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Transnational Grain Firms: Evolution and Strategies in North America

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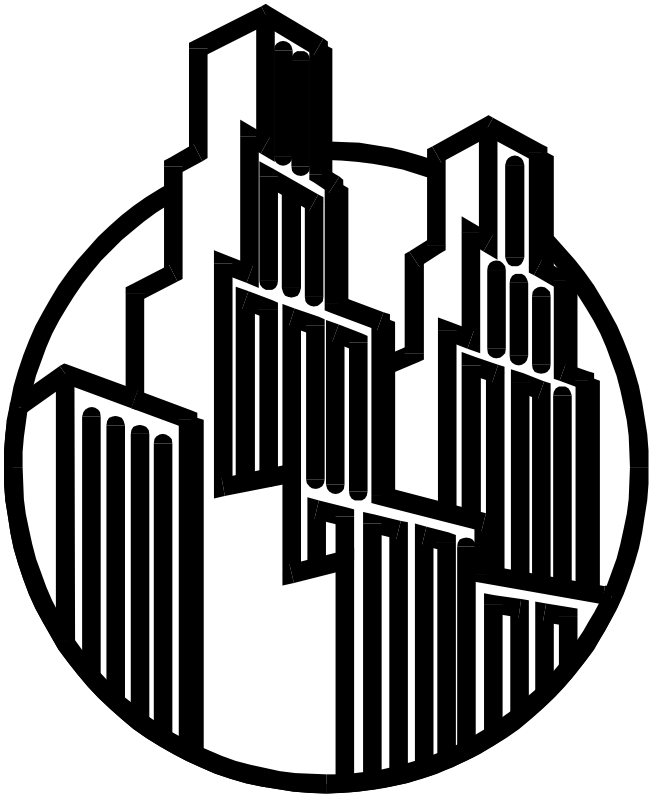

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ABSTRACT

The grain trading industry has changed radically during the past two decades. This report describes these changes in detail. First, dynamics of the major fundamental changes are described. Second, the extent and nature of structural changes in the grain handling industry are analyzed. Changes in the transnational grain exporting industry are analyzed and described as well as the implications of privatization of grain importing functions.

Key Words: grain trading, exporting, grain industry, transnational

HIGHLIGHTS

The grain trading industry has changed radically during the past two decades. Following rapid growth in world trade during the 1970s, there was a subsequent expansion in exporting capacity which generally came on stream during the 1980s. Besides this expansion in exporting capacity, the 1980s began to experience the effects of rationalization and concurrent development of excess capacity in the country grain handling industry brought on as a result of deregulation of the railroad industry. In addition, the industry was impacted by an escalation in government intervention in grain transactions notably through the use of EEP during the 1980s. Perhaps the most important feature of the later 1990s will be implications of the increase in privatization of grain transactions.

Concurrent with the above, there have been several major structural changes in the U.S. grain handling industry. Four trends were particularly apparent. First, there has been a change in the composition of firms. This has been from generally highly private firms to firms which have a much greater public exposure. Specifically, of the five major private grain exporting firms, only one remains in its traditional role and even that has changed. The industry is now comprised of publicly held stock companies, regional cooperatives that report publicly, and Cargill. For varying reasons, each of these have greater public disclosure. The second trend has been an increase in vertical integration largely with the objective of reducing costs through vertical linkages. The third trend has been for each firm to aggressively pursue some form of value-added. Finally, much of the structural change has taken the form of joint ventures. Comparisons of market power at different points in the system demonstrate that generally, the grain storage and handling sectors are highly competitive relative to the processing sector.

The transnational grain exporting industry has gone through a similar evolution. Observations of the international grain trade suggest that entry into this sector is relatively easy and the major sources of economies and competitive advantage are information and risk management. The EEP program, however, seems to have had an important effect on the conduct of competition among grain firms. First, it had the effect of increasing the level of price and demand transparency which affected both interfirm and intercountry competition. Both competitor countries and firms benefitted as a result of reduced informational asymmetries as a result of the operations of the EEP programs.

One of the important commercial changes occurring in the international grain market is the privatization of importing functions. This has been occurring for some time, but the pace of change has accelerated in the 1990s. Factors causing this shift are discussed in this report as well as implications for grain exporting firms. Most important is for more specific terms of trade (i.e., quality, logistics, credit, etc.).

Transnational Grain Companies: Evolution and Strategies in North America

William W. Wilson and Bruce L. Dahl*

Transnational (multinational) firms[1] play a crucial role in the international marketing functions for grains exported from many countries. This sector has gone through radical changes over the past two decades, and the scope of these changes has important implications for all market participants. Changes have also occurred in the structural organization of this industry in both the United States and Canada. The objective of this study is to document changes that have occurred in the structure of the international grain industry and how they may affect the evolution of grain marketing. The study entailed two analytical phases. The first was to analyze changes in the structure of the grain handling and marketing sector, with a primary focus on that in the United States. The second was to conduct a series of interviews with senior executives in transnational and large U.S. grain companies.

Background information about the changes in this industry are presented in the first four sections. First, some of the important agricultural trade and policy issues are reviewed. Second, detailed analyses of the structural changes in the U.S. grain marketing system are presented. Third, important changes in the transnational grain trading sector are presented. Fourth, the impact of privatization of import functions on the multinational grain industry is discussed.

I. Changes in the World Grain Market

In the 25-year period following World War II, conduct of the world grain trading industry was dominated by large surpluses of grain stocks, price supports, and trading functions highly influenced by government intervention. The latter took the form of sales by single desk sellers or through export subsidies (in the case of the United States). The latter are significant because they were administered as nondiscriminatory and apparently were set in close consultation with other world trading organizations. The world grain trade has evolved through four periods, each having a somewhat unique characteristic.

World Grain Trade in the 1970s

World grain trade expanded dramatically during the 1970s. This began with the unexpectedly large sales to Russia in the early 1970s, followed by expansion of imports by numerous countries. During this period, world wheat trade increased from 56.5 mmt in 1970 to 96.9 mmt in 1980 (Figure 1.1).

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[1]Transnational and multinational grain firms are used interchangeably in this paper. Technically, these are firms that originate grain from more than one country.

The GAO (1982) characterized the 1970s as a period of increasing instability. Reasons contributing to this included: 1) narrowing the gap between demand (demand was stimulated by countries' higher export earnings, substantial lending programs from international banks, and a declining U.S. dollar) and supply, 2) lack of significant government-held reserves, and 3) emergence of large and sporadic customers in world grain markets. The cumulative effect of these was an unprecedented expansion of wheat exports by the major exporters. From 1972 to 1980, grain export volumes increased to record highs. The high export volumes in the late 1970s put extreme demands on the export system which responded by increasing capacity (both export handling capacity and transportation—rail cars, barges).

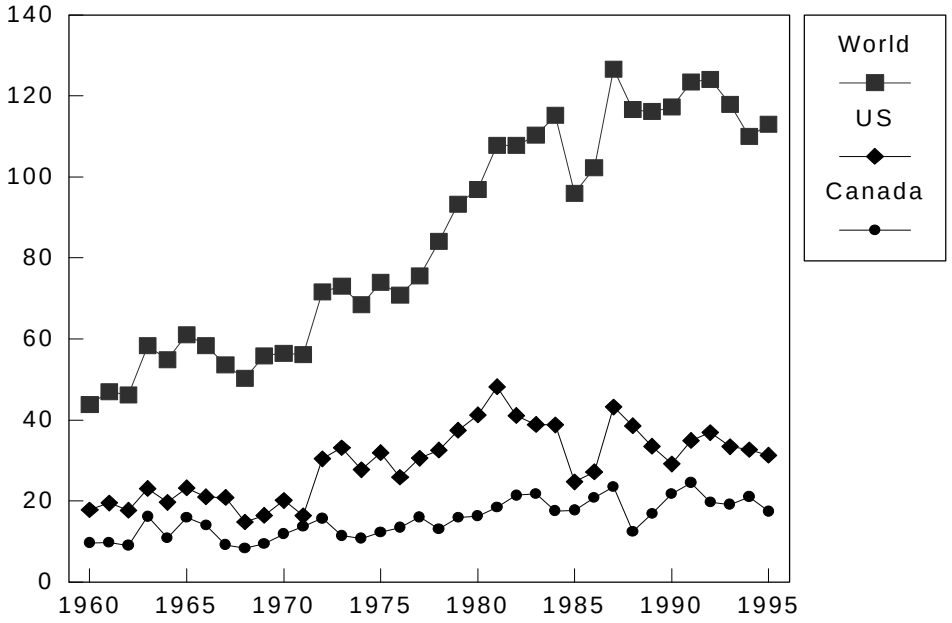

Figure 1.1. World, U.S., and Canadian Wheat Exports, 1960-1995.

Growing Surpluses During the 1980s

Three major events affected the world grain trade in the early 1980s. First, the EC was transformed from importing grain to exporting grain. This subsequently resulted in U.S. retaliation in the form of EEP, which had repercussions throughout the world. The second was the U.S. embargo in 1980 on sales to Russia. The third was a worldwide recession, which resulted in declines in grain demand.

This period was also characterized by the Third World debt crises, fluctuating grain imports by centrally planned economies (former USSR, China), and increased food self-sufficiency in some developing countries. Growth in world wheat trade shifted toward the former USSR, North Africa, the Middle East, and Asia. During this period, many importing countries

implemented protectionist trade policies, and exporters developed assistance programs to sustain and augment market shares (GAO 1982).

This sequence was important because much of the expanded export capacity which was based on trade volume expectations during the 1970s was just beginning. As a result, excess capacity throughout the U.S. grain marketing system emerged and became particularly acute in the export handling sector, putting severe demands on firms that had expanded at this time.[2]

Growth in Government Assistance and the Role of EEP

The 1980s were dominated by prolific use of export subsidies and increased volatility in world wheat trade. Use of the EC's export restitution program expanded; and, subsequently, the United States established the Export Enhancement Program (EEP). In response to these programs, other exporting countries also changed their trade and production practices.

Inception of the EEP program in 1985 had a number of very important implications for world trade and for competition in international grain trading. While the quantitative effect of EEP on U.S. and competitor export volumes has been and will continue to be debated, it is certain that EEP affected the conduct of international grain trading.

An important aspect of EEP was that it was a discriminatory subsidy mechanism, resulting in different subsidy levels and quantity values across customers. This particular feature of the program was in stark contrast to export subsidy schemes operated before 1972. There are two implications of this feature. One was that it allowed the United States (as a government as well as trading and market development organizations) to execute targeted marketing strategies, using price and quantity as strategic variables. A nondiscriminatory regime would not allow this. The second implication was that as a result of the discriminatory aspect of the program, it required a more elaborate mechanism for intervening. Administration of the program resulted in the government's making allocations across countries; and through a bidding process, sales allocations were made to individual firms. In addition, it allowed relatively easy entry for firms expanding into direct exporting.

1990s: Privatization of Grain Import Functions

A major trend that began emerging in the 1990s was the privatization of grain trading functions, primarily in importing countries.[3] These changes have made terms of trade (quality, credit, shipping) more specific. These effects are developed in Wilson (1995a).

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[2] In fact, in press releases related to the recent Cargill acquisition of Continental, Micek indicated "...the United States has 9 billion bushels of grain export elevator capacity, compared with something ranging from 3.5-4 billion bushels of grain exports a year..." Micek, E. (1998).

[3] While privatization is normally ascribed to grain importers, it has also occurred in some major grain producing (and exporting) countries. Noteworthy among the latter has been the beginning of deregulation of the grain industry in Australia (Ryan) and the increasing decentralization of grain marketing activities in Russia (Wilson, 1995a).

II. Structural Changes and Conduct in the U.S. Grain Marketing System

The grain industry in the United States has experienced some fairly radical structural changes over the past decade. This section provides a quantitative description of those changes. While the focus is on the U.S. handling sector, the intent is to explain some of the changing inter-sectoral relationships that are emerging.

Structural Changes and Control of U.S. Handling Facilities

There have been numerous changes in the structural characteristics of the U.S. grain handling industry. These are discussed by sector.[4]

Storage Capacity

Figure 2.1 shows the storage capacity for the top 20 North American grain companies from 1985 to 1998. (Data for 1998 reflect the proposed acquisition of Continental Grain Company by Cargill). Figure 2.2 shows changes by firm.

The data indicate that by this measure of capacity, firm size has increased dramatically. Total industry storage capacity among these firms increased from 45.4 *mmt* in 1985 to 54.6 *mmt* in 1990 and 64.4 *mmt* in 1998. As illustrated in Figure 2.2, the greatest percentage change in capacity occurred between 1985 and 1990, a period of growing surpluses in the United States, and enhanced incentives for storage expansions.

Changes also occurred in the rankings of firms during this period. Notable among these has been the rapid increase in capacity of ADM[5] and Peavey (a subsidiary of ConAgra). The acquisition by ADM of Collingwood in 1990 gave ADM the largest (approximately) wheat origination capacity in the major HRW areas. Cargill's growth reflects the effect of numerous acquisitions including that of Continental Grain Company in late 1998.

Important and interesting comparisons can also be made with Canadian firms. While most U.S. firms expanded their storage capacity from 1985 to 1998, Canadian handling firms largely experienced a reduction in storage capacity. This difference reflects the effects of several important differences. One was the expansion of storage of government-owned grain during the late 1980s in the United States, in contrast to the continual liquidation of stocks in Canada. It also likely reflects strategies of U.S. firms to induce delivery of grain by farmers at harvest, in contrast to Canada where it has been more common to make purchases from farm storage (due in part to the delivery quota mechanism). Even with this distributional change, Saskatchewan Wheat Pool ranked as the sixth largest grain firm in a more broadly defined North American market in 1990, but dropped to 11 in 1998.

