account, not only to participating farmers. In order to meet this objective, the CWB charges Warburtons a premium over and above the regular price it would charge for top-grade bread milling wheat sold in the same market. In turn, this premium contributes to the pooled returns of all prairie wheat producers. In all, Warburtons pays three separate premiums for the program – to the CWB, to grain companies, and to farmers – estimated to add 16-18% to conventional wheat marketing costs (Smyth and Philips 2002, 38). As the single-desk seller of Canadian wheat, the CWB was therefore able to capture some of the value for this quality supply chain arrangement for all prairie farmers (Kennett 1997, 70). Absent the CWB, only farmers participating directly in the program would have realized any economic benefit. In this way, the Warburtons program is an example of the successful integration of prairie wheat farmers, via the CWB, into quality supply chains for a premium product.

**The CWB-Warburtons contract and regulatory change**

Warburtons’ evolving sourcing requirements have shaped processes of regulatory change in the Canadian variety registration and quality control system. In 1998, Warburtons identified a new wheat variety – later called 5400 IP – that was ideally suited for its baking needs (Interview 045, Bob Beard, Warburtons purchasing director). The variety, which had yet to be commercialized, failed to meet the conventional requirements of Canada’s stringent variety registration system when field trials indicated that it had marginally inferior yield and agronomic properties compared to the benchmark for currently registered varieties (Oleson 2003). In response, Warburtons sought
permission from regulatory officials to make an exception and register this variety under new rules for ‘contract registration’. Contract registration was introduced in 1996 as a means of circumventing standard variety registration rules. Specifically, it allows for the ‘closed loop’ production of varieties that, while possessing some characteristic desired by an end-user, could cause quality-control problems if entering the bulk handling system (CWB/CGC 1996, 4). After several years of particularly intense lobbying, Warburtons finally obtained permission to have the variety contract registered in 2005 (Interview 045). Because the variety has inferior yield and agronomic properties, closed-loop segregation of the variety ensures that none of the specially contracted wheat enters the rest of the bulk handling system. The new variety – which is grown for and used by Warburtons exclusively -- is owned by Proven Seeds, a subsidiary of Viterra. It is an increasingly important component of the bakery’s sourcing program, and today accounts for at least 15% of its Canadian purchases (Interview 045). This example illustrates the lengths to which grain industry actors, including the Canadian Grain Commission (CGC) and the CWB, have gone to accommodate the niche requirements of an important customer.

Warburtons’ relationship with prairie farmers has also spurred the implementation of the first on-farm food safety protocols (OFFS) for Canadian wheat (Smith 2006). Part of the shift towards privately audited quality assurance schemes, OFFS programs extend supply chain coordination down to the farm level by requiring farmers to follow particular production practices, all accounted for in detailed auditing procedures.

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59 The problem could occur for instance, if a feed wheat variety (with poor baking qualities) was visually indistinguishable from high-quality milling wheat.
60 Even here, possible contamination would have few negative consequences for the system, since the volumes are small, and the quality differences slight.
Although farmers have previously been bound to several production requirements stipulated in the Warburtons contract, the bakery has recently sought to establish more formal HACCP\textsuperscript{61}-based food safety standards for its contracted Canadian farmers. According to Warburtons’ purchasing director and spokesman, Bob Beard, “Canada is playing catch-up in regards to on-farm food safety programs” (quoted in Smith 2006). This motivated Warburtons to push for such a program, which it has tailored to its own specifications (Smith 2006). OFFS programs have been the industry standard in Europe for several years, and are already a requirement for UK wheat growers (Canada Grains Council 2006: Appendix A, 1).

Warburtons partnered with the Canada Grains Council’s in 2005-6 in a pilot project for OFFS for wheat production that superimposed stricter production protocols on the existing Warburtons production requirements. Under this project, a small group of contracted producers followed HACCP-based production protocols focused on reducing residue levels of glyphosate (the active ingredient in the herbicide RoundUp), ochratoxin, and micro-organisms in wheat (Canada Grains Council 2006: Appendix A, 3). In 2006-7, nearly 200 farmers signed up for the program (Canada Grains Council 2006: Appendix A, 5), and nearly 40% of contracted producers were working towards accreditation (Smith 2006). By the 2009-10 crop year, an on-farm food safety protocol will become a contract requirement of the Warburtons program (Interview 045, Bob Beard, Warburtons purchasing director). With no guarantee that the extra production costs entailed will be reflected in higher product prices, the prairie grain industry has been slow to move

\textsuperscript{61} HACCP (Hazard Analysis Critical Control Point) is an approach to risk management in food safety designed to prevent contamination of food supplies at various ‘critical control points’. HACCP principles have been applied to many public and private food quality assurance schemes, but in the Canadian grains sector, are purely voluntary.
towards OFFS. Warburtons’ participation in the OFFS project provided evidence of the ‘market-pull’ necessary to provide an incentive for the shift.

**Institutional learning and diffusion**

The Warburtons program has driven forms of institutional learning and diffusion, not only for the CWB, but for UK wheat industry actors as well. Since 1995, the CWB has launched a number of other IP production programs, most of which are designed to test new classes and varieties of wheat and durum as part of the CWB’s market development activities. In these cases, the CWB offers farmers a price premium on the contracted varieties, providing a production incentive that allows the CWB to collect enough grain to use in product testing and customer sampling. The CWB has also developed a few ‘commercial’ IP programs, in which specific varieties are produced and identity-preserved for sale to niche markets. Here too, the CWB offers farmers incentives to grow particular wheat varieties to be delivered into an IP handling system. As the first successful instance of accommodating an IP program in the bulk handling system, the Warburtons program provided the CWB with an experience upon which to design and manage other IP programs (Interview 013, CWB official).

The CWB-Warburtons program has also driven change in UK-based wheat-bread supply chains. Based on its experience contracting with Canadian growers, Warburtons developed a similar IP scheme with British wheat growers in 1998 through a cooperative grain company called Centaur (Centaur 2002). In 2006, Warburtons contracted for over

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62 These differ from the Warburtons program in that they do not involve direct contracting with a single end-user. Instead, the CWB estimates the market for a particular variety, contracts with farmers for its production, and sells the wheat to a variety of interested buyers.

63 Centaur grain was created through the merger of two other farmer-owned grain co-operatives in 2001, and has since absorbed two others. In November 2008, Centaur merged with a larger UK-based grain marketing company, Grainfarmers, to form a new farmer-owned company handling roughly 20% of the UK crop (Centaur 2008).
130,000 tonnes of milling wheat from Centaur in an IP system guaranteeing full traceability (a provision going well-beyond Canadian requirements) (Centaur 2006). Warburtons now considers the Centaur program to be more advanced than the Canadian version. In part, the advantage of the UK program has been Centaur’s willingness to enter into longer-term contracts (five years) for wheat production (Interview 045, Bob Beard, Warburtons purchasing director). Another advantage, according to Warburtons, is the extent to which its UK partners have integrated risk management, agronomy, and closer relations between farmer and end-user into the contracts (Interview 045).

Warburtons has established a presence on the prairies unique to Canada’s export buyers, providing evidence of closer links between end-users and other grain industry actors. In 1996, Warburtons established a technical centre and test-bakery in Brandon, Manitoba, allowing the bakery to maximize the performance of Canadian wheat varieties in its baking process through close monitoring (Kennett 1997, 64). As the harvest of a particular year’s crop progresses, contracted farmers deliver samples of their grain to the testing centre, allowing the bakery to fine-tune its milling grists and baking process to normal variations in grain quality. Given the extra costs associated with Warburtons’ investment in the IP sourcing program, close monitoring of crop quality was seen as essential, and provided the rationale for establishing the technical centre (Interview 040, Warburtons official, Brandon facility). The Brandon testing facility is staffed by two full-time employees, and Warburtons’ purchasing director makes several trips to the prairies during the growing season in order to personally monitor crop progress and quality.
Changing social relations

The Warburtons program has contributed to changing relations between social actors in commodity chains for wheat. Studies of the increasing prevalence of producer contracting in agriculture have typically focused on the expanding power and scope of food processors to shape production decisions (Winson 1992; Welsh 1997). Though the development of production contracting is quite advanced for particular commodities, the phenomenon is much newer in food grains. The Warburtons contract provides a relatively unique instance of end-user contracting for grain, tracking closer ties between the CWB, prairie farmers, grain companies and downstream actors. Developing the program demanded very close cooperation between an end-user, participating grain companies, farmers and the key institutions of the Canadian wheat economy – the CWB and the Canadian Grain Commission (Kennett 1997, 69). In the time since the beginning of the program, relations of coordination have only deepened, as attested to by Bob Beard, Warburtons’ purchasing director: “I think our relationship with the trade … has certainly got a lot closer since when we started, and that’s borne out through maturity and understanding our common requirements” (Interview 045).

As in other forms of contract production, closer relations between actors in the wheat-bread commodity chain have generated a number of tradeoffs for prairie farmers. Warburtons’ contracts stipulate some production practices for farmers, allowing the bakery to exercise greater control over wheat quality and to provide assurances of food safety. Though grain supplies -- particularly those from Canada, where the severe climate naturally controls pest populations – are generally less susceptible to food safety concerns, Warburtons strives to achieve targeted maxima for a number of chemical and

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64 The typical trade-off for farmers is between accepting more exacting production requirements and reducing risk through contracted prices and assured marketing outlets (Winson 1992, 138).
biological residues. At one time, for instance, Warburtons production contracts prohibited the use of Roundup as a pre-planting desiccating agent\textsuperscript{65} (Kennett 1997, 60). The scope of contracted control over production practices will increase with the implementation of Warburtons OFFS protocol beginning in 2009-2010 (see above). These provisions will also increase the administrative work of participating farmers, given farmer-auditing procedures linked to OFFS.

In a measure designed to guarantee higher crop quality and consistency, Warburtons also requires contracted farmers to use certified seed\textsuperscript{66} (Kennett 1997). This requirement poses a significant cost to participating farmers, since the rate of use for farm-saved (hence, free) wheat seed on the prairies is high. The wheat sector differs from other crop sectors in the high proportion of publicly bred varieties in use, leaving farmers free to save and replant seed. At the same time, there are no major wheat varieties grown on the prairies that have been subject to hybridization or genetic modification, both of which compel farmers to buy new seed every year\textsuperscript{67}. The use of certified seed, now framed as the key to higher quality products for premium markets, has become the focus of seed industry promotional campaigns. Much as with hybridization and GE crops (see Kloppenburg 1988), the increasing use of certified seed contributes to the further commodification of seeds. As farmers tie themselves more closely to end-

\textsuperscript{65} This requirement was dropped in subsequent years of the program.
\textsuperscript{66} Certified seed is commercially available seed that has been certified to meet very high standards for variety purity, germination rates, and mechanical purity (i.e., freedom from foreign material).
\textsuperscript{67} Because they are produced by crossing two pure-bred lines, the seeds of hybrid varieties do not breed true, meaning that subsequent generations of the plants lose their high-yielding properties. In this case, seed saving is self-defeating. In the case of GE crops, biotech companies claim patent rights over modified genetic material and charge farmers a royalty on their use, typically referred to as a Technology Use Fee. Because the Technology Use Fee covers use of the seed for one generation only, seed-saving and replanting is prohibited and subject to intellectual property infringement suits, such as in the case of Percy Schmeiser.
users through specialized IP production contracts, they therefore also tie themselves more closely to commercial input providers, including seed companies.

In some instances, Warburtons contracts have stipulated the payment of production premiums in company credits for agricultural inputs. This practice is becoming more common in a wide variety of production contracts and IP systems (Interview 038, CWB farmer-director). These requirements tie farmers more closely to the handful of transnational grain corporations operating on the prairies, most of which now have integrated risk management, farm input, and grain handling interests. Participating farmers are also subject to the quality specifications designed by the end-user and enforced by the grain company. Failure to meet quality specifications can result in the loss of the farmer’s investment of time and money in attempting to satisfy the additional management and production requirements of the contract. Of course, farmers who successfully negotiate the extra ‘hoops’ are rewarded with a significant premium. Closer integration with grain companies, input providers and end-users creates greater farmer dependence on non-farm supply chain actors.