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[4] Data presented in this section were taken from the following sources: *World Grain (1985, 1990)* and *Milling and Baking News* and *World Grain (1996).*

[5] The exact dates of acquisitions and when they are reflected in these statistics result in potential conflicts in the data presentation.

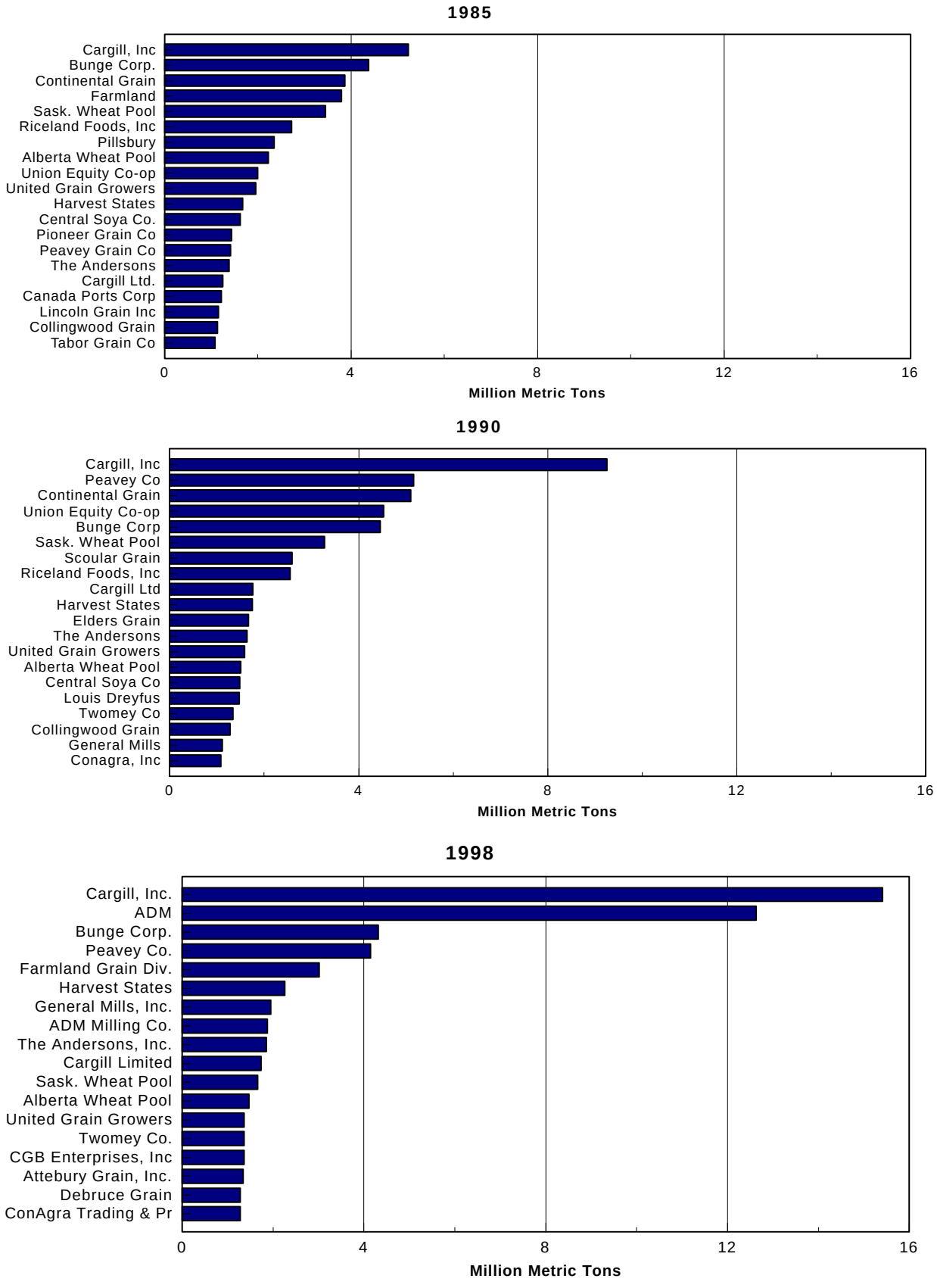

Figure 2.1. Largest North American Grain Companies: Storage Capacity

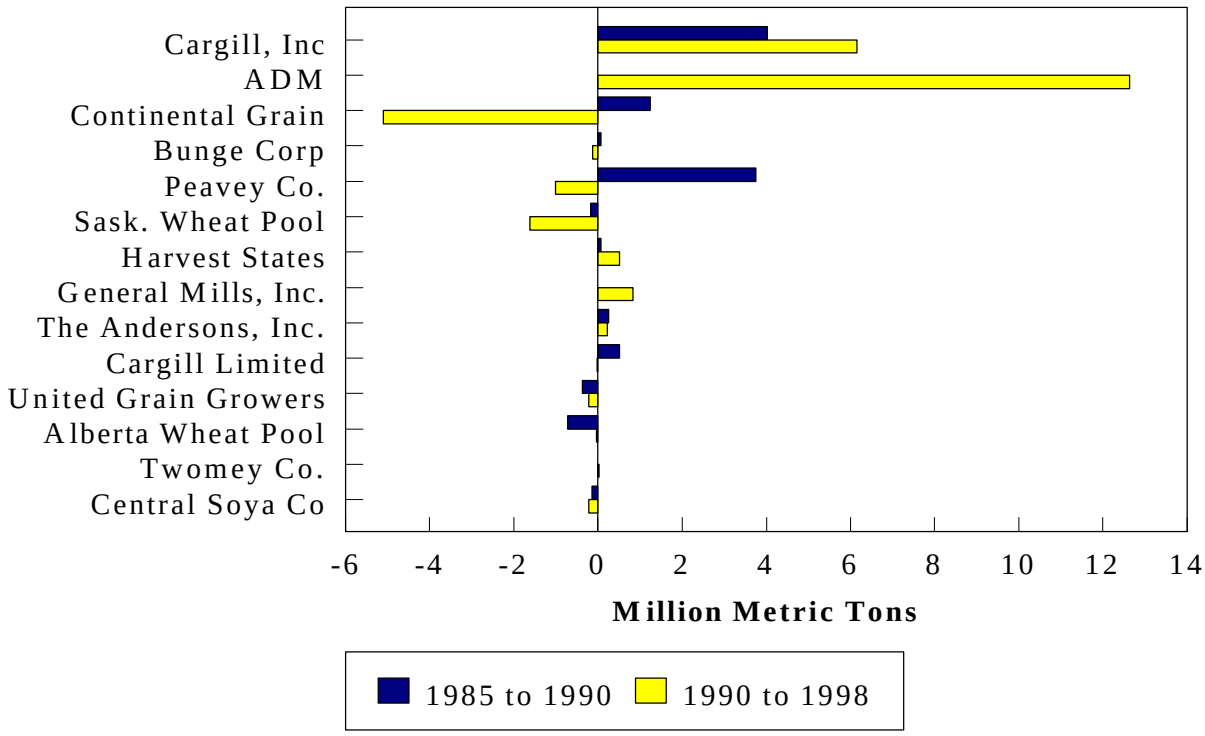

Figure 2.2. Change in Storage Capacity for Largest Grain Firms in 1985-1990 and 1990-1994.

Similar conclusions can be made by comparing the number of facilities (including country, river, terminal, and export handling facilities) operated by each firm (see Figure 2.3). It is notable that the number of facilities operated by Cargill increased from 188 in 1985 to 238 in 1995 and with the acquisition of Continental would increase further in 1998; ADM increased from nil in 1985 to 271 in 1995.[6]

In comparison to U.S. firms, Canadian grain firms operate a larger number of facilities (Figure 2.3a).[7] This in part reflects the abnormally small capacity of Canadian operations relative to those in the United States (see Figure 2.4 and 2.4a). Results illustrate[8] that Canadian firms' average capacity is far less than even the smaller U.S. handling firms. Also, as illustrated, U.S. private firms tend to have a larger capacity than do the co-ops.

[6] The quantitative dimensions of this change are not accurate because of ADM's full or partial ownership of Collingwood and Tabor. Further, in 1994, ADM acquired Central Soya, Inc.

[7] Note we included for presentation in these graphics only the top 20 firms. In Canada, Pioneer (now JRI) and Manitoba Pool Elevators (now part of Agricore) ranked 33 and 34 in North America, respectively.

[8] It was not possible to correct for type of storage facility in this calculation. Thus, some abnormal values largely reflect firms with disproportionately large shares of terminals and export facilities.