**Dilemmas in the shift towards quality chains for wheat**

Despite its significance, the Warburtons contract highlights dilemmas and contradictions posed by this form of integrating prairie farmers into quality supply chains. One contradiction lies in the contract’s exceptional status. High-quality milling wheat represents only a relatively small portion, approximately 10%, of world markets (Schmitz and Furtan 2000, 26). Even in premium import markets, few end-users have so heavily staked their corporate strategy on quality claims as has Warburtons. The limits of the Warburtons model are evident in the fact that the same type of program has not yet
been reproduced by any other contract arrangement with an end-user (Interview 013, CWB official). A few other end-users, including a pasta maker, have approached the CWB with an interest in establishing a comparable program. In each case, however, the extra costs of the proposed arrangement, including price premiums, outweighed potential gains in production quality, supply, and marketing opportunities. Warburtons have “set the bar very, very high” (Interview 013) in the costs they are willing to assume in order to meet their quality standards. The bakery has been able to absorb this cost precisely because they are offering an expensive, premium product to consumers (Interview 040, Warburtons official, Brandon facility), and few end-users of wheat require such exacting specifications as Warburtons.

Paradoxically, the success of Canada’s existing public quality control system provides one reason for the limited appeal of exclusive arrangements modeled on the Warburtons contract. The system provides a level of quality and consistency making it a de facto quality segregation system (Interviews 008; 018, CWB farmer-directors). Except for under highly exceptional circumstances, the basic standard of grain quality and consistency therefore provides no extra incentive for a more expensive IP program. Though the Warburtons program has yet to be replicated, CWB officials are nonetheless confident that it is only a matter of time (Interview 013, CWB official).

The Warburtons’ contract also highlights on-going processes of farmer differentiation on the prairies. Only a relatively small number of producers (approximately 800, out of 52 00068 grains and oilseeds producers on the prairies) participate in the program, and there is a long waiting list for farmers who would like to

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68 Source: Statistics Canada, Table 002-0048 - Distribution of farms, by farm type and net operating income group, incorporated and unincorporated sectors, Canada and provinces, annual (number).
participate (Interview 040, Warburtons official, Brandon facility). As niche IP programs become more important, prairie farmers may increasingly become differentiated according to the specialized management skills and knowledge required of farmers participating in highly complex and sometimes risky contracts. These processes of farmer differentiation might be expected to be more problematic in a collective marketing system where a principle of equity exists in the fact that, traditionally, farmers delivering the same grade and class of grain received the same return. As explained above, the CWB has partially mediated this tension by building into the Warburtons contract a net benefit to the pool accounts. As the CWB adapts to new commercial conditions and end-user demands, the proliferation of specialized production and marketing options may continue to erode the principle of equity built into the pooling system.

These dilemmas are exemplified in the way in which the Warburtons’ story has intersected with debates over the future of the western Canadian grain industry. At the height of the federal government’s recent campaign to end the CWB’s monopoly on barley, Warburtons (along with other prominent CWB customers) published a letter in support of the status quo. The Warburtons’ official commented that the loss of the CWB could result in the baker securing its supplies of high-quality milling wheat outside of Canada (quoted in Samyn 2006). While conceding that an open market environment could potentially bring lower wheat prices, Warburtons has urged caution in the rush to dismantle the CWB’s single-desk structure:

I think we’ve been very loyal to the Canadian Wheat Board because the Canadian Wheat Board has helped facilitate a program that’s worked well for us. And that deserves some loyalty back from Warburtons as a customer. I think Canada Inc. needs to be careful in changing things because the Canadian Wheat Board has helped create a position where Canada is now known for being the premium
supplier of quality wheat around the world. And that’s a position that shouldn’t be thrown away lightly (Brett Warburtons, Interview 045, April 21, 2008).

The prominence of the Warburtons program has thus contributed to a growing importance of the views of high-profile customers and their consumers in key debates shaping agriculture on the prairies.

**Conclusion**

The CWB-Warburtons case is unique in showing how a regional (now national) food manufacturer and a farmer’s-marketing agency have forged a quality chain around premium products for a mass-market. I have argued that this case represents an instance of creative adaptation to new political and commercial conditions faced by each actor in the shift towards the economy of qualities. The significance of the transformation of the Canada-UK wheat trade since the 1990s is only fully revealed, however, when understood in the context of the long history of this commodity chain in successive food regimes. The CWB-Warburtons relationship helps track historical continuities and ruptures in Canada’s relationship to the UK market. The prairie wheat economy emerged from the colonial arrangement through which Canada supplied wheat for cheap wage foods in industrializing Britain. Today, Canadian wheat exports to the UK target a much smaller but lucrative *premium* market for what is essentially an indulgence product. The CWB-Warburtons relationship reflects both the continuity of longstanding supply relationships between Canada and the UK and the importance of emerging elements in new food regime relations. Three key arenas of continuity/change are evident in the relationship.

First, notwithstanding the growing importance of artisanal and ‘ethnic’ breads, the wheat-bread commodity chain has been shaped the historical construction of consumer
tastes. Consumer preference for pan-baked, industrial bread in the UK helps account for the longevity of the Canada-UK wheat-bread commodity chain. Imports of hard North American wheat helped drive the process of industrialization and mechanization in the UK baking industry, reinforcing and constructing demand for lightly textured, white bread. Since this early construction of UK consumption patterns, the UK has remained the exception among markets for bread in the rest of Europe, where bread consumption is more strongly linked to artisanal and craft production. Something of this ethos survived in the UK bread market of the 1990s, when retailers strove to outbid each other according to which could offer the cheapest bread. The rise of the premium bread market, led by Warburtons, reinvented industrial bread as a premium product, now a vehicle for new claims around quality, nutrition, and food safety. As evidence of increasing market differentiation, a wide-array of these premium bread lines is now sold alongside cheap, generic bread products. In the case of premium white bread – a key component of the premium market – claims around taste, texture, and other consumption qualities trump questions of health and nutrition. Here, the construction of the ‘premium’ bread market in the UK owes something to the specificity of British food-consuming culture, where industrial, white bread has long been a mainstay.

Second, the dependence of UK millers and bakers on North American hard wheat varieties has provided for continuity in supply relations between Canada and the UK. Concerted efforts to substitute Canadian wheat imports with domestic grain through import tariffs and new baking technologies substantially reduced, but never eliminated, this dependence. Whereas before the 1960s virtually all industrial bread in the UK was baked from at least 50% hard wheat, today millers and bakers use a wide range of grists,
with higher quality breads typically containing a higher proportion of hard wheat (Carter et al. 2006b, 55). Overall, the UK still imports approximately 15% of its milling wheat from North America (NABIM 2007). Warburtons has distinguished itself, even among premium bread manufacturers, in using more hard (Canadian) wheat than its competitors. Thus, while the use of a large proportion of Canadian wheat was once essential to the production of standard loaves, today a higher proportion of imported, Canadian wheat has become crucial to the quality differentiation strategies of premium bread manufacturers.

Third, the Canada-UK commodity chain has been conditioned by continuity and change in practices and institutions governing wheat quality. Canada’s quality control and segregation (grading) institutions were forged out of relations of conflict and cooperation between farmers, the grain industry, and the state during the early 20th century. Designed to assure Canada’s role as a major exporter, this unique configuration of publicly coordinated regulation produced the benchmark for Canadian quality – industrial conventions of consistency, cleanliness, and end-use properties – that has been a common thread in Canada’s international grain marketing for nearly a century. In the face of new, more specialized forms of consumer demand, the Canadian system has adapted by nesting tailor-made sourcing programs (introducing new industrial and market conventions of wheat quality) within the existing system. Through these specialized sourcing programs, Canadian wheat quality is redefined through specific variety selection, production practices, and handling procedures (IP). Though the baseline guarantee of the Canadian quality control system remains a marketing advantage for prairie wheat, that system is under pressure. New, more flexible rules are designed to encourage the production of high yielding wheat for feed and fuel, marking a decline in
the importance of bread-milling wheat varieties. As rules for variety registration and segregation are relaxed, new forms of private regulation are required to assure the integrity of high-quality milling wheat. The CWB-Warburtons case thus exemplifies complexity in the superimposition of private quality standards on publicly guaranteed quality standards.

This analysis illustrates how two actors have adapted to shifting conditions of accumulation and food politics in the wheat-bread commodity chain. The CWB’s experience with the Warburtons contract suggests that, through the market power afforded to prairie farmers through the CWB, a state-marketing agency can help farmers adapt to changing market conditions and end-user demands in the economy of qualities. By capturing some of the economic rents of the program for all farmers, not only those directly producing under the contract, the CWB showed creativity in combining the principles of collective marketing and new relations with downstream actors. Likewise, the CWB’s centralized control over marketing prairie wheat through the single-desk allowed for easier coordination of Warburtons’ specialized sourcing program. As Warburtons’ purchasing director put it, “It has been easy for us as an entity to deal with the Wheat Board as a one-stop shop. We get a lot of advice, they can open a lot of doors and corridors for us to help us run this program in the way that we require” (Interview 045).

Far from hampering the ability of the prairie grain industry to respond to niche requirements (Carter et al. 2006b), the centralized quality control and grain marketing system of which the CWB is the centre has provided distinct advantages in the shift towards the economy of qualities. These advantages are all the more important in the
context of mountains of cheap, undifferentiated, and subsidized wheat – the Industrial World of food that characterizes the vast majority of the world market. The CWB’s commercial strategy, based on quality-differentiation and close ties to downstream actors, is considered by its leaders to be essential to protecting Canada’s competitive edge. Centralized marketing and quality control differentiate Canada from all other major wheat exporters. In this environment, success will come from the CWB’s ability to respond to two distinct types of demand for Canadian wheat. While most buyers will continue to rely on the basic guarantees of wheat quality provided by Canada’s public quality control and marketing institutions, growing niche markets will draw upon CWB’s ability to provide sophisticated forms of private quality coordination for high-profile end-users (Oleson 1999). In the unique institutional arrangements of the prairie wheat economy, a Market World of food is emerging that is nested within the existing Industrial World of food.

As for Warburtons, the success of its Canadian sourcing program has been one pillar of its phenomenal success in the UK. Aside from providing for exacting wheat quality specifications, the relationship yields side benefits such as control over production practices and guaranteed supply in years of crop shortage. As explained in the Conclusion, however, recent industry changes in wheat-bread commodity chains in the UK may erode the unique CWB-Warburtons sourcing relationship.
Chapter 7 – Bread and markets: the controversy over GE wheat

The CWB-Warburtons relationship beginning in the 1990s provides evidence of how new quality conventions have transformed the Canada-UK wheat-bread commodity chain (Ch. 6). This change was nowhere clearer than in the controversy generated by the proposed introduction of GE wheat to the Canadian prairies. Between 2001 and 2004, the GE wheat controversy embroiled social actors in a struggle over questions of bread quality, food safety, ecology, and markets. In this chapter, I examine the controversy over GE wheat as a moment from which to reconstruct lines of historical change in commodity chain actors and agrofood relations. Here, I draw upon Schurman and Munro’s (2008) (see Ch. 3) approach to agrofood contestation, which combines cultural and political-economy arguments in explaining conflicts around Global Commodity Chains (GCCs). Specifically, the GE wheat controversy provides a lens on the deployment of new strategies by the CWB and Warburtons under changing conditions of accumulation and contestation in the agrofood system.

The CWB’s opposition to GE wheat was pivotal in preventing its introduction to the Canadian prairies. Focused on the threat of market rejection in premium export markets, the CWB provided political leadership in uniting commodity chain actors, farmers’ organizations, and social movements in a coherent opposition to GE wheat. The CWB’s campaign confirms the importance of new commercial strategies for the agency, including quality claims, branding, and closer ties to downstream actors. Warburtons’ unequivocal opposition to GE wheat played a key role here. Following the lead of European retailers and food manufacturers over the last ten years, the bakery opposed GE wheat based on consumer preferences and the desire to protect its brand image. The
controversy shows how the CWB mediated this controversial technological change in the context of competing strategies for integrating prairie wheat into global commodity chains.

The CWB’s success in the campaign against GE wheat derived from its central role in the mix of institutions governing grain marketing and quality in the prairie wheat economy. This position allowed the CWB to act as a ‘gatekeeper’ vis-à-vis the introduction of GE wheat into international commodity chains for wheat-bread. In part, the CWB’s leadership also derived from its evolution from a state agency into a farmer-controlled body. Under farmer-control, the CWB was free to oppose government biotechnology policy and to set its own commercial direction -- in the debate around GE wheat, now framed as a choice between selling an undifferentiated product, based on price, to emerging markets in the global South, or strengthening the prairies’ role as a supplier of high-quality wheat destined for premium markets. In an interesting twist, the CWB’s role in GE wheat has therefore had a recursive effect on debates over the future of the CWB. I discuss ways in which the CWB’s farmer-advocacy in the GE wheat case has influenced contentious political debates over the single-desk.