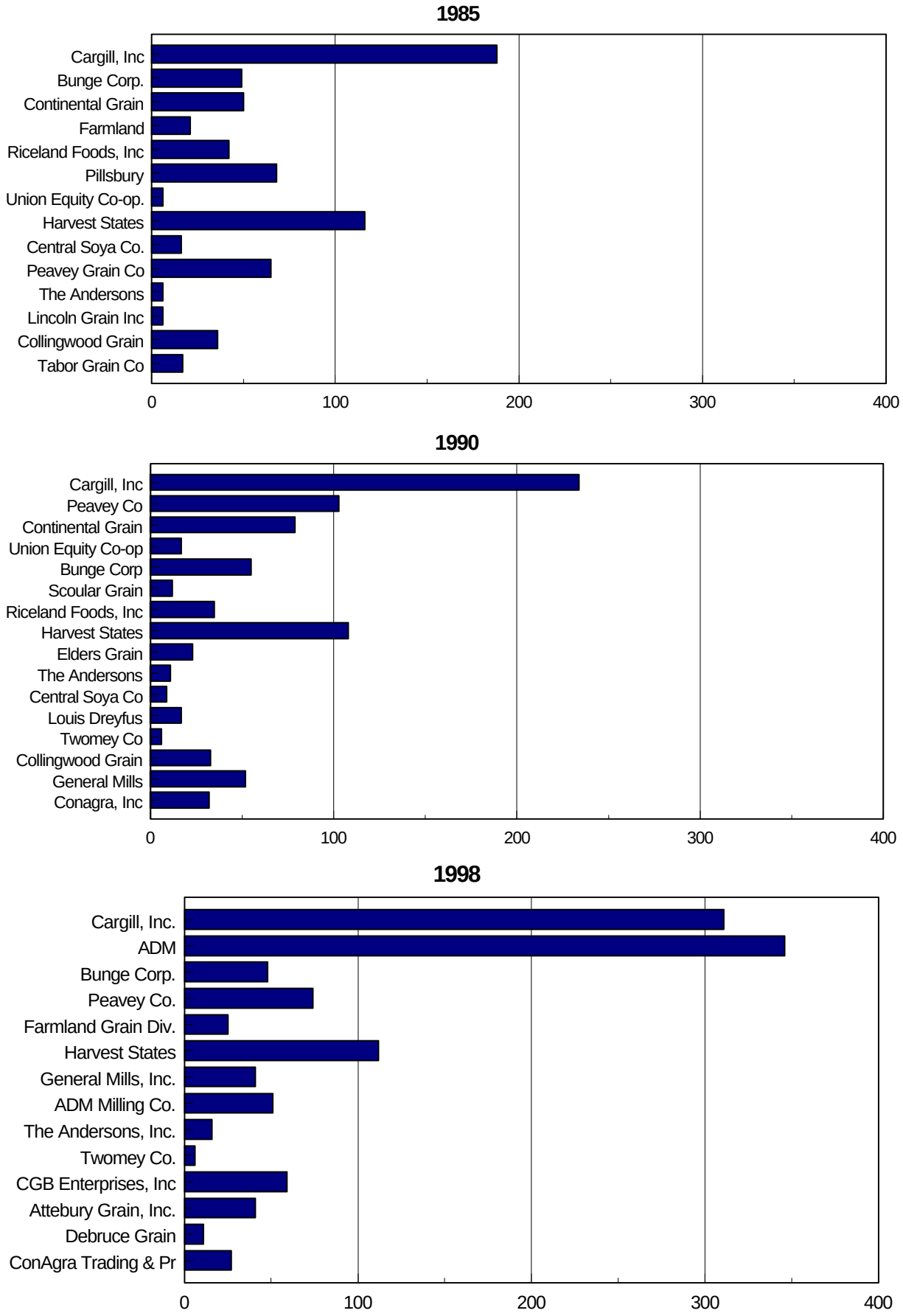

Figure 2.3. Largest North American Grain Companies: Number of Storage Facilities

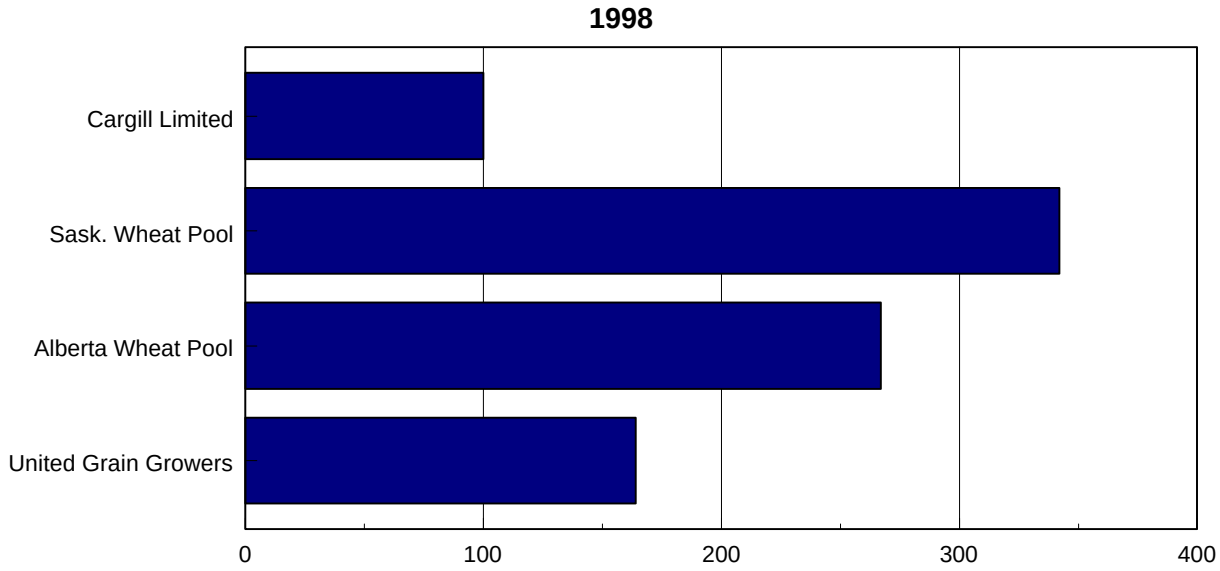

Figure 2.3a. Largest Canadian Grain Companies: Number of Storage Facilities

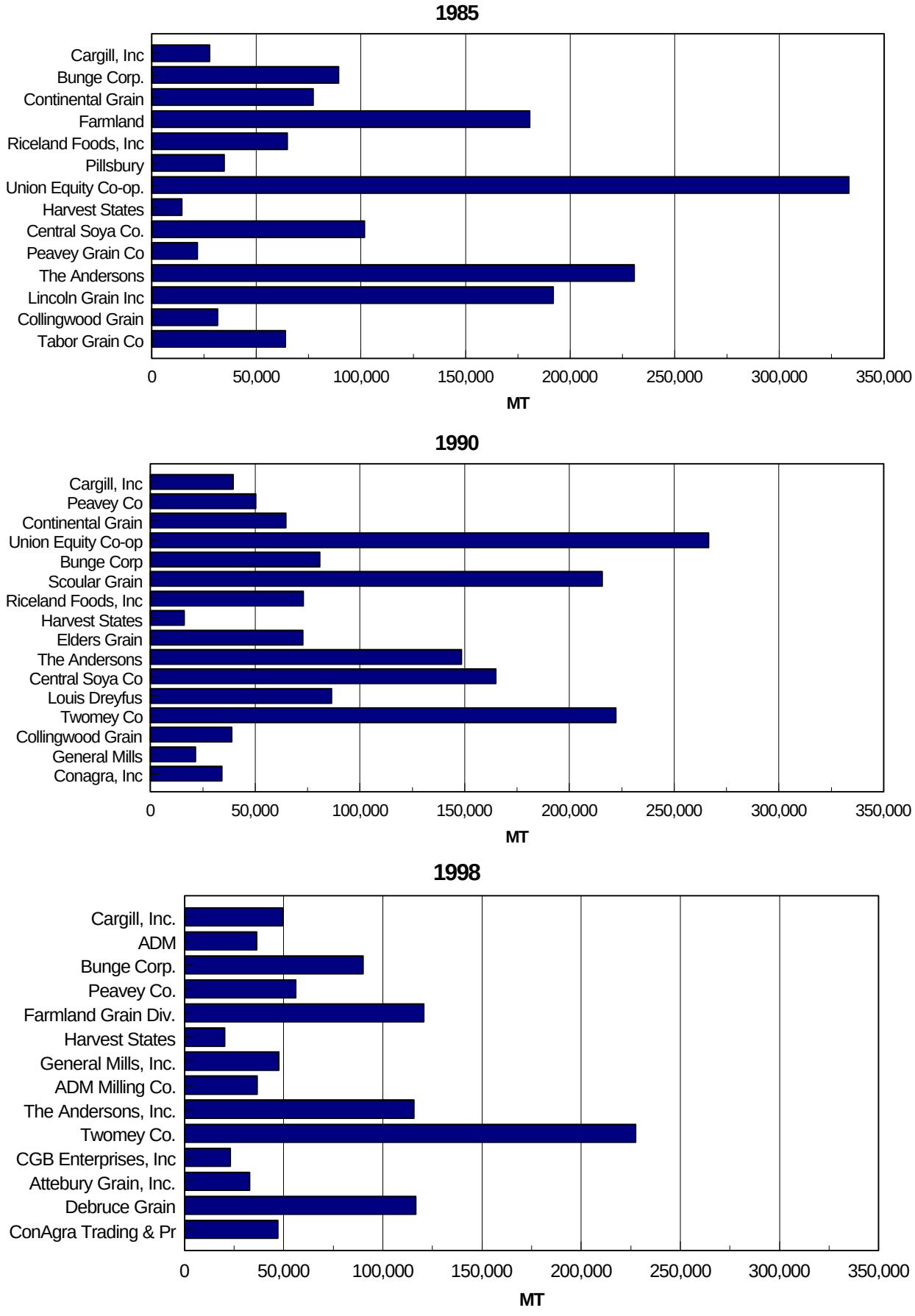

Figure 2.4. Largest North American Grain Companies: Average Size Plants

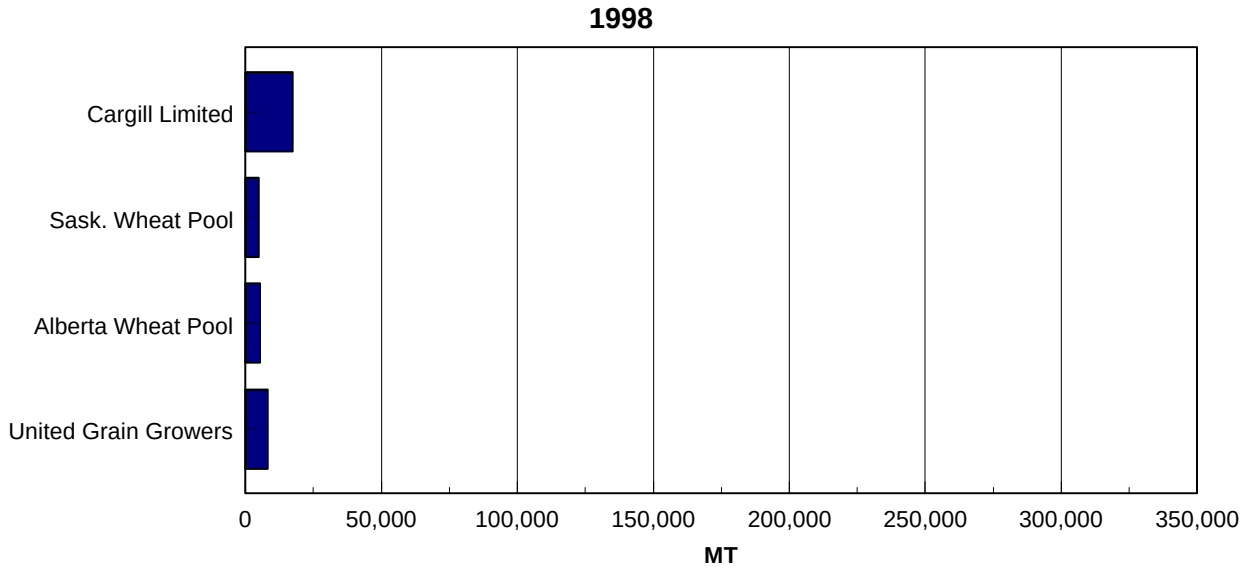

Figure 2.4a. Largest Canadian Grain Companies: Average Size Plants

Handling Facilities by Type: United States

The composition of facilities also has an important impact on competition. Data shown in Figure 2.5 illustrate the composition of facilities by type in different periods.[9] Several observations are particularly important. First, the largest U.S. firms have a complement of each type of facility (country elevators, subterminal, terminal, river and port elevators) and are highly integrated throughout the handling sector. In 1985, three firms (Cargill, Bunge, and Continental) would be characterized by this complement of assets, whereas in 1995, five non-cooperative firms (Cargill, ADM, Continental, Bunge, and Peavey) in addition to Harvest States and Farmland would be characterized as such. In contrast, all other firms had a disproportionately large portion of assets concentrated in country operations. This would include Canadian firms which each have a large number of country elevators (Figure 2.5a).

The number of country facilities to those further downstream in marketing system indicates the vertical scope of each firm (Figure 2.6).[10] Results indicate that Cargill and ADM operate fewer country elevators for each of the port and terminal elevators in contrast to Harvest States which depends more on sales to other exporters and export handling facilities.

In comparison, Canadian firms (Figure 2.7) have a large number of country elevators relative to their export facilities. However, comparisons to U.S. firms using this ratio would not be as important with respect to its strategic (vertical coordination) implications.

[9] Data used to tabulate the joint ventures were taken from numerous industry sources including *Milling and Baking News, Feedstuffs, The Grain Guide, Wall Street Journal*, The *New York Times*, and publications and new releases from grain firms. Admittedly, some mergers/acquisitions may not be reflected in these data, but the major transactions are included.

[10] Ideally, one would want to make this comparison using capacities instead of numbers, but such data do not exist for individual firms.

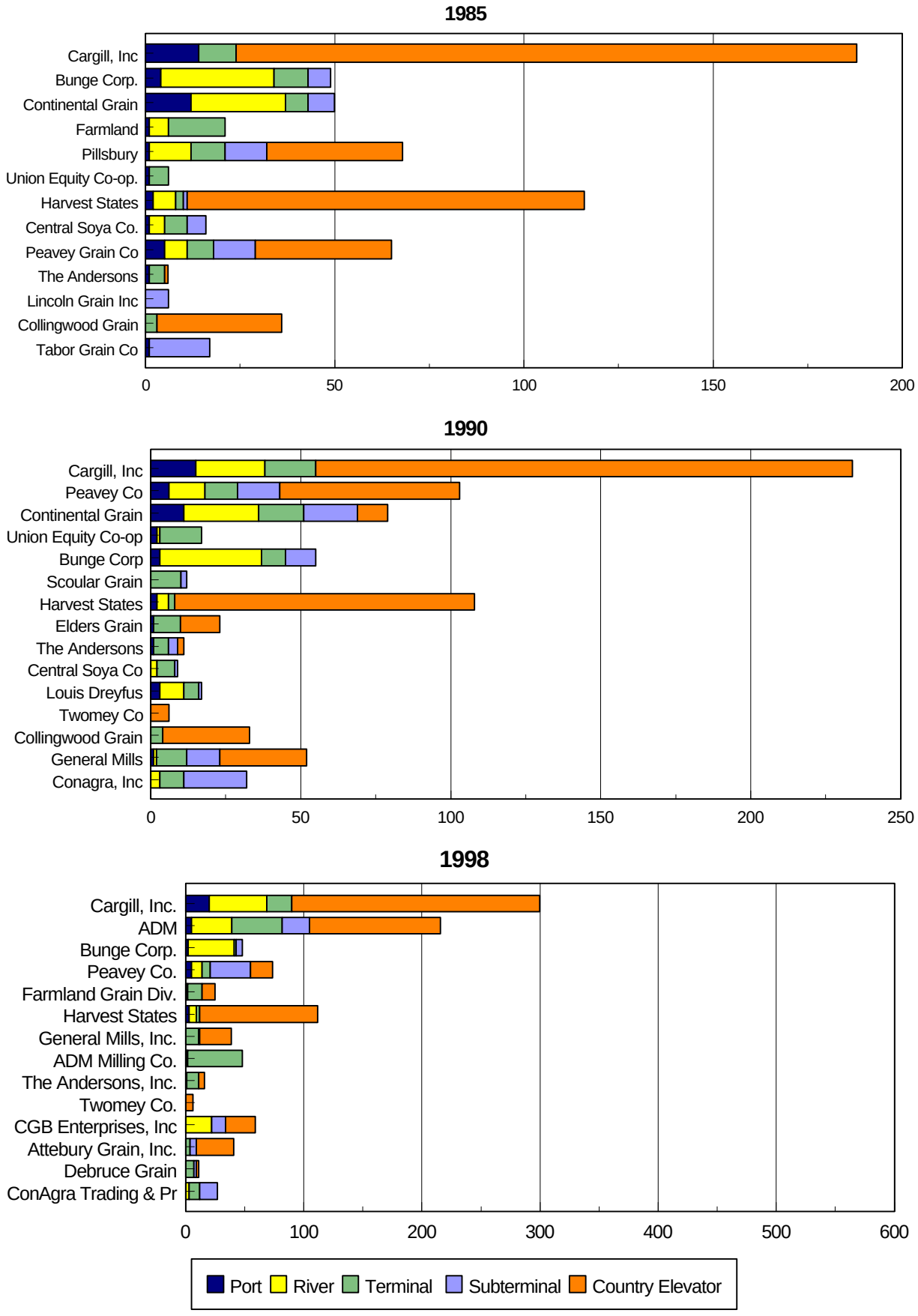

Figure 2.5. Largest North American Grain Companies: Number of Storage Facilities, by Type.