**The controversy over RoundUp Ready Wheat**

When Monsanto introduced the first variety of GE canola to the Canadian prairies in the mid-1990s, farmers embraced the new technology. Intended to simplify weed control for farmers, RoundUp Ready (RR) canola is genetically engineered to be tolerant to Monsanto’s flagship herbicide brand, RoundUp. Notwithstanding the increased cost of GE seed, the added cost of licensing the technology from Monsanto, and subsequent
problems with ‘volunteer’\textsuperscript{69} canola plants, prairie farmers rapidly adopted GE canola (Table 7.1)\textsuperscript{70}. RR canola was among the first GE crops to be commercialized anywhere and was introduced when the opposition to GE crops was as of yet only diffuse.

<table>
<thead>
<tr>
<th>Year</th>
<th>Canola acres sown to transgenic varieties</th>
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<tr>
<td>2001</td>
<td>61%</td>
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<tr>
<td>2000</td>
<td>55%</td>
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<tr>
<td>1999</td>
<td>53%</td>
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<td>1998</td>
<td>39%</td>
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<td>1997</td>
<td>15%</td>
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<td>1996</td>
<td>4%</td>
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When Monsanto’s proposed introduction of RR wheat first entered public consciousness in the late 1990s, the new GE crop raised a storm of controversy, including vociferous farmer opposition. What made the case of GE wheat so different? Partly, it was the emergence of a more concerted opposition to GE crops emerging during the 1990s, when consumers and varied social movements (environmental, social justice, and farmers’, among others) coalesced into an organized anti-biotech movement (Schurman and Munro 2003). In Canada, this movement succeeded in preventing the use of Monsanto’s recombinant bovine growth hormone (rbgh) in dairy production (Jones 2000). Notwithstanding this precedent, I argue that factors specific to the politics of the wheat-bread commodity chain explain the dynamics of contestation around GE wheat. Before turning to these, I trace the key events around the conflicts over GE wheat up until its withdrawal in 2004.

\textsuperscript{69} Volunteers are plants from a previous crop that inadvertently appear in the next crop in a crop rotation. These plants essentially become weeds, and are typically controlled with a broad-spectrum herbicide such as RoundUp. Volunteer RoundUp Ready canola plants have become a pervasive problem on the prairies and are particularly difficult to control because they require the application of more expensive herbicide mixtures.

\textsuperscript{70} Today, GE varieties are estimated to account for over 80% of the canola grown on the Canadian prairies (Canola Council of Canada 2005).
Monsanto began developing RR bread-milling (i.e., hard spring) wheat in the mid-1990s. The company saw enormous potential in the crop, given the very large acreage devoted to hard spring wheat production (in 2008, 14 million acres on the Canadian prairies alone)\(^{71}\) and the success of its other RR crops (canola and soy) (Interview 020, Monsanto official). By 1998, Monsanto had begun initial field testing of RR wheat, which continued until 2004. The process of bringing a new GE variety to market can take between 8-10 years and an investment of up to $100 million (Interview 020, Monsanto official). At the time Monsanto withdrew the product in 2004, RR wheat had reached the ‘advanced development’ stage, the stage just prior to regulatory approval and preparation for commercialization. Because Monsanto withdrew the product at this stage, it avoided incurring the costs (estimated at $40 to 50 million) of product marketing and seed multiplication associated with the last phase of development (Ibid.). Its investment in RR wheat was nonetheless estimated at approximately $50 million over 10 years (Phillips 2004).

The first signs of controversy over GE wheat emerged when the CWB began to express its concerns about market loss. In early 1999, the CWB conducted a survey of prominent customers-- including Warburtons and major European food processors Nabisco, Danone and Unilever – the majority of whom expressed their opposition to GE wheat (Rampton 1999). Although not the only argument against GE wheat (agronomic and environmental issues also entered the debate), market rejection would provide the most compelling and consistent rallying cry of opponents during the controversy. In subsequent surveys, the CWB found that over 80% of the grain customers it consulted

\(^{71}\) Source: Statistics Canada, Table 001-00171 - Estimated areas, yield, production, average farm price and total farm value of principal field crops, in imperial units, annual.
were not prepared to accept GE wheat (CWB 2003a). International reports on the market analysis of other major exporters also indicated widespread market rejection (*The Western Producer* 2000; Gillam 2000).

The CWB’s early misgivings over lost markets emerged just as Monsanto prepared for the first field trials for regulatory approval of RR wheat, which began in the summer of 2000 (Rampton 1999). As RR wheat entered the regulatory pipeline, the CWB and other industry actors became concerned that there would be no way to prevent its introduction. Under the Canadian regulatory regime for Plants with Novel Traits, federal agencies (CFIA and Health Canada) assess new GE plant varieties for environmental safety and impacts on human health only. In Canada, the commercialization of new wheat varieties is subject to a second regulatory hurdle, the variety registration process overseen by the CWB and other industry actors. This process restricts new varieties to those that can be shown to be better to or equal to a benchmark variety in terms of yield, agronomic performance, and disease resistance. However, neither the scientific regulatory approval nor the variety registration process provides a mechanism by which a new GE crop variety can be rejected on the basis of potential market loss. From its earliest interventions in the debate, the CWB thus pressed for additional regulatory measures, namely the inclusion of a cost-benefit analysis in the

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72 This terminology is unique to the Canadian regulatory system and is intended to apply a separate regulatory process to all plants with “a trait which is both new to the Canadian environment and has the potential to affect the specific use and safety of the plant with respect to the environment and human health” (CFIA 2008b). This distinction allows regulators to focus on the novelty of the trait as opposed to the process by which it was introduced (e.g., genetic engineering, mutagenesis, or conventional breeding) as the trigger for special regulatory evaluation. The use of the PNT designation is currently being reviewed in federal government-industry consultations on the future of seed regulation in Canada (the National Forum on Seed).

73 This criterion has been the subject of intense debate over more than 10 years of consultations for proposed changes to the variety registration system. As it stands, the proposed changes will allow some crop sectors, on a case-by-case basis, to be exempted from merit requirements, provided there is sufficient industry support (CFIA 2008a). The new rules are intended to introduce more flexibility into the system, a longstanding desire of plant breeders, seed companies, and some agricultural sectors who believe that the restrictions of the current system have slowed the pace of crop innovation.
variety registration process as a test of market impact (Wilson and White 2001). This demand clashed with the desire of federal policymakers not to interfere with the strictly ‘science-based’ regulatory process for GE crops already in place.

Opposition to GE wheat was compounded by mounting evidence that RR wheat would pose agronomic problems for farmers (Raine and McMillan 2001). In July 2002, the CWB produced a discussion paper raising questions about the potential for RR wheat to create new weed management problems and undermine zero-till soil conservation practices. The issue revolved around the use of two different RR crops (canola and wheat) in prairie crop rotations. With both crops resistant to RoundUp, managing volunteer plants would have become more difficult. While volunteer canola plants can be killed with the application of a relatively cheap herbicide (2,4-D), RR wheat volunteers would be more difficult to control, and would require a more expensive mix of chemical herbicides. Meanwhile, economic research findings strengthened the case against GE wheat. Calling RR wheat a ‘biotech “lemon”’, a paper published by University of Saskatchewan agricultural economists suggested that, given the potential for market rejection and the costs of segregation, introducing GE wheat would pose a significant economic cost to prairie farmers (Furtan, Gray and Holzman 2003).

As the controversy mounted, the CWB established a two-track strategy vis-à-vis GE wheat. First, in conjunction with other key actors, the CWB helped lay the groundwork for a broad-based coalition among social movement organizations, farm groups, and the CWB. Here, the CWB provided political leadership and legitimacy to the

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74 Under zero-till (or conservation tillage) practices, farmers use chemicals rather than mechanical tillage to control weeds (including volunteers) between crops. Because this chemical ‘burn-off’ depends on the use of a broad spectrum herbicide such as RoundUp, the presence of RR wheat volunteers, which could only be controlled with more expensive chemical mixtures, would have undermined zero-till practices.
coalition, helping to bridge the disparate concerns of social movement actors, farmers, and industry actors. The coalition framed opposition to GE wheat in terms of ‘multiple concerns for multiple constituencies’ (Magnan 2007, 311). Given the breadth of opposition represented in the coalition, this type of framing allowed the coalition to emphasize the legitimacy of its concerns and implicitly discredit Monsanto for refusing to heed those concerns. It also contributed to a strategy among groups with a more entrenched anti-biotech position such as Greenpeace to broaden the base of support for their wider campaigns against GE crops. By cooperating closely with farmers’ organizations, Greenpeace tried to demonstrate how its opposition to GE crops transcended a narrow focus on the concerns of (mostly urban) consumers.

Second, the CWB assumed a lead role in coordinating an industry response to GE wheat by establishing the Grain Industry Working Group on Genetically Modified Wheat, in December 2001. The Working Group assembled a broad array of industry actors (the CWB, the Canadian Grain Commission [CGC], farm lobby organizations, representatives of the grain handling industry, the Canadian National Millers’ Association, and Monsanto, among others) with the goal of gathering information on the market acceptance, agronomic, and segregation issues to be resolved in considering the introduction of GE wheat (Interview 010, CWB official). Monsanto participated in the Working Group somewhat reluctantly, fearing the process would inevitably result in posing insurmountable obstacles to the commercialization of RR wheat (Interview 020, Monsanto official). In January 2003, the Working Group released its final report, which specified four key conditions for accepting GE wheat: market acceptance; a segregation
system capable of meeting international tolerance levels for adventitious presence; further analysis of potential agronomic problems, and a “comprehensive cost-benefit analysis” of the technology (Grain Industry Working Group 2003, 2-3). Given that the CWB’s customer surveys continued to show widespread market rejection (Wilson 2003a), the Working Group’s document effectively closed the door on GE wheat.

More intense conflicts between the CWB and Monsanto emerged in the spring of 2003, as a result of the biotech company’s announcement that it had made its “full submission” to federal Canadian regulators for the environmental and health safety assessment of RR wheat (White 2003c). The looming possibility of regulatory approval created a sense of urgency among GE wheat opponents. The federal government continued to resist the CWB’s proposal to change regulatory procedures (at the variety registration stage) to incorporate a market impact component, fearing that moving away from its “science-based” regulatory process would inappropriately politicize biotechnology regulation (Wilson 2003a). As the possibility of a regulatory solution faded, the CWB saw no other recourse but to publicly ask Monsanto to withdraw RR wheat from the regulatory process in May, 2003 (White 2003b). The company refused, but promised to follow a ‘cautious approach’ in commercializing the crop, suggesting that conditions other than regulatory approval, including market acceptance, would be considered (Wilson 2003b). Unsatisfied with Monsanto’s approach, the CWB indicated

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75 Adventitious presence is the industry term used to refer to the accidental presence of small quantities of GE materials in grain shipments.
76 Ralph Goodale, then Minister Responsible for the Canadian Wheat Board, warned in 2002 that including market impact would only play into the hands of jurisdictions (e.g., the EU) using consumer rejection of GE crops as trade barriers (Wilson 2002).
77 The conflict with the CWB centred on interpreting ‘market acceptance’, as Monsanto insisted that a far larger proportion of Canadian grain buyers were open to RR wheat (Interview 020, Monsanto official).
that it would consider seeking a court injunction to prevent the unconfined release of RR wheat if regulatory was approval immanent (White 2003a).

In the summer of 2003, new evidence of agronomic problems with GE wheat further heightened tensions (Ewins 2003c). A report by University of Manitoba plant scientists referred to these problems as a question of “environmental safety” rather than crop management, significantly reframing the potential harm of RR wheat. The new study provided another weapon in the arsenal of GE wheat opponents, and may have served as a tipping point in its eventual withdrawal (Interview 010, CWB official). The CWB brought the new study to the attention of federal regulators at the CFIA (Ewins 2003a), which prompted greater scrutiny of Monsanto’s regulatory application for RR wheat and a request for further data from the company (Interview 010, CWB official).