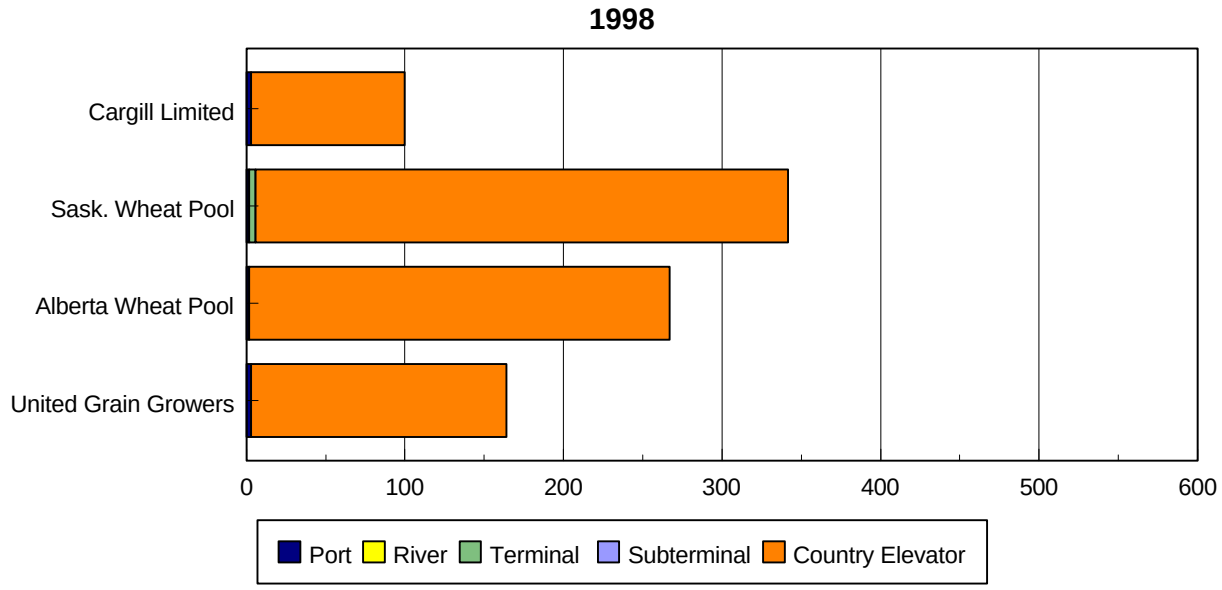

Figure 2.5a. Largest Canadian Grain Companies: Number of Storage Facilities, by Type.

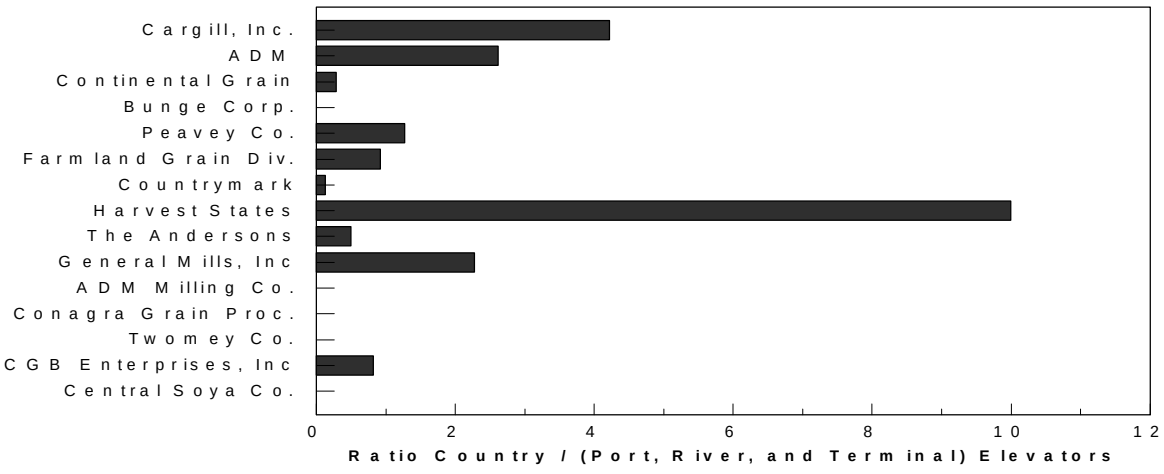

Figure 2.6. Ratio of Country Elevators to other Facilities
Largest U.S. Grain Companies

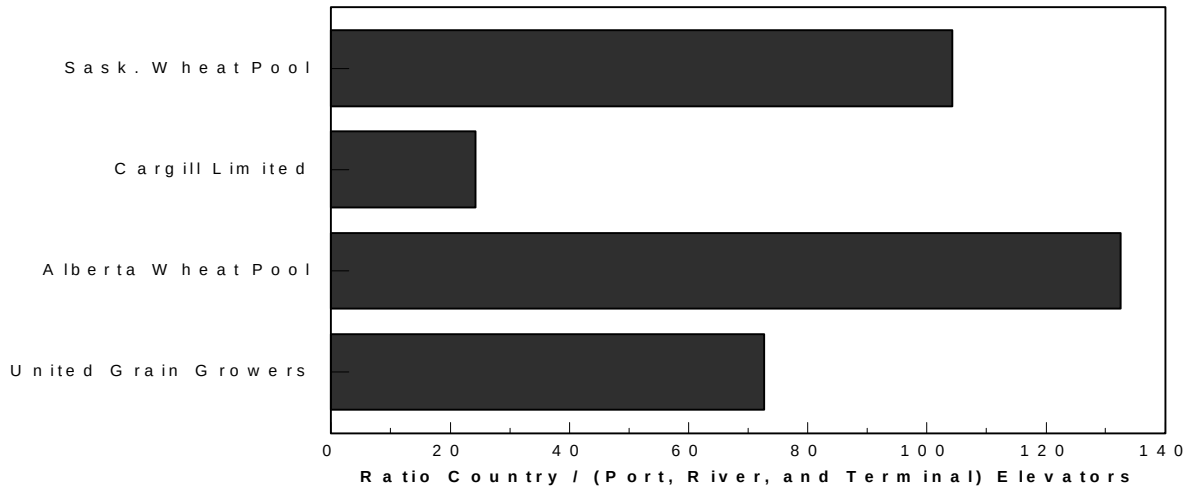

Figure 2.7. Ratio of Country Elevators to other Facilities Largest Canadian Grain Companies

Export Facilities

Ownership/control of each port elevator in the U.S. Gulf and PNW is shown in Tables 2.1-2.2.[11] The number of export elevators at the U.S. Gulf is greater than that at the PNW. In addition, the number of different firms is greater at the U.S. Gulf than at the PNW (this has important strategic implications).

Comparison across different times reveals several interesting observations. First is that generally, capacity (using load-out capacity) has remained unchanged. The exception is at the PNW with expansions by UGG and Continental at Vancouver, Washington, and capacity contractions at LDC. U.S. Gulf elevator expansions include ADM at Ama and Reserve, Bunge at Destrehan, Continental at Westwego and Beaumont, and minor changes in reported capacity at the public elevators. Second is the change in ownership. Notable among these has been ADM through acquisitions from Farmers Export, Garnac, and LDC/Continental; HSPV at Myrtle Grove; and Farmland Grain at Galveston.[12]

[11] These data were derived from USDA-FGIS *Export Elevator Directory* (1985, 1990, 1995).

[12] There are two clarifications on the transition of ownership at the U.S. Gulf. The elevator at Deer Park was destroyed before 1995. The Galveston Public elevator emerged from Bunge that sold to Elders (1988/89) and was acquired by the Port of Galveston in 1991.

Table 2.1. Ownership and Load-out Capacity of PNW Port Elevators: 1981, 1991, 1998						
Location	Ownership*			Load-out Capacity 000 bu/hr		
	1981	1991	1998	1981	1991	1998
Oregon						
Portland	Cargill	Cargill	Cargill	90	90	90
Portland	Columbia	Columbia	Columbia	70	70	70
Portland	LDC	LDC	LDC	45	45	45
Portland	Bunge	Bunge	Cargill	40	50	50
Washington						
Longview	Continental	None*	Port of Longview*	30		20
Kalama	N. Pacific Grain Growers	Harvest States*	Harvest States (United Harvest LLC)	60	60	60
Kalama		Peavey	Peavey		100	100
Seattle	Cargill	Cargill	Cargill	100	100	100
Tacoma	Continental	Continental	Continental	60	80	80
Vancouver	UGG	UGG	UGC (United Harvest LLC)	60	80	80

* Indicates change in ownership.

Table 2.2. Ownership and Load-out Capacity of Gulf Port Elevators: 1981, 1991, 1998						
Location	Ownership*			Load-out Capacity (000 bu/hr)		
	1981	1991	1998	1981	1991	1998
Louisiana						
Ama	Farmers Export	ADM/ Growmark*	ADM	80	80	80
Convent		Zen-Noh	Zen-Noh		120	120
Destrehan		Bunge	Bunge		80	80
Destrehan	Garnac Grain/ADM	ADM*	ADM	80	80	80
Lake Charles	Continental	Lake Charles*	Lake Charles	25	25	25
Myrtle Grove		Mississippi River Grain	Harvest States *		90	90
Paulina	Peavey	Peavey	Peavey (Concourse)*	60	60	60
Port Allen	Cargill	Cargill	Cargill	60	60	60
Reserve	Cargill	Cargill	Cargill	100	100	100
Reserve	Continental	LDC*	ADM*	80	80	80
Westwego	Continental	Continental	Continental	60	120	100
Texas						
Beaumont	Continental	Continental	Continental	50	50	50
Brownsville	Brownsville	Brownsville	Southwest Grain Company	40	50	50
Channelview	Cargill	Cargill	Cargill	190	190	190
Corpus Christi	Corpus Christi	Corpus Christi	Corpus Christi	100	150	150
Corpus Christi	Producers Grain	Interstate Grain*	Interstate Grain	40	60	60
Deer Park	Union Export Coop	Union Equity Coop*	Destroyed	120	120	
Galveston	Bunge	Galveston*	Galveston	60	60	60
Galveston	Farmers Export Co.	Union Equity Cooperative*	Farmland Grain Division* (Concourse)	120	120	80
Houston	Houston	Houston	Houston	75	75	75

* Indicates change in ownership.

Handling Facilities: Northern Plains States

One of the more dramatic structural shifts that has occurred is at the country elevator level. To illustrate effects of this process, data were collected for the North Dakota and Montana elevator sectors.

Important observations from these are

" Though the number of elevators has been declining for decades, the pace of decline seems to have accelerated since 1980. See Figures 2.8 to 2.14.

" Since 1980, important statistics are

- The number of elevators in Montana has declined by 40 percent, average storage capacity has more than doubled, and the average load-out capacity has increased to 28 cars.

- The number of elevators in North Dakota has declined by 16 percent, average storage capacity has nearly doubled, and 45 percent of the elevators can load out 25 or more cars per 24-hour period.

- Through subsequent mergers/acquisition, it appears that firms are becoming more spatially concentrated—with the objective of reducing the effects of ruinous competition associated with excess capacity.

- In Montana the dominant grain handlers are General Mills and Harvest States.[13] However, the composition of assets varies substantially across these firms.

[13] This structural change occurred when Cargill sold its Montana facilities to General Mills, making the latter the dominant originator in Montana. At about the same time, Cargill acquired grain operations in Alberta.

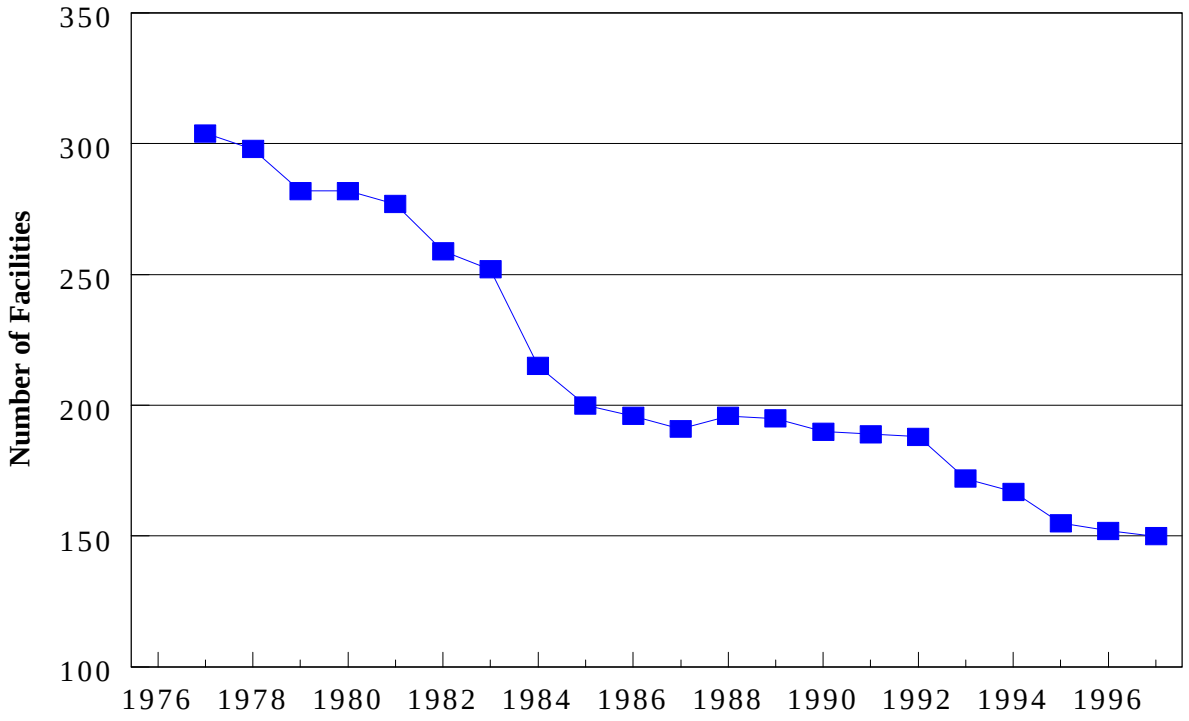

Figure 2.8. Montana Off-farm Elevator Numbers

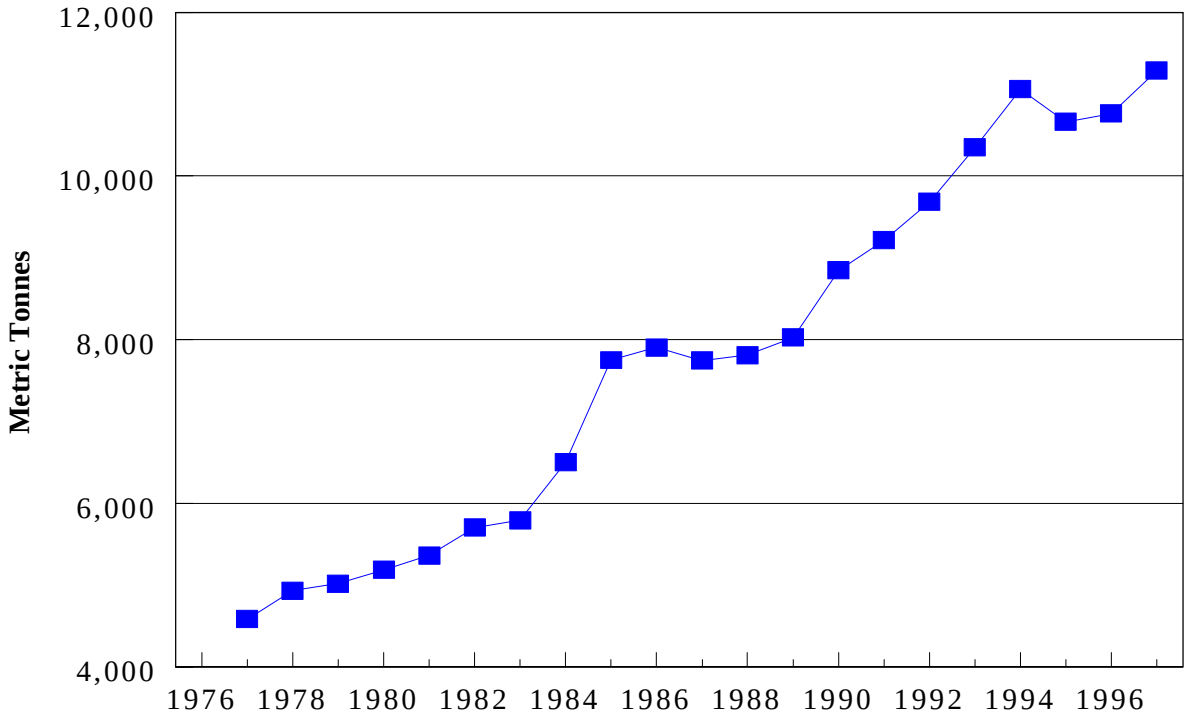

Figure 2.9. Montana Off-farm Grain Storage, Average Capacity

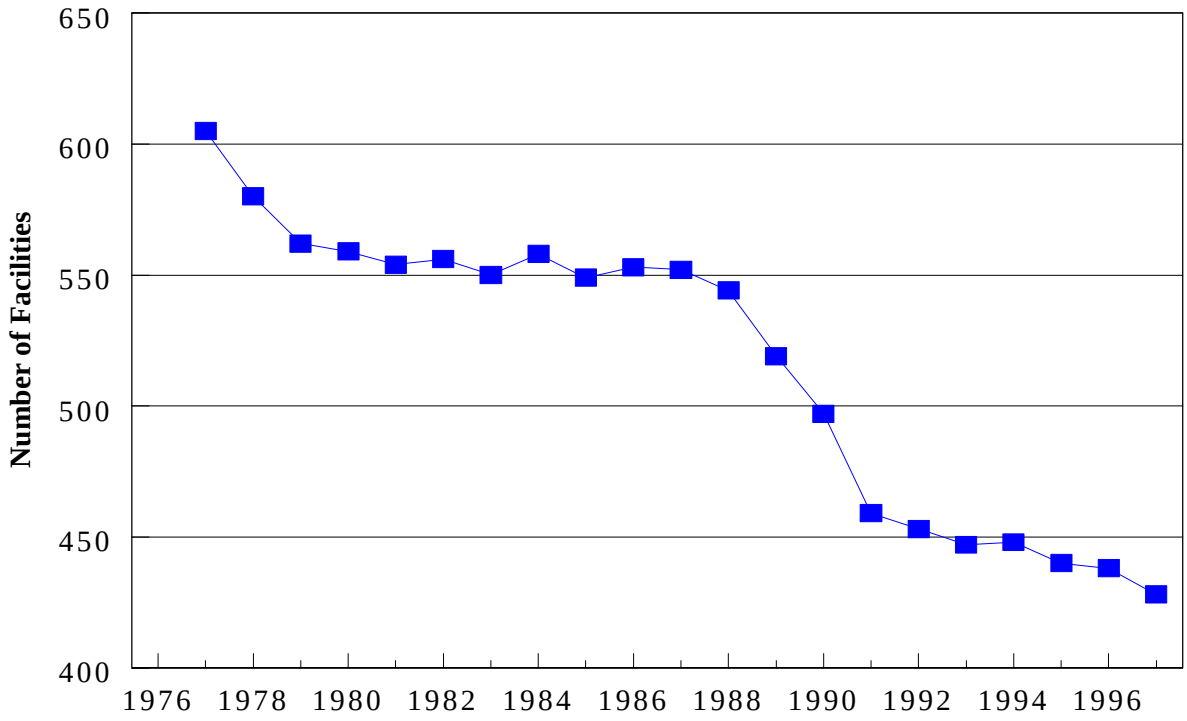

Figure 2.10. North Dakota Off-farm Elevator Numbers

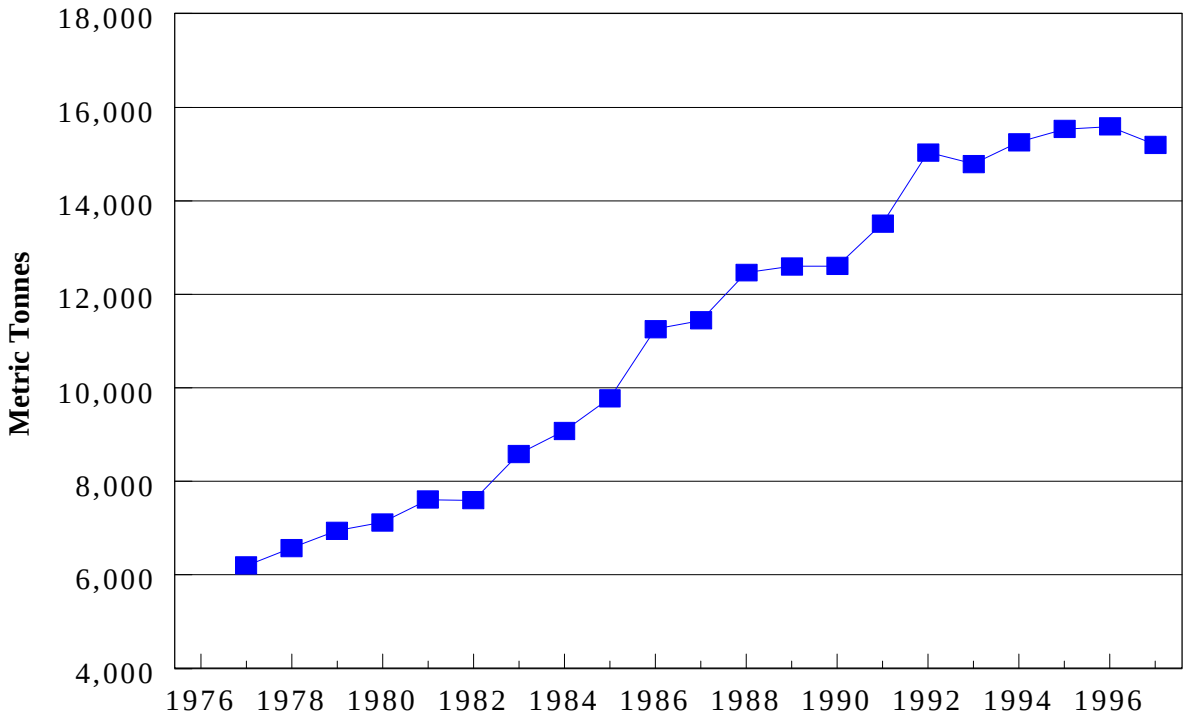

Figure 2.11. North Dakota Elevator Average Storage Capacity

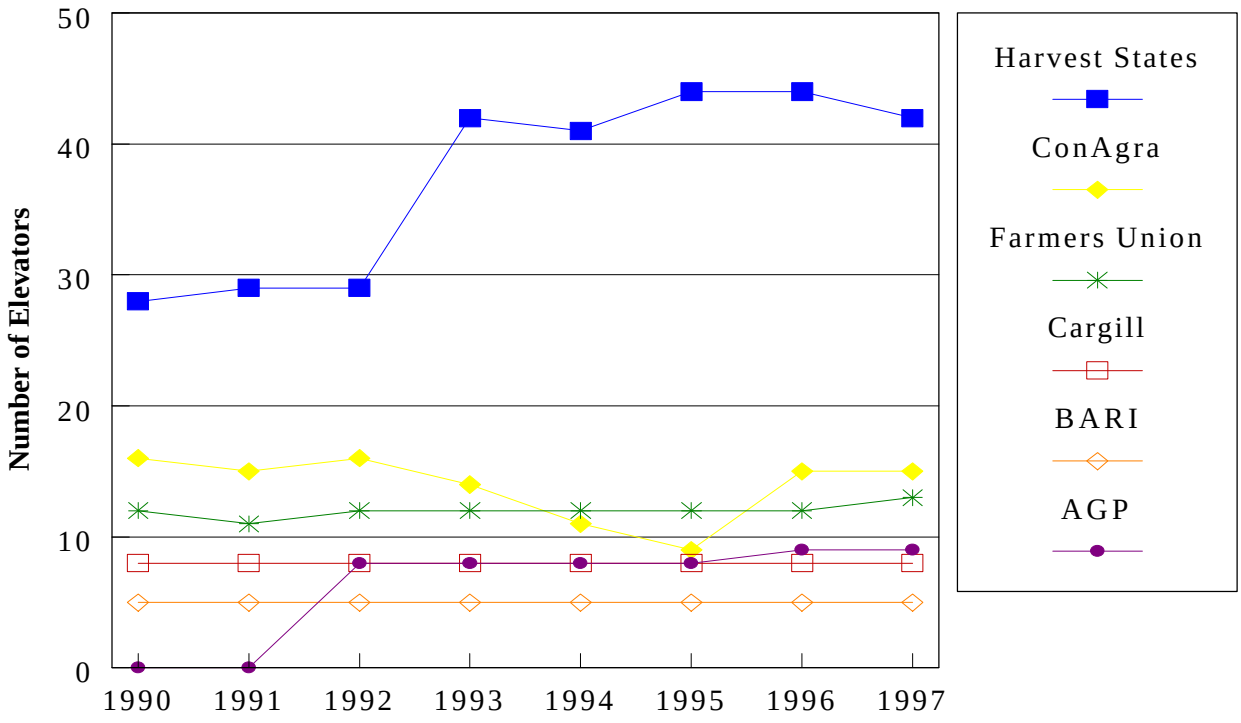

Figure 2.12. North Dakota Major Elevator Company Numbers

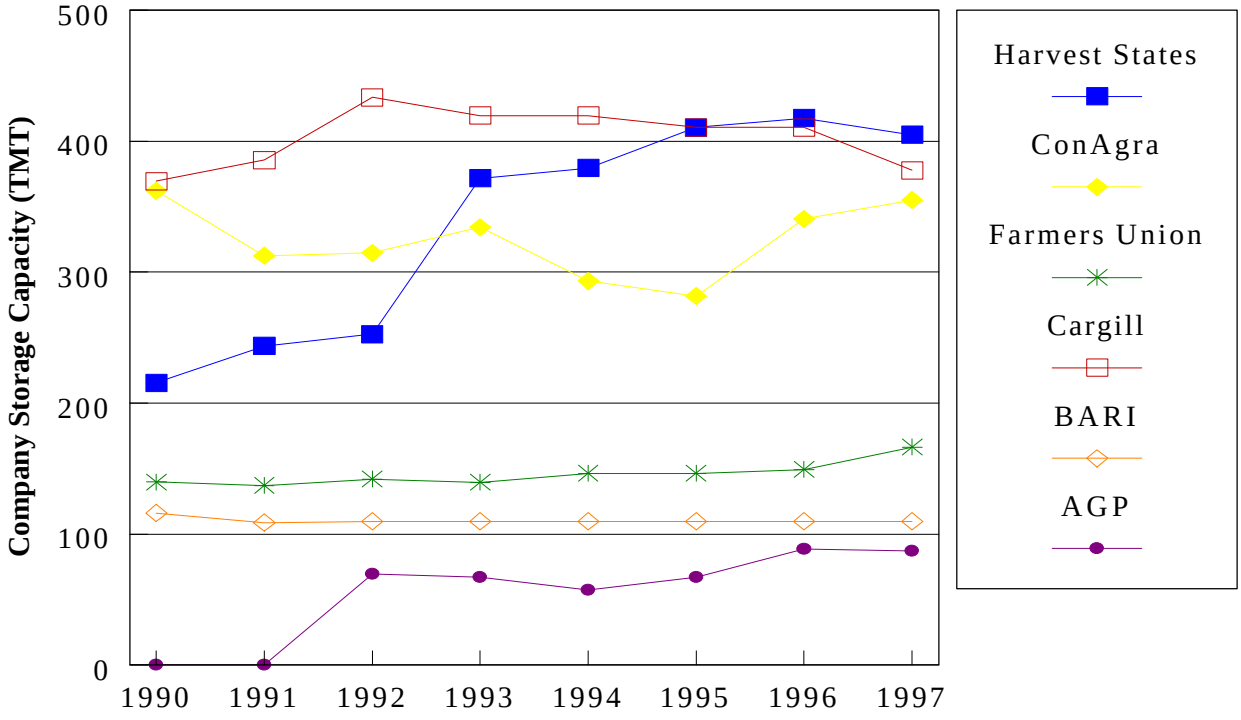

Figure 2.13. North Dakota Major Elevator Company Storage Capacity

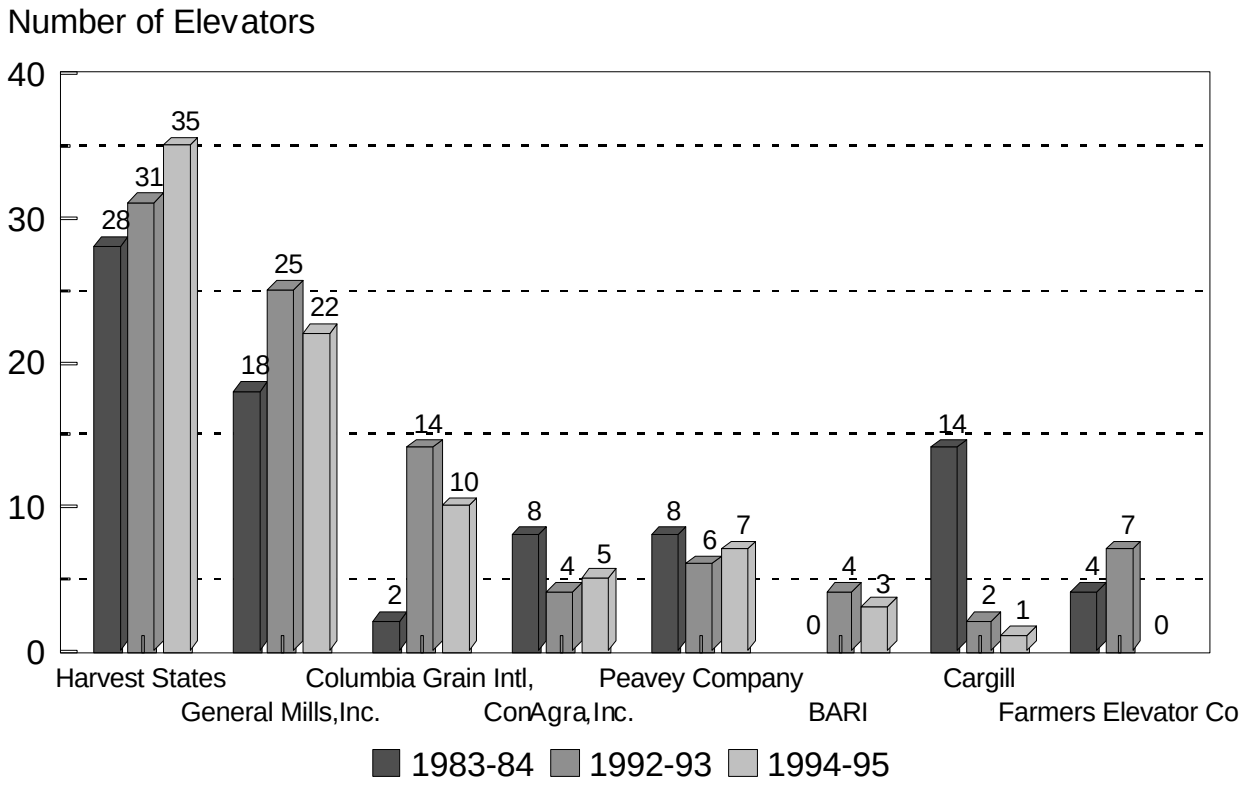

Figure 2.14. Montana Major Elevator Company Numbers

None of the multinational grain companies have been able to expand and dominate in these regions.

Several fundamental factors contributed to the rationalization throughout the U.S. marketing system: 1) rail pricing that provided incentives for shippers to adopt more efficient shipping and receiving capabilities which were adequate to induce investment and still provide advantages for first movers and 2) competitive pressures among numerous grain firms.[14] Of minimal importance was the effect of reduced earnings from government storage which were phased out in the mid-1980s. The effect of these pressures was to induce investment in more efficient handling and shipping capabilities which generally were associated with larger scale movements.

Mergers and Acquisitions, Joint Ventures, and Vertical Alliances

A proliferation of mergers and joint ventures have occurred in this industry, particularly in the last five years. It appears that these have evolved primarily to exploit vertical coordination

[14] See Wilson (1998) for a detailed description of the evolution of this process.

within the market system, typically involving originators and exporters. In addition, many of these are co-op-private ventures.

Tables 2.3-2.4 summarize the number of joint ventures and acquisitions that have occurred by sector during this period.[15] Appendix Tables A.1 to A.7 document the mergers and joint ventures of some of the major firms over this period in grain handling/trading.

Most important in this data is the large number of mergers and joint ventures in grain elevation. Some important characteristics of these are:

" Many of these appear to be vertical joint ventures.[16]

" Some of these appear to involve cooperatives as originators and private firms as exporters.

" Several of particular interest are:
  - United Harvest as a joint venture between United Grain Corporation and Harvest States.
  - Concourse Grain L.L. Co, which is a joint venture between Farmland Industries and ConAgra, Inc.
  - TEMCO (Tacoma Export Marketing Co.), a joint venture between Harvest States (originator) and Continental (exporter) to export from an export terminal in the Pacific Northwest.
  - HSPV (Harvest States and Peavey), a 50/50 joint venture to operate three river grain elevators in Iowa and two export grain terminals at the U.S. Gulf.
  - Cargill/AGRI Industries (a joint venture of AGRI Industries, a large grain originator cooperative, and Cargill).
  - ADM/Collingwood in 1990 (making ADM the largest originator of wheat in the primary HRW region).
  - ADM/Growmark (a joint venture between ADM and Growmark, a cooperative, to operate river facilities).

" Others would be categorized as horizontal ventures, either as joint ventures, mergers, or acquisitions, including:
  - Cargill acquisition of Continental Grain.
  - ADM/LDC (to allow ADM to operate most of LDC's elevators).
  - Cargill/Bunge (various acquisitions).
  - Continental/Bunge (to jointly operate U.S. Gulf elevators).

The important effect of these is to reduce the number of players in particular market channels (i.e., industry consolidation).