As the months passed, cracks began to appear in Monsanto’s plan to complete the regulatory phase and pursue commercialization. When it became obvious that environmental safety and health assessments through the CFIA would significantly be delayed, Monsanto withdrew RR wheat from consideration for variety registration, which had been scheduled for discussion in early 2004 (Ewins 2003b). Facing mounting regulatory obstacles and continued farmer and industry opposition, Monsanto hinted at a US-only release of RR wheat, which alarmed US industry actors who feared that such a decision would give Canada a marketing advantage over the US (Ewins 2004; Gillam 2004). In May 2004, Monsanto finally conceded, announcing its withdrawal of RR wheat. The company cited declining wheat acreage78 and a lack of industry support for

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78 Total prairie wheat acreage has declined from a peak of nearly 35 million acres in the mid-1990s to approximately 24 million acres in 2008. Hard spring (bread-milling) wheat has declined relative to total wheat acreage, from nearly 80% in the early 1990s, to 60% today. Meanwhile, canola acreage tripled between 1970 and 2008, from under 5 million acres to over 15 million acres. Source: Statistics Canada., Table 001-0017 -
RR wheat as the primary reasons for the crop’s withdrawal (Pratt 2004). Monsanto ended its research program into transgenic wheat varieties, preferring instead to concentrate its R & D investment in commercially successful GE crops (Interview 020, Monsanto official). The CWB called the decision “a win for farmers and consumers” considering the “overwhelming evidence that this was not the right product at the right time” (Patty Rosher, CWB spokesperson, cited in Pratt 2004). The episode marked a major retreat for Monsanto and a watershed in public controversies over GE crops in the North American context.

‘BSE for wheat’ – Contests over quality in the bread-wheat commodity chain

The RR wheat controversy helped crystallize the increasing importance of new features of wheat and bread quality as a locus of conflict among commodity chain actors. In this section, I trace key elements of these conflicts through the symbolic importance and politics of bread, the strategies of key commodity-chain actors (CWB and Warburtons), and the framing deployed by RR wheat opponents. The analysis suggests that the nature of the commodity in question (bread milling wheat) proved crucial in shaping the dynamics of commodity chain conflicts over this GE crop as various actors seized upon different aspects of the quality question. Whereas wheat-industry actors (led by the CWB) warned of losing premium markets for Canada’s high-quality wheat, downstream actors including Warburtons emphasized the inviolability of consumer

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79 In July 2009, Monsanto announced that it was moving back into wheat genomics with its purchase of a US-based research firm specializing in wheat. According to Monsanto, this acquisition will allow the company to focus first on developing new wheat varieties using conventional breeding, and later, on developing new GE wheat varieties. The introduction of GE wheat varieties, however, is at least 8 to 10 years away and will depend on industry and consumer acceptance (Ewins 2009).
preference for non-GE foods. In the way it linked the controversy over GE wheat to questions of grain and bread quality, this case provides a specific illustration of the intersection of culture and commodity chain relations in contestation around GE crops (see Schurman and Munro 2008). Likewise, the controversy shows how the structure of Canadian grain marketing and quality control institutions uniquely positioned the CWB in its ability to mediate technological change and maintain the prairie wheat industry’s orientation towards premium markets for bread milling wheat. Whereas analysis of previous North American conflicts over GE crops found that upstream actors (farmers groups, commodity organizations, etc.) were relatively weak commodity-chain actors (Schurman and Munro 2008), the GE wheat case shows how Canada’s unique industry structure made the CWB a key ‘gatekeeper’ for RR wheat.

As the first attempt to introduce a GE version of a food staple, the proposed introduction of GE wheat presented new political openings for anti-biotech activists. The symbolic importance of bread proved fertile ground, as social movement actors seized upon the cultural significance and centrality of bread as a dietary staple. The Council of Canadians (CoC) adopted the campaign slogan, “Keep our bread GE free!” and invoked the image of bread as the ‘staff of life’ (CoC 2003). Framing its opposition in terms of food safety, consumer rejection, and harm to Canadian farmers, it organized a campaign to have consumers mail a slice of bread to their Members of Parliament in protest of Monsanto’s plan to introduced RR wheat (CoC, no date). Greenpeace consistently linked two issues – the economic threat posed to Canada’s farmers and consumer rejection – in its campaign. A former Greenpeace biotechnology campaigner described the significance of the RR wheat controversy in this way:
The thing that was different about GE wheat … was the fact that it was such an iconic, economically important crop to Canada. And it would have been the first crop that would have been far more pervasive in terms of its use as food, and use in some of the iconic types of food like bread and cereals and other things that might cause the public, I think, to be a little bit more aware of the fact that they were consuming GMOs. (Interview 042, former Greenpeace GE wheat campaigner).

In its campaign materials, the National Farmers Union (NFU) deployed a similar frame, calling wheat “one of humanity’s most important and culturally significant sources of food” (NFU 2003).

For their part, commodity chain actors who opposed GE wheat drew on evidence of customer/consumer rejection to link the issue to bread and wheat quality. The CWB’s role, of course, was crucial, as it focused its opposition to RR wheat around the question of consumer rejection, particularly in premium markets (CWB 2003a, 2003b). Drawing on its capacity for gathering detailed market intelligence, the CWB took pains to publicize the unwillingness of key buyers – state importing agencies as well as prominent private buyers (millers and bakers) – to use GE wheat. Many buyers indicated not only that they would refuse to buy GE wheat, but that they would consider refusing to buy any Canadian wheat altogether (Interviews 006, farmer-director). The impossibility of total segregation would have made the CWB unable to guarantee shipments of wheat to be ‘GE-free’ and contamination, even in minute quantities, was seen as unacceptable to many buyers. As one CWB farmer-director put it, the contamination of the Canadian grain supply with RR wheat “would have been a marketing disaster. It would have been BSE for wheat” (Interview 018). Though the comparison to BSE is apt, there is one key difference: the unconfined release of GE wheat would have irreversibly contaminated the seed supply, given the inevitability of gene flow.
The interventions of prominent buyers of Canadian wheat played a key role in cementing the CWB’s case against GE wheat. In June, 2003, the UK’s largest miller (and, incidentally, a company contracted by Warburtons to mill its Canadian wheat supplies), RHM warned that the introduction of GE wheat to North America would prompt a switch to Australian or German supplies of hard milling wheat (Pratt and Reuters 2003). In 2004, as the controversy neared its climax, a delegation of Japanese consumer groups toured the prairies and traveled to Ottawa to voice rejection of GE wheat (Western Producer 2004; Smith 2004). However important were the objections of these key state buyers and processors, Warburtons’ intervention was especially significant.

As a major overseas end-user (as opposed to processor) of Canadian wheat, Warburtons’ vocal stand against RR wheat provided the crucial link between Canadian wheat and bread consumers in premium markets. The bakery expressed its opposition as early as 1999, when the CWB cited the Warburtons’ “unequivocal no” to the prospect of RR wheat (Rampton 1999). In a key media intervention, The Western Producer reported on a presentation made by the bakery’s purchasing director, Bob Beard, to a meeting of concerned Manitoba farmers (Rampton 2001). According to Beard, the company was intent on being able to guarantee to consumers that its bread remained GE-free. In light of the large volume of consumer inquiries about GE wheat (approximately 60% of its 10,000 consumer comments in one year alone), Beard insisted: “There’s no way I’m going to put our brand at risk” (Rampton 2001). Providing evidence of the significance of Warburtons’ position, a farmer in attendance at the meeting commented that, “If you can persuade people from Warburtons to accept RoundUp Ready wheat, then I can accept it”
(Ibid.). Warburtons’ intervention thus concretized European consumer rejection of GE food, allowing prairie grain industry actors to link RR wheat to lost premium markets. Given the success of the Warburtons contracting program – which includes significant premiums for participating farmers – the bakery’s rejection of GE wheat also brought home the threat to lucrative identity-preserved (IP) programs.

Warburtons’ strategy vis-à-vis GE wheat was formed in the context of the much more widespread and intense consumer rejection of GE foods in Europe (including the UK) compared to that in North America. In the UK, opposition to GE foods began in the 1980s, but intensified significantly in 1996, when the first shipments of GE products from the US entered Britain (Schurman and Munro 2008, 22). The breakthrough success of the British anti-biotech movement was in the way it succeeded in convincing large food retailers and food manufacturers to commit to guarantees of GE-free food (Ibid., 24). In light of the leading role played by supermarkets in the ‘private interest regulation’ of the British food sector (Marsden and Wrigley 1996, see Ch. 5), supermarkets were especially vulnerable to any perception of compromised food safety. By the late 1990s, all of the major UK supermarket chains had committed to guarantee the absence of GE ingredients in their own brands, and several key food manufacturers – including Unilever, Nestle’s and RHM (the UK’s largest miller-baker) -- had promised to phase out products with GE ingredients (Schurman and Munro 2008, 24 and Table 1). It was in this context that Warburtons emerged as a leading opponent of Monsanto’s plan to introduce RR wheat to the prairies.

The RR wheat controversy shows how commodity chain actors rallied around quality principles in the defence of their respective commercial interests. Responding to
consumer rejection in Europe, Warburtons sought to protect its brand image for premium bread. The stakes involved were all the more important given that the RR wheat controversy coincided with Warburtons’ spectacular breakout in the UK baking industry, beginning in the late 1990s (Ch. 6). At such a time, Warburtons was not prepared to risk brand loyalty and consumer confidence by using GE ingredients. Warburtons officials concede that there may be some potential for future GE varieties with a clear consumer benefit. However, there remains much work to be done to convince UK consumers of their safety:

The GM industry has a job to be done in turning around UK or European consumers, for us to accept it in our brand ... That’s not our role. I will listen to our consumers and be driven by what they want, as any good marketer would … (Interview 045, Warburtons official)

Not unlike the strategy followed by other commodity chain actors, Warburtons insisted that it opposed GE wheat strictly on the basis of consumer preferences, not on the basis of concerns with the safety of GE crops (Interview 045, Warburtons officials).

For its part, the CWB’s role in the GE wheat controversy played favourably into its commercial strategy of quality differentiation, branding, and customer service. The controversy strengthened its ties to key customers (Interview 010, CWB official), as the CWB consulted closely with buyers and relayed their concerns to prairie farmers and Canadian policymakers. As the monopoly seller of Canadian wheat, the CWB could speak with a single voice to reassure wary customers that the Canadian wheat supply remained free of GE grain. This response helped the CWB differentiate itself from the US wheat industry (Interview 010, CWB official) where, although there was strong opposition to GE wheat (Ewins 2003d, Pratt 2002; The Western Producer 2003), no single organization could speak authoritatively on behalf of the industry. In addition, the
CWB was well positioned to provide credible evidence of market rejection because of its direct links with buyers and its role as farmers’ marketing arm (Interviews 008, 009, 018, farmer-directors).

Warburtons’ role in the controversy complemented the CWB’s goals in raising awareness of market rejection and of Canada’s reputation for high-quality milling wheat:

Warburtons is really the darling of the customer base partly because they are willing to come over and talk to whoever they need to talk to, they are very active in Ottawa, they are in the media as often as they want to be. … It was important to have a customer voice there. So they really highlighted the marketing challenges. (Interview 010, CWB official)

The RR wheat controversy reinforced the potential threat to what has become for the CWB not only an important commercial contract and source of premiums, but also a public relations success. As a “flagship product for Canadian grains” (Interview 008), wheat grown under the Warburtons contract has allowed the CWB to demonstrate its willingness to develop stronger links with downstream industry actors, pursue niche markets, and develop tailor-made contracts for those customers willing to pay a premium for Canadian wheat (Interviews 006, 018, 022, 025, 038, farmer-directors and Interview 015, senior CWB official).