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[15] Information used to tabulate the joint ventures was taken from numerous industry sources including *Milling and Baking News, Feedstuffs*, the *Wall Street Journal*, and the *New York Times*. The focus of the search was on grain merchants and joint ventures. This may not be an all-inclusive list.

[16] As such, these have been comprised of grain originators and exporters. In a more broadly defined list, it would include crop breeding firms and oilseed processors.

Table 2.3. Joint Ventures, Mergers, and Acquisitions in the Grain Trade									
Type	1991	1992	1993	1994	1995	1996	1997	1998	Total
Joint Ventures	1	2	5	7	3	0	3	3	24
Mergers/ Acquisitions	21	10	10	20	10	3	15	2	91

Table 2.4. Joint Ventures, Mergers, and Acquisitions in the Grain Trade, by Type									
	Joint Ventures								
	1991	1992	1993	1994	1995	1996	1997	1998*	Total
Grain Elevators	1	1	1	1	3	0	0	0	7
Export	0	2	2	2	0	0	1	3	10
Grain Merchan-dizing	0	0	1	0	0	0	1	0	2
Milling[a]	0	0	1	0	0	0	0	0	1
Feed[a]	0	0	0	1	0	0	1	0	2
Oilseeds	0	0	0	0	2	0	0	0	2
	Mergers and Acquisitions								
	1991	1992	1993	1994	1995	1996	1997	1998*	Total
Grain Elevators	21	10	8	15	10	0	8	0	72
Export	0	1	0	0	0	0	0	1	2
Grain Merchan-dizing	0	0	1	1	0	1	1	0	4
Milling[a]	0	0	1	1	0	1	4	1	8
Feed[a]	0	0	0	2	0	0	0	0	2
Oilseeds	0	0	0	0	1	1	2	0	4

* Represents only partial year.

[a] Additional mergers, acquisitions, and joint ventures for feed operations and milling occurred, but were not represented here.

Two measures of market power were derived.[17] One is the conventional four-firm capacity (market) share. The other is the Herfindahl Index which captures the size distribution of firms, in addition to their capacity shares.[18] Larger values suggest an industry sector with a greater potential for market power. The logic of this measure is that an industry with one or two larger firms would have a better capability of disciplining the industry, in contrast to one with four equally sized firms.

Herfindahl indexes were derived using the data for total storage capacity[19] and export handling capacity at each of the U.S. Gulf and the PNW for four points in time. Results are shown in Figures 2.15-2.17. Values listed as 1998a are those prior to the proposed acquisition of Continental Grain Company by Cargill; and 1998 are for the post-acquisition. Results demonstrate the H for storage capacity decreased in 1985, but has since increased in both 1990 and 1995, reflecting the effect of the consolidation.[20] However, numerically, the value of H is very low and suggests the industry is highly competitive.

The value of H derived for export handling facilities differs at the U.S. Gulf. It is comparable to the H for storage capacity. However, values are far greater at the PNW, reflecting a more concentrated industry with disproportionately large firms. Thus, the potential for executing market power is greater at the PNW than at the U.S. Gulf. However, ultimately, these port areas have to compete with each other for some grains in common destination markets. The value of H at both ports decreased in 1985, reflecting the competitive conditions of the early 1980s. Increases in the value since 1985 reflect the effects of consolidations that have occurred since then. The jump in H at the PNW in 1995 reflects the effect of joint ventures and acquisitions that have been announced for facilities in that port since 1990.

Comparison of market power at different points in the market system demonstrates that generally, the grain storage and handling sectors are highly competitive relative to the processing sector which is more concentrated. (Table 2.5).[21]

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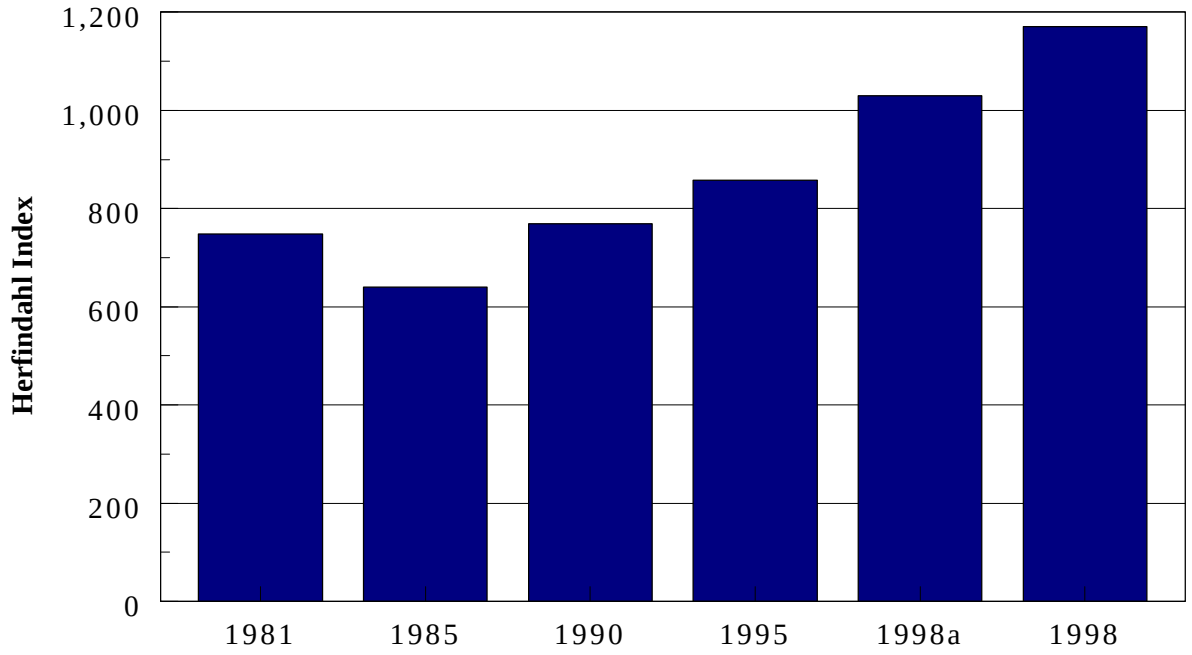
[17] Data are not available on individual firm sales, and, therefore, the measures are derived using capacity. To the extent sales are reflected in capacity, the measures represent the relative concentration in the industry.