In part, it was the CWB’s place in a unique set of institutions regulating quality control and marketing for prairie grain that enabled it to play a lead role in opposing GE wheat. In Canada, decisions over the registration of new wheat varieties are centralized in the Prairie Recommending Committee for Wheat (PRCW)\(^80\), over which the CWB has significant influence. Historically, the variety registration system has worked in tandem with the CWB’s single-desk selling structure, matching the approval of new varieties to

\(^80\) The PRCW evaluates new varieties and recommends their approval or rejection to the federal regulator, the Variety Registration Office of the CFIA.
marketing goals, namely maintaining the end-use characteristics of prairie wheat defining it as ‘high-quality’. In essence, as the single-desk marketer for prairie wheat, the CWB serves as a gatekeeper for wheat quality. Although centralized control over variety registration demands a tradeoff between the number (few) and quality (high) of registered varieties, CWB officials argue it has served prairie farmers well:

[I]t provides the discipline in the system that’s necessary to be putting out a premium product … And if you lose that discipline, you lose that ability. (Interview 008, CWB farmer-director)

[I]t’s created the image and the backbone for the best wheat in the world brand. (Interview 011, CWB official)

The CWB’s clout in the quality control system lent legitimacy to the claim that RR wheat would undermine Canada’s reputation as a supplier of high-quality milling wheat. As a key industry gatekeeper, the CWB was provided with extra leverage in commodity chain conflicts over biotechnology (see Schurman and Munro 2008).

The CWB’s success in the conflict over GE wheat also reflects the way in which it has carved out a new, political role arising from its organizational transformation. Opposition to GE wheat was among the first examples of the new possibilities for farmer advocacy inherent in the 1998 reforms to the CWB Act (Ch. 6). These changes formally put farmers in charge of the CWB (via the farmer-controlled board of directors), increasing the political capital of the agency in the eyes of farmers (Interview 015). This allowed the CWB to pursue public relations and policy goals on behalf of farmers.81 This effect may have been particularly important in the case of GE wheat:

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81 Under the farmer-controlled board of directors, the CWB has intervened on behalf of farmers on a number of high-profile issues including transportation policy (Schmitz and Furtan 2000), international trade negotiations (e.g., WTO negotiations over State-Trading Enterprises), and US trade harassment over the single-desk (see Ch. 6).
I think it was … very positive for the Wheat Board as being seen as standing up for the interests of farmers … Farmers have very few other allies that will do that these days or that have the size and strength that the Wheat Board can bring to bear on an issue like that. (Interview 010, CWB official)

The CWB’s role in farmer advocacy has become more important given the political vacuum created by the privatization of the prairie Wheat Pools (farmer-owned grain handling cooperatives), which had traditionally been powerful farmer advocates (Interviews 006, farmer-director, 036, former CWB official).

Finally, the identity of the commodity in question – high-quality bread milling wheat – also helps explain the dynamics of commodity chain conflicts over RR wheat. The proposed introduction of RR wheat at once threatened an iconic product of prairie agriculture, milling wheat, and the integrity of bread, with all of its cultural and symbolic referents. The fact that Monsanto chose to attempt to commercialize a GE version of bread milling wheat rather than, for example, a variety destined for feed wheat or biofuels, was therefore decisive. Indeed Monsanto recognized that the company’s choice to introduce a variety of RR milling wheat may have posed unique obstacles in its desire to commercialize the product (Interview 020). Most importantly, it allowed key opponents of the new technology to frame the issue in terms of threats to quality. For the CWB, RR wheat threatened to compromise the Canadian reputation for high-quality milling wheat, and for Warburtons, it threatened to undermine the bakery’s reputation for premium bread products.

**Mediating the integration of prairie wheat into the economy of qualities**

The GE wheat controversy focused attention on competing strategies for integrating prairie wheat producers into global commodity chains. In turn, these
competing alternatives have intersected with debates over the CWB’s single-desk structure. In the wake of Monsanto’s withdrawal of RR wheat, CWB critics argued that the Canadian wheat industry had missed a significant opportunity by rejecting GE wheat (Carter et al. 2006b). The study – conducted with Monsanto funding -- disputed the CWB’s data on market rejection and, contrary to competing analyses of the economic consequences of introducing GE wheat (Furtan et al. 2003), found a net economic benefit. Basing their argument on the idea that the most growth in world demand for wheat will come from the global South, Carter et al. (2006b) suggest that it is a mistake for the CWB to privilege quality-conscious premium markets over price-conscious customers. The Carter and colleagues argument has been referred to as a case for the ‘wal-martization’ of wheat (Boyens 2006) and is contrasted to the CWB’s emphasis on branding, quality assurance, and premium markets.

In this way, the GE wheat controversy has added a new dimension to debates over the merits of the CWB’s marketing monopoly. These debates have traditionally focused only on CWB economic performance, particularly, the question of whether or not the CWB is able to obtain price premiums for prairie wheat. Conflicts over GE wheat have partly reframed the issue of single-desk marketing around the broader commercial strategy most appropriate for the prairie wheat economy, including the types of markets that should be pursued. Critics of the CWB (and the centralized quality assurance system of which it is a key part) view the current system as excessively oriented towards exports of high-quality milling wheat. Here, the “‘high quality wheat-only’ regime” (Carter et al.

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82 Carter and associates have been high-profile detractors of the CWB (see for example, Carter 1993, Carter and Loyns 1996, Carter and Loyns 1998, and Carter et al. 1998) while a group of agricultural economists (mostly based at the University of Saskatchewan) have published generally favourable analyses of CWB performance (Furtan et al. 1999; Kraft et al. 1996; Schmitz et al. 1997; Schmitz et al. 2005).
2006b, 15) of the Canadian quality control system is viewed as having restricted crop innovation, precluding the development of high-yielding varieties intended for feed and biofuels.

The CWB, by contrast, argues that its strategy of serving premium markets for high-quality milling wheat allows it to maximize returns for prairie farmers. According to CWB farmer-directors, this strategy best reflects the relative advantages and disadvantages of prairie wheat production. On the one hand, the geographic remoteness of the Canadian prairies means that exports must target premium markets: “we are so far from the marketplace that unless you’re selling a very high value product the shipping costs, the transportation costs can just eat up all of the value” (Interview 002, farmer-director, also Interviews 019, 025). Canada is ill-positioned to compete in markets for lower-quality wheat with low-cost exporters such as Argentina, Kazakhstan, and Ukraine, which, because of proximity to ports and markets, can offer deep discounts (Interview 019, farmer-director). On the other hand, Canada’s climate and coordinated variety control system allow it to produce wheat that consistently meets industrial conventions of wheat quality (Ibid.).

Single-desk marketing is essential to this strategy. The CWB provides a single entity through which prairie wheat producers can present a coherent brand image, coordinate selling geographically and over time, and provide centralized customer service. Furthermore, the CWB has shown how the single-desk system can provide an advantage in identity-preserved contracts such as the Warburtons program, particularly via the lower coordination costs associated with centralized marketing, quality control, and transportation logistics (Ch. 6). These advantages are borne out in the way
Warburtons has expressed its preference of dealing with the single-desk CWB. Commenting on the possibility of sourcing its wheat in an open market, Warburtons’ purchasing director noted: “… all I see for Warburtons, at the end of the day, is more work. And more work is more cost for us” (Bob Beard, cited in CBC News 2006). Debates over the CWB are thus partially refracted through competing visions for the prairie wheat industry – high-quality milling wheat for premium markets versus cheaper grain for price-conscious, emerging markets.

Of course, these alternatives are not either/or propositions. The market for high-quality milling wheat represents a relatively small portion of the world market (approximately 8% according to Carter et al. (2006b, 51)) (albeit, one in which Canada commands a significant market share), and the CWB sells the majority of its wheat into markets in the South. The CWB’s ability to extract a premium from quality-conscious markets is nevertheless crucial to its competitive advantage in the world market, helping it to differentiate it from competitors such as the US and Australia.

**Conclusion**

In this chapter, I have retraced the conflict over GE wheat as a lens on the transformation of the Canada-UK wheat-bread commodity chain and the actors that have led it. The proposed introduction of Monsanto’s RR wheat threatened the commercial strategies of both the CWB and Warburtons, as each used quality claims to negotiate changing patterns of accumulation and contestation in an emerging food regime. In this way, this conflict underlined the significance of the creative reinvention of the Canada-UK commodity chain for wheat-bread by the CWB and Warburtons during the 1990s (Ch. 6). The CWB-Warburtons contract has become a high profile success story for the
CWB, and has come to embody for many prairie farmers and industry actors a model of the type of sophisticated and lucrative IP contracting that will continue to become more important in the future. Warburtons’ intervention in the GE wheat controversy therefore played a decisive role in cementing grain industry opposition to Monsanto’s RR wheat.

I have argued that the nature of the commodity in question – bread milling wheat – played a key role in the strategy of GE wheat opponents as they drew upon the symbolic and material significance of wheat-bread. Grain industry actors focused on the threat of lost markets for prairie farmers, while social movement opponents emphasized the nature of bread as a culturally significant food staple. In turn, Warburtons’ opposition to GE wheat was framed in the particular context of British food politics and the UK bread market. On the one hand, Warburtons responded to British consumers’ general rejection of GE foods, which originated from the food safety crises of the mid-1990s and the success of anti-biotech environmental movements. On the other hand, the premiumisation of the bread sector since the 1990s reflects increasing concern among British consumers around issues of bread nutrition and quality, including issues of ingredient quality (e.g., organic) and provenance. As a leader of the premium segment of the UK bread market, Warburtons was uniquely positioned to respond to evidence of widespread consumer rejection of GE bread. The conflict over GE wheat/bread therefore helps illustrate the extent to which quality concerns have transformed the UK bread market, traditionally characterized by consumer preference for cheap, industrial loaves.

Meanwhile, the CWB’s success in this instance of agrofood contestation arose from two key roles, one ‘old’, and one ‘new’. On the one hand, the CWB’s traditional role at the centre of prairie institutions coordinating wheat marketing and quality control
positioned it as a gatekeeper for new technology in the wheat-bread commodity chain. On the other hand, since the organizational reforms of 1998, which turned control of the agency over to farmers, the CWB has adopted a significant advocacy role for prairie farmers. In the GE wheat controversy, the CWB acted to protect the quality reputation of prairie grain and farmers’ access to lucrative premium markets such as the UK.

The RR wheat story confirms scholarship emphasizing the importance of quality as a key terrain of contestation in the agrofood system, while also revealing the unexpected role played in the transition by some types of actors (a food manufacturer and a farmers’ marketing agency) and commodities (wheat). As a defining moment in contests over quality in global commodity chains for wheat-bread, the RR wheat controversy points to new forms of quality-differentiation in premium markets for wheat-bread. While both the CWB and Warburtons have been successful in the way they have mobilized quality principles, the future of the Canada-UK wheat-bread commodity chain is far from certain (see Conclusion).
Conclusion

Traditionally thought of as a bulk commodity rather than a quality-differentiated product, wheat has, in a sense, begun to ‘catch up’ to other agrofood commodities in the shift towards the economy of qualities. Two recent examples are illustrative. First, in probably the first instance of a wheat variety making it on to the menu of a gourmet restaurant, celebrity chef Mario Batali now offers Red Fife Pappardelle in Butter at his New York restaurant, Del Posto (Finlayson 2008). This story is part of a larger revival of Red Fife – the variety that helped open up the Canadian prairies to wheat production – in which niche (artisanal?) producers supply specialty mills and bakeries with the heritage wheat variety. Renowned for producing bread with distinctive flavour and texture, the revival of Red Fife is due in part to the variety’s nomination to Slow Food Canada’s Ark of Taste, which recognizes heritage foods for special protection (Slow Food 2008).

Second, UK supermarket Sainsbury’s has launched an identity-preserved program through which it will eventually source all of its wheat for own brand bread from local UK producers (Fortescue 2007, see below). This program will provide the supermarket with unprecedented control over its wheat supply, allowing it to market its own brand bread on the basis of local provenance.

The groundwork for the introduction of new quality conventions in commodity chains for wheat -- the extent of which could not have been predicted even 10 years ago -- was laid by innovative relations in the Canada-UK wheat trade. This dissertation has traced the historical transformation of the Canada-UK commodity-chain for wheat-bread as a means of contextualizing new quality-differentiation strategies embodied in the CWB-Warburtons program. Building on the historical legacy of the Canada-UK wheat
trade, these two actors pioneered a unique sourcing relationship that has driven significant changes both to the prairie wheat industry and the UK bread market. On the prairies, the Warburtons program ties farmers into contract production of specialized wheat varieties for a high-profile overseas customer. These contracts involve unmatched control over production practices, grain quality, and supply chain logistics, and have necessitated close coordination among grain industry actors. In the UK, Warburtons’ unique sourcing program has become a pillar of its commercial success as a premium bread manufacturer. The unique relationship forged between Warburtons and the CWB shows how each actor has negotiated food regime change in a strategy based on re-making the Canada-UK wheat-bread commodity chain around new principles.