[18] Derived as $H=\Sigma S_i^2$ where S is firm capacity share derived for each firm.

[19] For storage capacity, the H was derived across the largest 20 commercial firms.

[20] Shares for individual firms operating under a joint venture were combined.

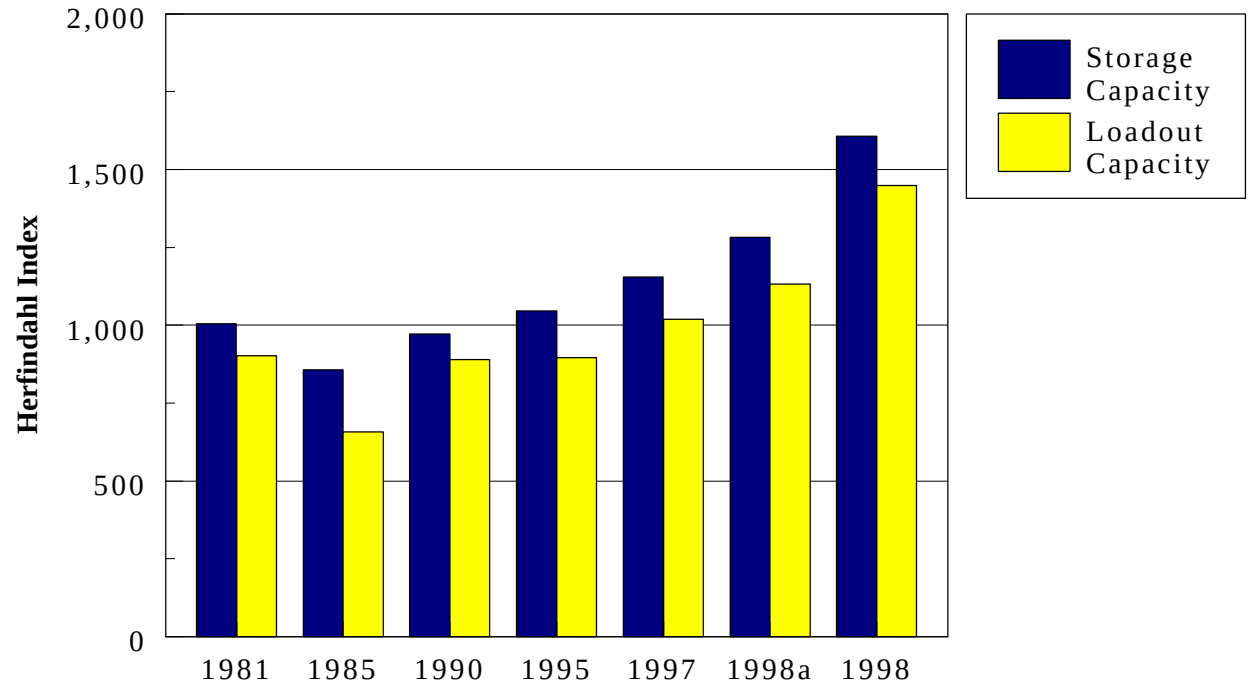
[21] In addition to these numerical values, several qualifications/additions should be made. The figures for flour milling were derived using 1992 data. Since then, with the divestiture of Pillsbury by Grand Metropolitan (sold to ADM and Cargill), these figures would have increased. In addition, H in the case of flour milling varies substantially across geographic regions (Wilson, 1995b). It is also important to note that 43 percent of the U.S. malting capacity is brewer controlled (Johnson and Wilson).



HI=10000*sum(stcap i / top20 stcap)2

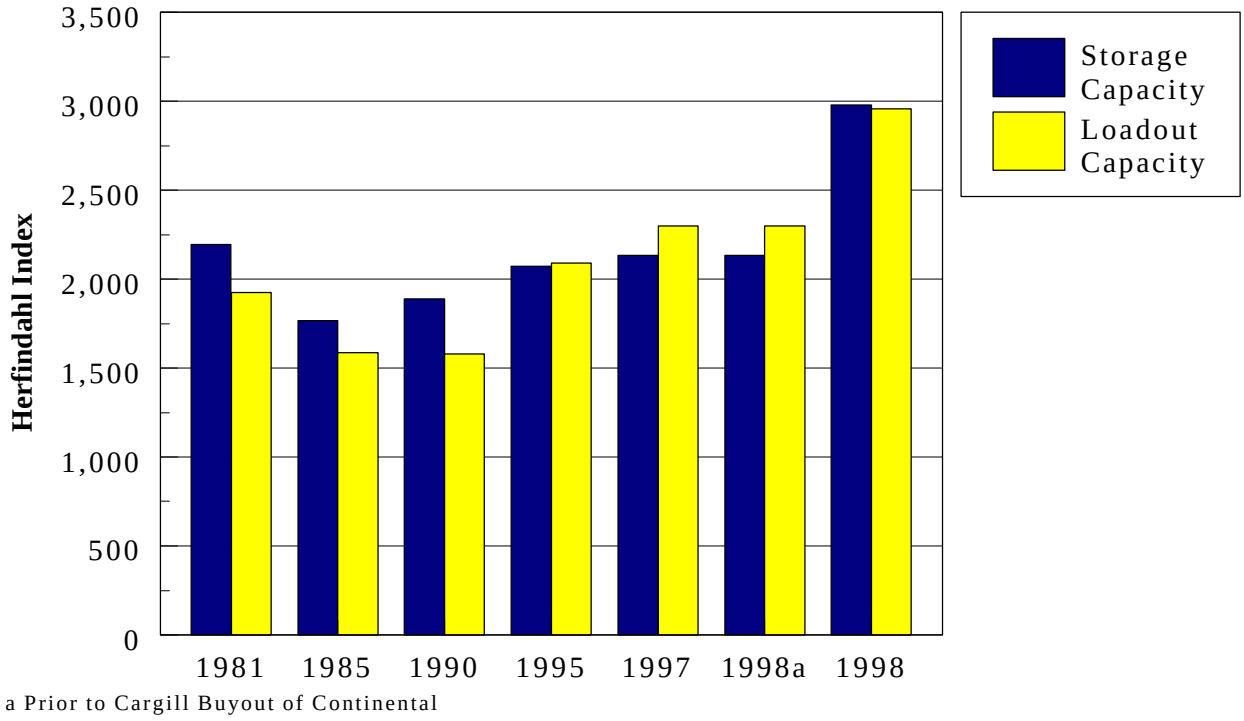
a Prior to Cargill Buyout of Continental

2.15. Herfindahl Index of Storage Capacity for Top 20 Grain Handlers



a Prior to Cargill buyout of Continental

Figure 2.16. Herfindahl Index of Storage and Load-out Capacity at Gulf Ports



a Prior to Cargill Buyout of Continental

Figure 2.17. Herfindahl Index of Storage and Load-out Capacity for PNW Firms

Table 2.5. Measures of Market Power at Different Points in the U.S. Marketing System, 1995			
	4-Firm Capacity Share	Herfindahl Index	Largest Four Firms in Each Sector
Grain Storage and Handling			
Total Storage Capacity	51	926	Cargill, ADM, Continental, Bunge
Export Handling: U.S. Gulf and PNW*	56	1334	Cargill, ADM, Harvest States, Bunge
Export Handling: U.S. Gulf*	53	897	Cargill, ADM, Continental, (HSPV and Corpus Christi tied)
Export Handling: PNW*	69	2089	Cargill, TEMCO (Harvest States), Peavey, United Grain
Processing			
Flour Milling	70	1420	Cargill, ADM, ConAgra CFP
Malting (North American)	60	1178	ConAgra, Cargill, Anheuser Busch, ADM
Brewing (U.S.)	87	2818	Anheuser -Busch, Miller, Coors, Stroh
Minor Oilseed (North America)[a]	78	2085	ADM, CanAmerica, Cargill, Cargill Ltd.

*H derived for load-out capacity. Values for flour milling are from Wilson (1995a), and those for malting are from Johnson and Wilson (1994, p. 29). Those for the minor oilseed (defined as sunflower and canola) processing sector were derived from data in Lilleboe (1995), Bangsund and Leistritz (1995), and Agriculture Canada (1994).

[a] In addition, in the soybean processing sector, Marion and Kim (1991) using data from 1985-88 show a 4-firm concentration ratio of 77 percent; which increased from 1982 at 51 percent.

Changes in the Composition of Assets

A very important aspect of the structural changes that have occurred in the past two decades has been a convergence toward more vertically aligned firms. In addition, there appears to be a shift in dominance by firms owning and controlling assets.

Figure 2.18 demonstrates the types of asset shifts that occurred between 1985, 1995, and 1998.[21] Several notable changes have occurred between these periods. One is the shift in asset composition by Cargill and ADM with expansions in each dimension. The second compares changes in firm level capacities at export position (measured by load-out capacity) and storage capacity (measured as firm storage capacity).[22] See Table 2.6. These results indicate that whereas most firms expanded between 1985 and 1995, the largest two (Cargill and ADM) firms (in both load-out and storage capacity) expanded their storage capacity. Most of the expansion in storage capacity was at the country level. One exception was Harvest States which has expanded both load-out and storage capacity, but to a larger extent in load-out capacity.

[21] The size of the bubble reflects the relative total storage capacity of the firm.

[22] Caves (1982) made a similar calculation, but was able to use firm level storage capacity at each level in the marketing system. Results from that analysis indicated that large firms tended to own more export facilities and less inland. Specifically, the largest four firms held 53 percent of the export capacity in 1977, yet only held 18 percent of the inland capacity. We did not have access to that data, but instead used firm level storage capacity (summed across all levels) which generally reflects the same phenomena.

Table 2.6. PNW and Gulf Port Load-out Capacity, Storage Capacity and Changes, by Firm, 1985-95

Firm	Load-out Capacity		Firm Storage Capacity		Change in	
	1985	1995	1985	1995	Load-out	Storage
	mt/hr		tmt		Ratio	
Cargill	15,785	17,690	5,229	10,888	1.12	2.08
ADM	2,177	6,532	1,821	9,561	3.00	5.25
Continental	7,484	4,627	3,865	4,734	0.62	1.22
HSPV		4,082		391		
Harvest States	1,633	3,810	1,679	1,981	2.33	1.18
Zen Noh	3,266	3,266			1.00	
Farmland	3,266	3,266	3,797	3,017	1.00	0.79
LDC	2,858	2,858	693	163	1.00	0.24
Peavey	4,354	2,722	1,420	4,104	0.63	2.89
Cooper	1,905	2,395			1.26	
Bunge	4,899	2,177	4,380	4,156	0.44	0.95
United Grain Corp.	2,994	2,177	272	213	0.73	0.78
Columbia Grain	1,905	1,905		329	1.00	
Interstate	1,633	1,633			1.00	
Union Equity*	3,266		2,000			
AGRI Industries	3,130		670			
Feruzzi	2,449					
Mitsui Grain	2,177					
Farmers Export Co.	2,177		191			

* Union Equity Cooperative Exchange was acquired by Farmland Industries in 1992. The Farmers Export Co. was acquired by ADM. AGRI Industries formed a joint venture with Cargill. Feruzzi (Mississippi River Grain) sold to Harvest States in 1994. Mitsui Grain was acquired by Louis Dreyfus Corp.

Summary: Major Trends in U.S. Grain Handling and Exporting

Four major trends are apparent in the structure of the U.S. grain handling sector.

1. Changing Composition of Firms

The composition of firms involved in the industry has changed. Caves (1977-78) noted the entry of the Japanese trading companies in export handling in the 1970s. In addition, two notable changes occurred during the past decade. One is the increased participation of cooperatives, particularly regional, in the handling sector. While cooperatives have always been active in this industry, their expansion into the export sector has been noteworthy. At least in the Northern Plains, they have retained their dominance despite the rationalization that occurred during this period.

The second characteristic is the increasing dominance of firms with greater public exposure in the sector. This industry has conventionally been dominated by private firms that (some have alleged) have greater ability to take risks and operate with less disclosure. It is very significant that four (Garnac, Bunge, LDC, and Continental) of the five private grain trading firms that dominate the industry in the 1970's have essentially exited. In contrast, growth within the sector is dominated by firms with a greater public exposure. These include ADM and ConAgra (in addition to General Mills) as publicly held stock companies, regional cooperatives (Harvest States and Farmland) that report publicly, and the increasing public disclosure of Cargill's financial performance (due to broader distribution of its stock).[22]

2. Vertical Integration

The U.S. marketing system has evolved from vertically disintegrated firms linked through market transactions. However, much of the structural change within the industry has been toward more vertically integrated firms or agreements. There are likely several impetuses for these changes, including: 1) demands for greater logistical control, 2) quality control, and 3) strategic changes to mitigate market power of firms elsewhere in the vertical market system.[23] The first two of these are efforts to pursue cost savings through vertical linkages.

3. Value-added

The major thrust of most of these firms has been toward value-added which could be viewed as a special form of vertical integration. In this industry, it is notable that grain firms are integrating into commodity processing and processing companies are integrating backward into grain origination. Examples include: 1) dominance of the flour milling industry by grain handling firms (Wilson, 1995b), 2) dominance of the malting industry by either firms with extensive grain

[22] Cargill remains a private company. However, in recent years, a share of its stock has been allowed to be purchased by employees. As a result of this and some of its lending activities, Cargill has released financial documents at a broad aggregate level.

[23] The economic logic and implications of these vertical linkages are developed and elaborated in Appendix 2.

handling operations or by brewers (Johnson and Wilson), and 3) similar examples in the livestock sector.