These changes are emblematic of the increasing importance of quality claims, traceability, and private standards in the recent reorganization of agrofood supply chains. Yet, as I have argued, this shift cannot be understood outside of changing historical constellations of power and conditions of accumulation in the agrofood sector – i.e., historical food regimes. While the CWB-Warburtons program is recent, its antecedents are in long-term relations linking prairie farmers to UK food consumers. I have used food regimes analysis to situate and interpret the reconstitution of the Canada-UK commodity chain for wheat-bread, tracing changing forms of farm/food politics, state-economy relations, and international structures of power. The CWB-Warburtons relationship emerged just as each actor faced crises posed by the rapidly changing politics and conditions of accumulation in the shift towards a new food regime. Each actor responded creatively to these crises in forging new commodity-chain relations that have led the industry. After decades of decline, these new relations revived historical links
between Canada and the UK through the wheat-bread trade with implications for all actors, not least prairie farmers. Below I explain how these new relations at once built upon and transcended the legacies of previous food regimes, and how they suggest a surprising role for wheat in the transition towards the economy of qualities, the possible basis for a new food regime.

This case connects and extends knowledge of food regimes and the economy of qualities in two keys ways. First, in the context of the leadership of private actors in the coordination of quality chains, the shift towards quality in the wheat-bread commodity chain was pioneered by two unlikely actors – a state marketing agency and a national food manufacturer. The CWB embodies a unique set of economy-state relations that are partly the result of historical legacy and partly creative adaptation. Borrowing from the pooling principles invented by the early agrarian movement, the state implemented government-mandated collective marketing and centralized quality control as a means of protecting farmers from the vagaries of price and power on the open market. Over successive periods of food regime stability and change, the mechanisms of public regulation and collective marketing have been adapted to changing conditions of accumulation, resulting in the historical transformation of the CWB. With the demise of the Australian Wheat Board in 2008, the CWB is the only remaining state-marketing agency for wheat exports in the world. Considered by its opponents to be an anachronism in a globalizing era, the CWB has played a leading role in new supply chain relationships, suggesting ways in which centralized marketing and quality control -- the hallmarks of the Canadian system, and a legacy of previous food regimes -- may provide an advantage to prairie farmers.
In 15 years, Warburtons has transformed itself from a small regional player into the UK’s leading bread brand, with national distribution and extraordinary brand presence. This has been accomplished in a market traditionally characterized by consumer preference for cheap bread, and since the 1980s, dominated by supermarket own brands. With a handful of supermarket giants dominating the industry, the UK retail food sector is among the most concentrated in the world and over the last three decades UK supermarkets have come to exert extraordinary power over food manufacturers. Warburtons’ success owes to its refusal to produce own brand products for supermarket chains combined with its innovations in wheat sourcing, production methods, and marketing, which it has used to carve out a substantial portion of the market for premium bread products. Today, major UK supermarket chains are replicating Warburtons’ identity-preserved wheat sourcing programs for use in their in-store bakeries and own brand products.

Second, the quality chain centers on a semi-fresh, manufactured food staple (bread), whereas most quality chains are organized around fresh produce, meat, and dairy products. Although grain (including wheat for highly processed foods and livestock feed) is usually understood as a homogeneous commodity, bread milling wheat, especially that destined for premium markets, is increasingly quality-differentiated. The CWB-Warburtons commodity chain has set the standard for quality-based supply chain coordination for wheat-bread, with identity-preserved handling from farm to table, rigorous production standards, and price premiums for prairie farmers. In exchange for the premium price it pays for Canadian wheat, Warburtons receives unmatched sales service, guaranteed supplies, and the stringent control over wheat quality it requires for
its sophisticated manufacturing process. These advantages have contributed to Warburtons’ transformation of the bread market. As a basic food staple, bread – especially of the standard, industrial variety predominant in the UK – has historically been constructed as a mundane article of consumption valued for its cheapness. Today, bread is becoming a vehicle for new consumption values based on indulgence, nutrition, ecology, and, most recently, provenance.

In this conclusion, I summarize the key contributions of my dissertation for food regime history and theory by tracing the significance of changes to the Canada-UK wheat trade, the principle actors in the story (the CWB and Warburtons), and wheat-bread over time. Tracing food regime change through a particular spatially-bounded commodity complex (the Canada-UK wheat trade) adds depth to the current body of food regime accounts. Likewise, while most food regime analyses have placed hegemonic actors (the UK, then the US) at the centre, this case shows how particular actors in Canada and the UK (both relegated to secondary roles in the mercantile-industrial food regime) have negotiated food regime change.

**Food regime change in the Canada-UK wheat-bread commodity chain**

Taking a long historical view, a food regimes perspective shows how the emergence of new relations in the Canada-UK wheat-bread commodity chain has combined elements of the ‘old’ and the ‘new’. Trajectories of change have been structured, on the one hand, by the historical and geographical legacies of previous food regimes and, on the other hand, by actors’ responses to new conditions. The experiments of social actors produced both intended and unintended outcomes, revealing how historical legacies shape current food regime relations and how actors have acted
creatively in the face of food regime change. I trace changes to the commodity-chain for wheat-bread through three interrelated processes: 1. the transformation of the CWB and Warburtons as agrofood actors; 2. the construction of wheat and bread quality through changing patterns of public and private agrofood regulation; and 3. state-state relations between Canada, the UK, and the US under changing conditions of competition and power in the agrofood system.

The historical evolution of the CWB shows how the collective marketing mechanism has served as an instrument of adaptation to food regime change, including changing international structures of power. The CWB single-desk marketing mechanism emerged during the crisis of the UK-centred food regime as a key adaptation of state actors (borrowing from the farmers’ movement invention of grain pooling and collective marketing) to market volatility and structural inequality in the private grain trade. The national regulation of agriculture took different forms in the major exporting nations, with the US adopting commodity programs, and Canada and Australia, single-desk marketing. Single-desk marketing embodied a particular set of state-economy relations in which farmers, by virtue of government statute, forfeited individual property rights (i.e., the right to sell their grain on the open market) in exchange for market power. In the Keynesian ethos of the mercantile-industrial food regime, this form of state-sponsored monopoly enjoyed widespread legitimacy, with strong farmer support as well as the unanimous support of federal political parties.

While satisfying the longstanding demands of the prairie agrarian movement for orderly marketing, the single-desk structure incidentally proved useful to Canada’s strategy as a second-tier exporter in the mercantile-industrial food regime. Under new
conditions of hegemony, the US adopted a mercantile strategy centred on food aid, used to expand export markets and dispose of domestic food surpluses. In response to declining market share caused by the US’s mercantile strategy, the CWB pursued large, multi-year deals with state-importers. Here, the single-desk structure of the CWB provided an advantage because of its structural congruence with single-desk state importers. This proved particularly important in a world market politically structured by the US’s Cold War embargo, which Canada exploited in order to expand exports to communist states (e.g., China and the USSR). Unable to compete against US subsidies, the single-desk provided indirect structural support to prairie farmers. Centralized marketing of Canada’s distinctive high-protein wheat allowed the CWB to exercise market power by withholding stocks from the market in order to support prices. In turn, this allowed the CWB to match its pricing policy to domestic farm income targets.

When the traditional role of the CWB broke down in the crisis of the mercantile-industrial food regime, the single-desk selling mechanism was adapted to a new purpose: coordinating Canada’s centralized approach to branding, supply chain coordination, quality control and market development in a new, more aggressive commercial strategy. While retaining the core of the CWB’s structure as a public institution (the single-desk), the CWB adopted many of the strategies expected of private firms (product differentiation, branding, supply chain coordination, etc.). Far from being contradictory, the combination of these two roles complemented one another. As the sole seller of Canadian grain into world markets, the benefits of public investments into market development, quality control and branding were assured to flow back to the CWB, and by extension, prairie farmers.
In a way that could not have been anticipated, the CWB’s new role as of the 1970s proved adaptive in the shifting environment of the 1990s, when the requirements of individual private buyers (increasingly framed by new quality conventions) became more important. Here the best example is the Warburtons contract, where the single-desk has proved advantageous in providing the centralized control over quality, logistics, and guaranteed supply sought by the British bakery. Meanwhile, the benefits of the Warburtons contract extend to all prairie farmers, via the price premium the bakery pays into the CWB’s general pool account. The CWB has thus creatively combined organizational and commercial changes that, while maintaining its basic mandate to maximize sales returns for farmers through monopoly marketing, have helped adapt the prairie wheat industry to new conditions of accumulation. Debates over the single-desk that focus narrowly on the issue of price premiums in world markets treat the CWB system as static, and therefore ignore the ways in which the single-desk mechanism has been adapted to changing historical and commercial circumstances.

Though Warburtons emerged during the UK-centred food regime, its story remained in the background in my account of changes to the food industry, state regulation, and consumption before the 1990s. This history provides the context in which Warburtons’ rise is all the more surprising. During the first food regime, changing supply conditions (namely, the massive influx of cheap North American wheat) drove the industrialization of the UK milling and baking industries, establishing the conditions for the emergence of national, vertically integrated bread and milling giants. During the mercantile-industrial food regime, the milling and baking industry became among the UK’s leading food manufacturing industries, as it served the large UK market for store-
bought, industrial bread. By the 1970s, however, food manufacturers were in severe decline relative to the growing power of retailers. With growing market power, retailers used bread as a loss leader, forcing the large national bread manufacturers to offer deep discounts and compete on volume.

The significance of the Warburtons story, told in Chapter 6, is how beginning in the 1990s it led the premiumisation of the UK bread sector. Partly, Warburtons turned its own obscurity to turn to its advantage. While the national bread manufacturers attempted to adapt to supermarket dominance by supplying the latter with own brand products, Warburtons took a different track. Warburtons helped reinvent industrial bread – long valued in the UK for its cheapness – as a premium product, using its specialized sourcing program for Canadian wheat as the bedrock of its product quality. Though the national bread manufacturers also produced premium lines, Warburtons is the only major bread firm to have staked its strategy exclusively on premium products. The bakery’s innovation in supply chain coordination for wheat, pioneered with the CWB in the 1990s, is today being replicated with sourcing programs in the UK (for Warburtons as well as its competitors). Tracing the rise of Warburtons thus provides evidence that, despite common assertions of supermarket dominance in the shift towards the economy of qualities, branded food manufacturers in some sectors have been leaders in developing privately coordinated quality chains. In this case, the expected pattern of diffusion for new supply chain relations has been reversed.

The food regimes analysis presented here also provides a lens on the shifting construction of wheat and bread quality through changing patterns of public and private agrofood regulation. Canada’s role in global commodity chains for wheat has been based
on historically mediated quality conventions. Over the course of the first food regime, Canada came to be defined as the leading supplier of ‘high-quality’ milling wheat. Partly, Canada’s advantage has owed to a happy accident of geography: the prairies’ soils and cold climate are ideal for producing high-protein, hard wheat valued for its end-use properties in industrial bread production. Canada harnessed this natural advantage during the UK-centred food regime by developing a unique set of centralized quality control institutions for the prairie grain trade. First, Canada’s centrally regulated grading system, based on visual inspection of wheat samples, offered an inexpensive and effective means of segregating bulk wheat shipments by end-use and grade. Second, centralized control over the introduction of new varieties helped maintain uniformity and consistency in Canadian wheat shipments and continual improvement of select dimensions of wheat quality (e.g., yield, disease resistance, protein content). Each of these features helped to orient prairie wheat production towards bread-milling wheat for export markets, as wheat quality came to be defined by features rendering the grain amenable to new milling and baking technologies and responding to consumer preferences.

Over the next several decades, the close fit between the requirements of large overseas millers and the characteristics of prairie wheat allowed Canada to take for granted its dominance of the upper tier of the market for high-protein bread-milling wheat. Yet, Canada’s pre-eminence in these markets was undone by the UK’s shift towards import substitution, beginning in the 1960s, when new baking technology was developed that allowed traditional aspects of bread quality (the fluffy white loaf) to be maintained while drastically reducing the need for hard wheat. In response, the CWB developed product branding, market development programs, and customer-oriented
services intended to construct and defend Canadian quality claims against a new set of competitors (especially Australian and US varieties). Once an essentially uncontested function of industrial conventions, Canada’s quality claims have since this time come to rely more heavily on ‘reknown’, economic conventions revolving around reputation and social standing (Morgan et al. 2006, 20). On the one hand, the CWB draws upon images and conventions of wheat quality inherited from the UK-centred food regime to define a tradition of high-quality production. On the other hand, the CWB’s long history is such that part of its reknown is based on decades-old relationships and trade patterns that have established trust and reputability among buyers.

In the 1990s – another period of food regime transition – new strategies of quality-differentiation in the bread sector drove the development of new market-based conventions of wheat quality. In order to meet these new conventions, the CWB has adopted a marketing strategy relying on two tiers of quality assurance. The public quality control institutions developed in the early 20th century provide a basic guarantee of product cleanliness, consistency, and quality-differentiation (i.e., classification by grades) that serves Canadian exports well (Oleson 1999). With the demise of the AWB, the CWB is the only national collective-marketing entity with this level of centralized coordination of product development, quality, and branding. As in the example of the Warburtons contract, the CWB offers another level of quality to prominent customers by superimposing private standards and sophisticated supply chain coordination on the already rigorous set of public quality guarantees. Programs such as this one allow for tailor-made private standards (consisting of both new industrial and market conventions) to be nested within Canada’s unique configuration of publicly guaranteed standards. This
allows the CWB to pursue marketing along two tracks: as a supplier of publicly
guaranteed high-quality, bulk wheat shipments, and as a supplier of niche, IP products for
premium markets. Protection of Canada’s quality advantage – serving both conventional
and niche outlets -- has been a key strategy vis-à-vis competitors such as the US and the
EU, who maintain market share through export subsidies.

Changing forms of public and private regulation have also constructed dimensions
of bread quality intersecting with consumer politics, state regulation of the food sector,
and changing Canada-UK commodity chain relations. Originally, Canadian exports of
wheat to the UK served as the key ingredient to a wage food, valued for its cheapness,
and, increasingly consumed as a standardized industrial product. Consumer preference
for lightly textured, white bread helped drive the adoption of roller milling, in the late
19th century, as the new technology was particularly well suited to turning hard (North
American) wheat varieties into strong, white flour. These definitions of bread quality
abstracted from other issues of bread quality, namely nutrition, leading to historical
contests over bread involving state and social movement actors. The state intervened to
improve bread nutrition during war-time conditions (by raising flour extraction rates,
yielding browner, more nutritious bread), but compromised in the post-war period by
implementing bread fortification, where nutrients missing from white bread would be re-
introduced as external inputs. This solution accommodated the desires of the influential
milling-baking industry, which sought to cater to consumer preference for white bread.

Changing supply factors, tied to the UK’s strategy of import substitution during
the mercantile-industrial food regime, also mediated bread quality. When the
Chorleywood Bread Process (Ch. 4) was introduced in the 1960s, it allowed millers to
drastically reduce their reliance on Canadian wheat, but not without drawing upon a new arsenal of chemical dough conditioners and stabilizers. The paradigm of bread fortification, introduced at the height of state influence in food regulation during the mercantile-industrial food regime, was called into question, during the 1970s and 1980s, as new issues of bread nutrition arose (e.g., lack of fibre, and presence of chemical additives in the standard, white loaf). This paved the way for the introduction of premium bread lines, during the 1990s, when issues of bread quality and nutrition would be addressed by private actors (corporations) marketing their products on the basis of consumption qualities (premium and super-premium lines), health (e.g., nutraceuticals and fibre-added white bread), and ecology (e.g., organic). Although slower to catch on, the bread sector has thus experienced a process of quality-differentiation – where premium products sit alongside cheap, generic goods -- similar to that in other food commodities.

These changes suggest that, even as a semi-fresh, processed food, bread has been subject to significant changes in patterns of production, consumption, and supply-chain coordination emerging from new discourses and practices of ‘quality’. The actual ecological and health benefits of the shift towards ‘quality’ in the UK bread sector are ambiguous, however. First, it is in large part varieties of industrial, white bread (with dubious nutritional value) that have driven bread sector premiumisation, reflecting a culturally-specific legacy of bread consumption in the UK. Bread varieties responding to health- and environmentally- related demands form another component of the premium market. Yet, it is largely left to food manufacturers to frame these nutritional and environmental claims according to their marketing imperatives. Second, bread sector
premiumisation has contributed to higher quality standards for wheat in cases where food manufacturers have required more stringent food safety, production, and traceability measures of their suppliers – as in the case of Warburtons. Although these measures may provide some benefit in terms of food safety and good environmental practices, they do not address the deeper ecological contradictions of large-scale monoculture (see below).  

Finally, food regime analysis of the wheat-bread commodity chain has provided a lens on changing state-state relationships between Canada, the UK, and the US. The Canada-UK commodity chain emerged from the division of labour between a metropole (the UK) and a settler-state, organized around trade in a basic food staple. Between 1870 and 1914, Canada and the US competed for dominance in the world’s largest import market, the UK. Canada began to close the gap on the US in the early decades of the 20th century, as the prairie wheat boom took hold. In this early period, Canada’s latent colonial ties to the UK significantly shaped the development of its grain marketing institutions. Under war-time conditions, it was the need to ensure Canada’s ability to provision the UK that ultimately triggered the decision to implement monopoly marketing of the wheat crop. Thereafter, Canadian exports eclipsed those from the US, which increasingly funnelled is agricultural output into the growing domestic market. The crisis of the UK-centred food regime spelled the end of Canada’s formal colonial ties to Britain, which, in the wheat trade, was marked by the failure of colonial preference as a response to collapsing world markets.

The crystallization of new food regime relations after 1945 reconfigured relations between Canada, the US, and the UK. Immediately after the war, Canada and the UK

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83 Organic wheat production may go further in addressing these issues than identity-preserved, conventional wheat production. Here still, large-scale organic wheat production is subject to some of the same ecological issues, including biodiversity loss and fossil-fuel dependence.
remained the world’s largest wheat exporter and importer, respectively. A multi-year wheat agreement between the two provided the framework for the International Wheat Agreements that would provide stability to the world wheat trade for nearly two decades. Yet, as the UK pursued a new, European-oriented strategy of import substitution, it shifted away from Canadian imports. Thereafter, the volume of the Canada-UK wheat trade declined precipitously.

Changed conditions of hegemony and accumulation of the mercantile-industrial food regime shaped relations of tension and cooperation between Canada and the US. On the one hand, the US’s re-entry into world markets relegated Canada to second-tier status. Food aid squeezed Canada out of Third World markets, prompting the CWB aggressively to pursue markets in communist states. Though this created tension between the Cold War allies, Canadian sales to communist states were tolerated in an implicit recognition of the harm caused to Canadian market share by the US’s policies. On the other hand, Canada and the US cooperated closely in the administration of International Wheat Agreements, which regulated the commercial wheat trade. Price fluctuations within the minima and maxima established by IWA’s were managed through Canada-US coordination. This relationship combined Canadian market power (its ability to segregate markets for the highest-quality bread milling wheat) with US political and economic leadership. Though the US ceded some power to Canada by allowing it to serve as a price leader, it maintained a trump card in the ability to use export subsidies to expand its market share. In the end, Canada-US cooperation was fragile. As Canada’s edge in the market for high-quality milling wheat declined (i.e., with the CBP), the US turned
increasingly to the use of export subsidies to increase market share, which ended multilateral pricing cooperation.

Since the end of the mercantile-industrial food regime, Canada-US wheat relations have been subject to perpetual conflict. Though the re-entry of the USSR as a major importer during the 1970s temporarily eased international conflicts, subsidy wars between the US and the EU starting in the 1980s created severe hardship for the Canadian wheat sector. Canada’s response has been to aggressively pursue ‘free trade’ in agriculture, both in its regional (CUSTA and NAFTA) and multilateral forms (the GATT, and eventually the WTO). Meanwhile, the US has used domestic trade tribunals as well as new mechanisms created under NAFTA and the WTO to challenge Canadian trade practices through the CWB, all of which have been unsuccessful. Since the implementation of free-trade agreements, the US market has become all the more attractive as an outlet for exports of high-quality Canadian wheat. Canada maintains a tenuous balance between advocating for continued trade liberalization (reduction of US and EU subsidies) and maintaining single-desk marketing.

In the context of continued US and EU intransigence on export subsidies, the CWB allows prairie wheat farmers to compete based on supply-chain coordination, market development, branding, and price premiums. The showcase of this aspect of the CWB’s marketing strategy is the Warburtons contract, which revived historic ties between Canada and the UK. Even with a much reduced volume of trade beginning in the 1960s, the UK remained an important customer of Canada’s, as one of only a few premium export markets served by east-coast shipping routes. Likewise, some proportion of Canadian wheat remained a key component of milling grists for the UK
bread sector. These circumstances would provide the basis for the re-invention of the Canada-UK commodity-chain beginning in the 1990s. The historical Canada-UK wheat trade constituted in the first food regime provided a continuity of supply that contributed to Warburtons’ decision to turn to the prairies in establishing its unique sourcing relationship through the CWB. As in other cases (e.g., the New Zealand kiwi industry – see Campbell 2005), the cultural affinities and long-standing relationships involved in the Canada-UK wheat-bread commodity chain played a role in reinventing this commodity chain around new quality conventions and practices in the 1990s.

Analysis of the wheat-bread commodity chain suggests complexity in the shift towards privately guaranteed quality chains in the emerging food regime. The CWB-Warburtons program shows how two actors have forged a successful, identity-preserved supply chain for specific wheat varieties used in the manufacture of a mass-marketed, premium food commodity. The program embodies many of the features of privately guaranteed quality chains for other commodities, including the production of specialized, high-quality varieties, contracted production practices, third party auditing (with the recent addition of On-Farm Food Safety Protocols for farmers), and extensive supply chain coordination. Yet, the arrangement is unique in the way in which it combines public and private regulation of a commodity-chain for a premium product. As a collective-marketing agency with a public mandate, the CWB’s involvement has significantly mediated the integration of prairie farmers into this quality chain. By requiring Warburtons to pay a separate premium to the CWB for the program, the CWB has captured some of the value of the relationship for all prairie producers. Meanwhile,
the CWB is able to negotiate some terms of the contract in a way that benefits contracted farmers.

**Future of the CWB and Warburtons**

In this section, I assess possible trajectories of change for the CWB and Warburtons and for quality-based wheat-bread commodity chains more generally. Today, the future of the CWB turns on two issues. The first is the manner in which the prairie wheat economy will be integrated into new relations of accumulation in the emerging food regime. The CWB is likely to defend its strategy of serving premium markets for high-quality milling wheat. Its ability to do so will depend on the extent to which it is able to mediate the pressure to deregulate Canada’s centralized quality control and marketing system, particularly that posed by domestic proponents of biofuels and feedstock industries (Interview 019, CWB farmer-director). It will also depend on its continued success in developing identity-preserved programs – e.g., the Warburtons contract -- for lucrative niche markets. In both instances, the CWB has shown that, as the marketing arm of prairie farmers, it can mediate some, but not all of the risks associated in the shift towards an economy of qualities.

The second issue on which the future of the CWB turns is the principle of farmer-control. The CWB’s survival depends on the extent to the principle and exercise of farmer control can address the assault to its legitimacy posed by farmers, domestic governments, as well as international actors – e.g., other grain exporting countries. While the transformation of the CWB since 1998 has dampened farmer criticism, there remains a hard core of anti-CWB farmer activists. In the recent political conflict over the CWB’s single-desk in barley, the principle of farmer-control was severely tested, and if political
circumstance change (i.e., a majority government opposing the CWB is elected) the CWB could quickly be stripped of its monopoly powers. Likewise, there is nothing precluding the Canadian government from negotiating away the CWB’s single-desk powers in future WTO rounds.

The CWB’s own vision for its evolution, detailed in its *Harvesting Opportunity* proposal, would see the organization continue down the path of greater farmer-control as well as closer commercial ties to other supply-chain actors. According to CWB, the advantages of the single-desk system include its mandate to return all of the value from its grain sales back to producers, the strength of its longstanding marketing relationships, the value of the Canadian brand it promotes, and the ability of the CWB to serve as a farmer-advocate vis-à-vis other supply chain actors. Yet, the CWB faces a major disadvantage in a field dominated by horizontally and vertically-integrated transnational companies in that it is prohibited by the CWB Act from owning commercial interests in other areas of the grain supply chain.\(^{84}\)

In this environment, the major change envisioned in *Harvesting Opportunity* is for the CWB to be allowed to enter into joint ventures with or to own commercial interests in other parts of the supply chain. This change, which would require legislative amendments to the CWB Act, would see the CWB split into two new entities. The first of these would be a parent organization controlling the CWB’s ‘core-marketing business’, using the single-desk to return maximum value to farmers through collective marketing (CWB 2006, 18). The second entity would be a wholly owned, for-profit subsidiary of the parent organization, the mandate of which would be to seek profitable

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\(^{84}\) Most grain TNCs are vertically integrated into both upstream (e.g., plant breeding and seeds) and downstream (e.g., processing) sectors of the supply chain (CWB 2006, 10).
investment, ownership and joint-venture opportunities in other links in agrofood supply chains (CWB 2006, 21). Profits would either be returned to farmers via the parent company or reinvested, and cross-subsidization between the parent organization and its subsidiary would be prohibited (Ibid., 22). This proposal mirrors the process of commercial transformation undertaken by the New Zealand dairy industry’s marketing arm, Fonterra, which has developed extensive overseas partnerships and joint ventures as it attempts to move up the value chain (Gray et al. 2007).

*Harvesting Opportunity* also proposes to further entrench the principles of farmer-control and autonomy. With participation in for-profit commercial ventures and the elimination of government financial guarantees, the transformed CWB would require more formalized farmer control (CWB 2006, 24). The key changes to be introduced would be, first, to create a CWB Electoral Commission authorized to enact and oversee more formalized rules and procedures for conducting farmer-director elections. Second, the proposal would give authority to the board of directors, rather than the government, to appoint external directors (CWB 2006, 25). In this way, *Harvesting Opportunity* can be interpreted as the CWB’s bid to complete the transformation begun in 1998. The proposal would see a more autonomous CWB assume a new role in circuits of accumulation, marking an important departure from its historic marketing role. This transformation would likewise also be tied to a new visual identity and name for the organization – one that would be integrated into its broader, long-term branding strategy (Interview 034). The creativity of the proposal lies in the way in which it combines innovative relationships with other supply chain actors while maintaining the advantages of economic cooperation and market clout afforded by the CWB’s single-desk structure.
The hostile political environment in which the CWB has had to operate since 2006, when the Conservative federal government began its campaign to end the single-desk, has proven to be the most important obstacle preventing the CWB from pursuing this path.

For its part, Warburtons continues to lead the UK market for premium bread, its success in no small part attributable to its on-going sourcing relationship for prairie wheat. However successful the program has been, there are nevertheless tensions and limits evident in the present CWB-Warburtons program. First, the program falls short of privately coordinated quality schemes with more extensive requirements, the leading example of which is Eurep-GAP (Campbell 2005). As privately coordinated quality chains for wheat continue to evolve, the question is to what extent the level and sophistication of these private standards will converge with those used in other commodity sectors. Eurep-GAP (now known as Global-GAP) has developed certification standards for ‘combinable crops’, which, include provisions, among others, for the quality of seed stock used, hygiene in crop harvesting, handling, and storage, and restrictions on the use of chemicals in crop management (Global-GAP 2009). Eurep-GAP standards may therefore become increasingly important in identity-preserved supply chains for grains, especially those intended for some end-uses (e.g., bread or pasta).

Second, Warburtons’ contracts with British farmers now surpass those with Canadian farmers in sophistication and stability. Partly, this emerges from the constraints imposed by prairie geography. In Warburtons’ sourcing programs with UK producers, identity-preserved contracts include full traceability. This feature is likely impossible to implement in Canada, given the much larger area from which grain is sourced and the distances it must travel (Interview 013). Furthermore, Warburtons’ contracts with UK
grain farmers now extend over multiple years, providing greater assurance of consistent supply, something the CWB has been unable to do (though it has gone to significant lengths to provide Warburtons with security of supply in years of low quality). The irony is thus in the way Warburtons’ sourcing relationships with UK farmers risk eclipsing those with Canadian farmers, in part through the diffusion of program design and implementation from Canada to the UK. As the call to reduce ‘food miles’ (Lang and Heasman 2004) becomes louder, the pressure to source more wheat from the UK will intensify. However crucial it may be for the quality of its products, Warburtons’ use of Canadian wheat is not seen by the bakery as something that can add value to its brand in consumers’ eyes. Though certain features of prairie agriculture allow it to compete on the basis of provenance (e.g., discourses/claims of purity and cleanliness tied to the remoteness and harsh climate of the prairies), it cannot compete based on place in the UK bread market. For this reason, the bakery can be expected to maximize its UK sourcing to the extent that it can without compromising product quality.

Indeed, as noted in the example above, there are signs that local wheat sourcing is becoming an increasingly important basis for bread marketing in the UK. Sainsbury’s exclusive sourcing arrangement for British wheat (Fortescue 2007) is likely to reconfigure both the UK bread market and wheat sector. Under this arrangement, the supermarket will source all of the UK-grown wheat used in its in-store bakeries through a partnership between a farmer-owned grain handling company (Camgrain) and a grain marketing co-operative (Grainfarmers). Initially, the sourcing arrangement will account for 80% of the flour used in its in-store bakeries, but that proportion will be gradually increased to 100%, as imports of Canadian wheat are phased out (Ibid.). In a sign of

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85 My use of the terms place and provenance is borrowed from Morgan, Marsden, and Murdoch (2006).
significant shifts in the UK grain industry, a merger has been formally proposed for Grainfarmers and Centaur (the UK grain marketing co-operative involved in the Warburtons’ program), the result of which would be a new company with both very large marketing volume as well as combined capacity for supply-chain logistics and IP contract programs. These contracts provide the first instance of supermarket-driven identity-preserved contracts for wheat. If other major supermarkets (and indeed independent bread manufacturers) follow suit, the importance of Canada-UK quality chains for wheat could be eroded.

**The prairie wheat economy: possible futures**

Just over a century after the first large waves of settlers and seeds radically transformed the prairie west, the wheat economy faces an uncertain future. Today, the prairie wheat sector is shaped by contradictory, yet overlapping, processes linked to the uneasy co-existence of different, emerging worlds of food. By and large, the prairie wheat sector constitutes an Industrial World of food producing raw materials for industrial processes of food manufacture. Unique prairie institutions have given prairie wheat some advantages in the Industrial World of food, namely, an edge in quality claims defined by industrial conventions and the coordinated marketing, quality assurance, and branding that underlie these quality claims. In world markets, these advantages translate into price premiums that flow back to prairie farmers through the CWB’s single-desk. However important these premiums may be, they are more than offset by the long-term crisis tendencies of the prairie wheat economy including the secular decline of grain prices, rising input costs, and the ecological contradictions of industrial monoculture. Even recent commodity price spikes such as the food price bubble of 2007-2008 are a
mixed blessing, as higher wheat prices were matched by high fuel prices and a higher Canadian dollar (driven by commodity speculation and a retreat from the US dollar), both of which cut into additional earnings.

Changes are underway in the Industrial World of food of the prairie wheat sector that suggest that the tendency towards increasing scale is far from exhausted. Sprott Resource Corporation, a Canadian investment firm, announced its plan to launch One Earth Farms, a joint partnership with seventeen First Nations Bands from which it will lease more than 1 million acres of agricultural land (Friesen 2009). With an investment of $27.5 million, One Earth Farms will be by far the single largest farming entity on the prairies, producing livestock, grains, and oilseeds on tracts of land as large as 20 000 acres spread across the prairies. One Earth Farms will provide employment to approximately 250 residents of First Nations communities, as bands sign over land currently leased to non-native farmers to Sprott Resource Corporation. Meanwhile, the model proposed for One Earth Farms is said to be focused on “sustainable, environmentally friendly land use” (Ibid.). Combining massive-scale, new property relations, and ecological goals (the actual content of which remain ambiguous), the mega-farm model introduced by One Earth Farms will alter a pattern of land ownership and labour (the family-farm) that has remained virtually unchanged for over a century. With evidence that foreign buyers – including large investment groups and institutional funds - - have begun to size-up Canadian farmland for profitable investment outlets (Ladurantaye 2009)86, this type of model could potentially spread.

86 Currently, the law prevents non-Canadians from owning land in Saskatchewan. Some Canadian-only funds have already invested in prairie farmland, and the current Saskatchewan government is considering changing landownership laws (see Ladurantaye 2009).
Nested within the Industrial World of food on the prairies is an emerging Market World of food in which a small number of farmers grow select varieties destined for quality-differentiated, premium end-products. Those farmers participating in this Market World of food earn premiums over and above world market prices based on meeting new industrial and market-based quality conventions for wheat, defined by private actors. Specialized, contracted production requires careful growing practices and increasingly sophisticated farm management skills designed to satisfy new demands for food safety and auditing. As a result of these new demands, farmers tend to be selected for programs such as the Warburtons contract on the basis of reputation and specialized knowledge. This is likely to lead to further farmer differentiation, with a small number of skilled and reputable producers filling the niche market demands of private actors. It is clear, however, that the Market World of food in wheat, as manifested on the Canadian prairies, does not escape the ecological contradictions of large-scale monoculture and reliance on distant markets. Despite the more stringent standards imposed on some aspects of farm management and food safety, production for the Market World of food in wheat differs little from the high-input, chemical- and fossil fuel-intensive production prevailing in the Industrial World of food.

Finally, there are a small, but growing number of prairie wheat farmers participating in an Interpersonal World of food linking growers directly to local and international outlets for heritage wheat varieties. The key example here is the Red Fife revival, begun some 10 or 15 years ago. This heritage variety was recovered and multiplied in 1988, but only grown on a commercial scale some years later. In 2007, over 500 tonnes of Red Fife were produced in Saskatchewan, and a co-operative has been
established -- the Prairie Red Fife Wheat Organic Growers Co-op -- to coordinate production and sales to select artisan bakeries and international buyers (Jaffe 2009). Red Fife production and marketing thus embody many of the conventions typical of alternative food chains – namely interpersonal trust, provenance, authenticity, and tradition. Typically involving small-scale, organic production, niche production of Red Fife draws upon farmer knowledge, control over seeds, and ecological principles in a way that challenges dominant features of the Industrial World of food. At the same time, sales into global – albeit extremely specialized – outlets suggest that it has not fully escaped the ties to distant markets that have shaped the history of the prairie wheat economy.

Meanwhile, there are signs the CWB is adapting to the emergence of demand for locally-sourced, niche varieties on the prairies. It has launched a program called Field to Plate in which buyers involved in small, value-added processing of prairie wheat can “source grain directly from farmers in amounts up to 500 tonnes each year” (CWB 2009b). The showcase for the program is a recent initiative between the CWB, the Forks Market in downtown Winnipeg, and Tall Grass, an artisanal bakery located in the market. Featured prominently in the market, a large, 450-bushel glass bin has been installed to store organic wheat delivered directly by local farmers for use in the Tall Grass bakery’s stone mill. The installation is intended to draw attention to the small, but significant market for locally-sourced, niche products.

Change in the prairie wheat economy will depend on the way in which social actors – not least of which the CWB – will shape the development of rival, but interpenetrating worlds of food. The unique institutional structure of the prairie wheat
economy – the legacy of which is a globally-recognized, farmer-controlled marketing entity – will no doubt play a key role in this regard. To the extent that the CWB can show adaptability and creativity in mediating farmers’ integration into Industrial, Market, and Interpersonal worlds of food, it will help establish a firmer footing for farmer survival and social sustainability on the prairies. The more fundamental questions raised by the global climate-crisis, the ecological limits of large-scale monoculture, and world market volatility may require – over the long-term – a more radical re-imagining of the prairie food economy. As one likely component of such a re-imagining, Saskatchewan naturalist Trevor Herriot (2009) has proposed that much existing cropland be restored to native prairie grasslands. Here native grass pastures would be the basis of sustainable livestock production, the ecological dividends of which would be recognized in payments to farmers for ecological services (e.g., protection and rehabilitation of prairie bird species). Such a transformation would help restore one of the linchpins of prairie grassland ecology, the presence of large grazing populations lost with the extirpation of the plains bison. In turn, it could provide the basis for greater security and resilience for the food growing households and communities of the prairie west.

87 Although there is a large, emerging literature on payments for ecological services in the agrofood sector, I do not review it here for considerations of space.
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