Each of these firms has indicated its strategic intent is to grow in areas related to adding value to commodities. This is particularly noteworthy of the regional cooperatives. Harvest States has expanded into flour and semolina milling which complements its other value-added activities in oil processing. Farmland expanded into gluten manufacturing and more recently flour milling, in addition to its other food and meat operations. Some of the incentives to expand into value-added processing are to reduce income fluctuations resulting from international grain trading (Dahl, 1991).

4. Joint Ventures

Much of the structural change that has occurred has been in the form of joint ventures. Vertical joint ventures are particularly important because they suggest the need to create relationships to jointly exploit advantages of grain origination and off-shore exporting firms. The alternative to joint ventures would be vertical expansions, resulting in redundant assets and excess capacity or continued use of bidding as a mechanism of vertical control. These are less desirable relative to what could be achieved through joint ventures which allows firms to share benefits of repeated transactions and exploit vertical efficiencies.

Numerous potential reasons have contributed to these changes, some of which have been described in the literature and are summarized briefly. Dahl (1991) indicated that the passage of Staggers Act in 1980 fostered rail line abandonment and development of larger unit train loading facilities. Local elevators expanded to unit train loading facilities. As a result, the importance of terminal elevators declined. The importance of exchanges for cash trading was reduced, and the amount of transactions taking place by phone with premiums and discounts based on contract schedules increased. The essence of this change is that the advent of unit train shipping capabilities increased the economic order quantity (i.e., *EOQ* in logistics parlance), making larger transactions more efficient and pressuring for a change in market channels.

Excess capacity that ensued in this industry was a result first of overexpansion in the export handling industry due, in part, to overly optimistic expectations of exports. Subsequently, excess capacity emerged due to the process of rationalization of the country grain handling sector and its repercussions elsewhere in the marketing system. As a result of these combined effects, margins declined throughout the industry and free-standing grain firms had difficulty existing on grain merchandising and storage income alone. Thus, new investment was in value-added grain processing.

Brannan (1993) also analyzed the rapid restructuring of the grain industry. The grain sector that began emerging in the early 1990s focused on supplying more demanding processors which are highly sensitive to consumer demands. In fact, he argues that the consolidation and concentration by traditional firms may have been a catalyst for change. Overexpansion in the 1970s and early 1980s induced many firms to undertake risk-reducing strategies. These strategies included shifting transactions from an open market to less risky contingent contracts and vertical integration. Problems with increased uncertainty led to competitors, customers, and suppliers behaving opportunistically.

Cook examined forces affecting the U.S. grain industry. The last decade was characterized by the emergence of a new subsector which is driven by processor-sensitive consumer demands. He identified four factors driving consolidation: 1) consumers have become more discriminating buyers of grain products; 2) biological, mechanical, and chemical technologies are beginning to permeate grain related industries; 3) demand for organizational structures that minimize the information search and monitor costs of operation has increased; and 4) overexpansion in physical assets with few alternative uses created financial burdens that required better risk management tools.

III. Transnational Grain Marketing Firms

Functions Performed in Grain Marketing

To motivate discussion on the evolution of the transnational grain trading sector, it is important to delineate functions performed and sources of value-added throughout the vertical marketing system. Figure 3.1 illustrates the relation among these functions.

Some specific items are noteworthy. One is that quality control occurs at several points in the market system. Second, pricing options (numerous alternatives including fixed and basis forward contracts, minimum and maximum forward contracts, etc.) and price risk management exist throughout, as does financing grain trading activities. An interface that is becoming important is that between the point of import and processing within importing countries. Due to privatization of imports, functions performed at this interface are escalating in importance and being performed by some of the transnational grain firms.[24]

The functions performed are presented in a specific ordering. They range from highly transactional (i.e., a function performed for a specific transaction) to strategic and relational (i.e., those related to longer-term strategies). Numerous functions are performed in the export/import interface. These include highly transactional functions (e.g., fobbing, pricing, shipping, documentation) and functions that are more strategic and relationship-oriented. The latter include developing a network of buyers and sales and market development, as well as managing financing risks. Though there is frequent reference to functions that are more transactional, it is the relational functions that determine the sustainability of a firm's particular strategy.

[24] This illustration could be expanded further. Of particular importance would be inclusion of the input sector at a point upstream from production. This has importance because many grain firms are also extensively involved in distributing and financing inputs to producers. Some would even argue that this linkage, with its vertical linkage further downstream, is escalating in importance.

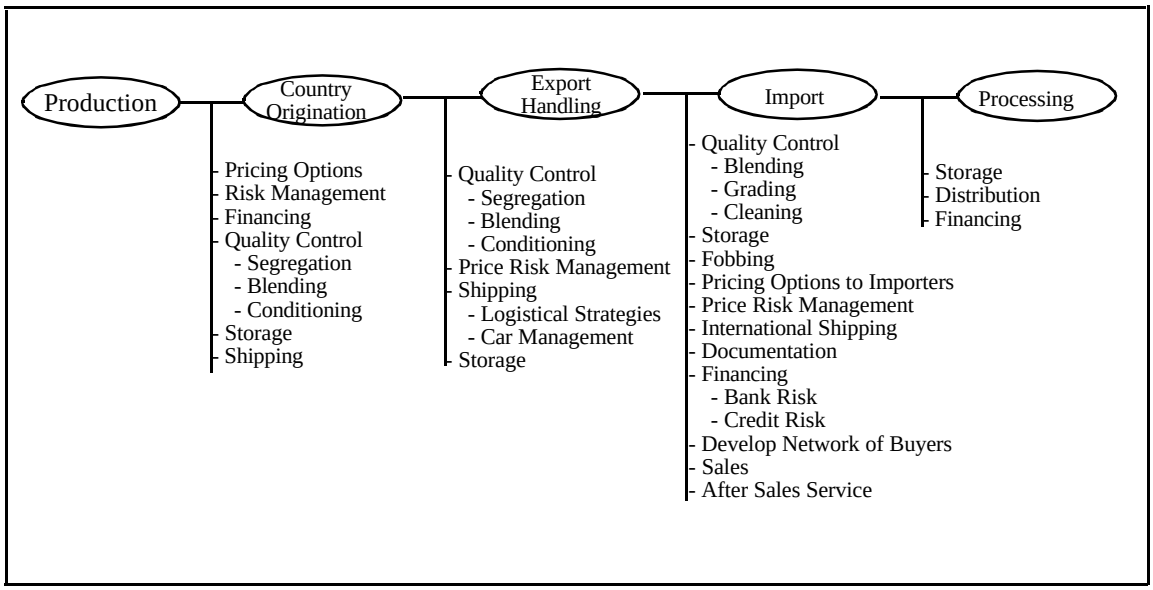


Figure 3.1 Value-added Functions in Wheat Exporting

Some firms are highly integrated throughout the marketing system (with a focus on executing sales through to the importer). These would include firms such as Cargill and ADM. In contrast, some firms appear to be focused strictly on the interface between export handling and the import/processor interface. These would include firms such as Garnac (Andre), LDC, Glencore, and Phibro. Other firms that have traditionally sold in FOB export positions are extensively integrated backward. Examples include Harvest States and, until its acquisition of Tradigrain, Farmland (and its predecessor, Union Equity). Other ways have emerged to coordinate these vertical linkages through vertical joint ventures. In this case, each firm continues to focus on its functional expertise, but each makes commitments to the other through a joint venture (to avoid the ruinous effects of non-collaborative vertical transactions). These are normally market-channel specific (e.g., TEMCO).

An important element of competition in the international grain trade is the network of suppliers and buyers. This is illustrated in Figure 3.2. Suppliers are represented as S_1, S_2,...S_m selling organizations, typically taking the form of grain origination and/or export handling firm/venture. Buyers (end users), reflecting end users, are represented as B_1, B_2,...B_n. The network contains government agencies buying for an entire country's needs, import associations, and individual end users. It is important that the composition of buyers is changing due to the privatization of import functions.

One type of transaction is for a direct sale from the supplier firm/venture to the end user. This would be typical of the types of transactions made by highly vertically integrated firms/ventures. The other type of transaction would be through an intermediary firm, commonly referred to as trading firms. However, to more adequately reflect the functions performed by these firms, they should be referred to as marketing firms, represented as M_1, M_2,...M_o.

There are several important characteristics of this sector. First, as illustrated in Figure 3.1, these firms perform many marketing functions. Second, marketing firms are simultaneously customers of suppliers and suppliers to customers. In the latter case, they serve an important role as a supplier for end users, seeking the best originating supplier and performing numerous functions. Third, some marketing firms are also suppliers, and these can be further distinguished as single-origin versus multi-origin suppliers.

Grain marketing firms, capable of originating from more than one nation, are called transnational; others would be characterized as single-origin, an important distinction. Finally, this sector is sometimes noted for its "pure-trading" or "arbitraging" function. This refers to taking temporary positions simultaneously in multiple cash markets to profit from an expected change in prices and price relationships. This can be accomplished using numerous combinations of different positions, generally opposite positions, from suppliers and buyers. In addition, in some cases, they may be simply taking opposite positions from other firms in this sector.

The important aspect of competition among these firms, however, is their network of buyers and sellers. Some firms specialize in targeted markets/customers; others have a broader approach. Firms compete through the composition of this network.

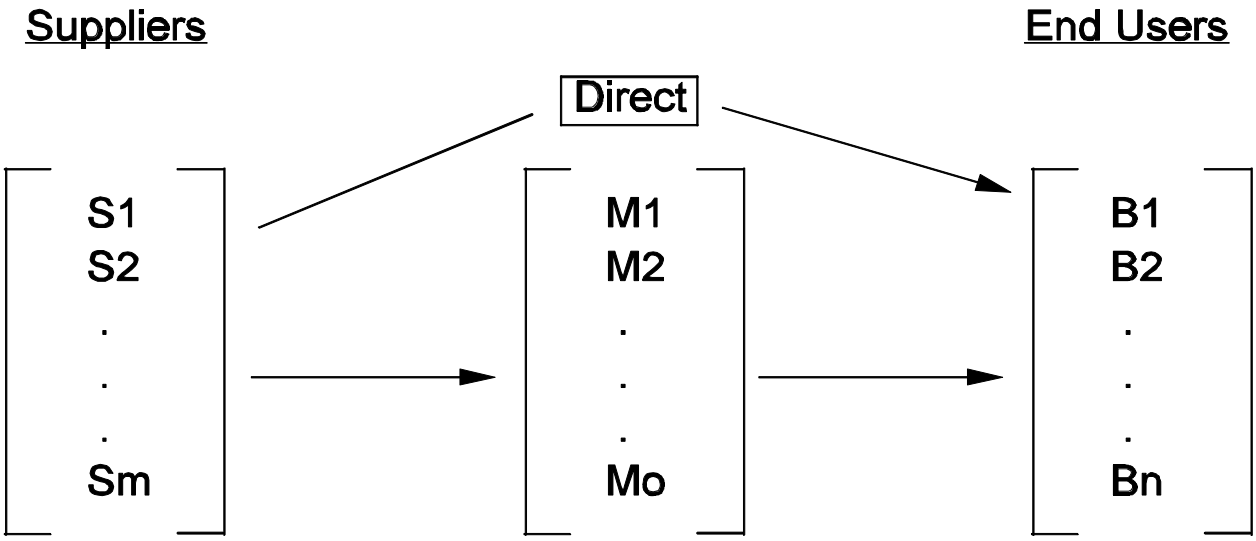


Figure 3.2. Buyer/Supplier Network

Evolution of the International Grain Trade

In the 1960s and early 1970s, the U.S. wheat trade was dominated by six firms (ADM, Bunge, Cargill, Continental, Louis Dreyfus, and Peavey). These firms exported 90 percent of U.S. wheat from 1960 to 1967 and held similar market shares in 1970s. In 1972, Cargill and Continental handled about 50 percent of the world's grain shipments.[25] Bunge handled 20 percent, and Louis Dreyfus and Cook Industries accounted for another 20 percent. The remaining 10

[25] Individuals contacted during this study suggested that it was more likely 40 percent.

percent was split among a dozen or more companies. Concentration in handling U.S. exports was similar (Hamilton, p. 13).

There was a trend toward increased ownership of U.S. grain firms by foreign firms in 1970s (Caves 1982). This observation pointed specifically at the entry of Japanese trading companies (Marubeni and Mitsubishi through ownership of Columbia and United Grain, respectively). Since then, an Australian company, Elders, entered and subsequently exited.

Scoppola (1995) compared and contrasted concentration ratios in the grain exporting industry. In the case of wheat, the multinational share of exports was 70 percent in the U.S. and 80 percent in the EC. This contrasts with their shares of primary processing at 27 percent (U.S.) and 55-60 percent (EC). For comparison, the four-firm concentration ratio for wheat exports from the EC and U.S. were 90 and 70 percent, respectively. An important observation from that study was that "in many cases national firms of both countries do not have an important role, as the first-four firms tend to be the MNCs [multinational companies]."

Observation of activities of international grain firms suggests that there have been some notable changes in strategies in the past five years.

Continental Grain. The second largest U.S. grain exporter with about 20 percent of the market was acquired by Cargill in November 1998.

LDC and Garnac (Andre). Liquidation of many of their handling and shipping assets in the United States, but their continued presence in international trading suggests a change in strategy, generally toward non-asset based trading.

Bunge. Liquidation of many of its U.S. grain handling and shipping assets marked a reduced participation in large-scale exporting. Instead, its trading is likely more targeted on particular importing countries and/or on their own offshore processing plants. Bunge has also expanded dramatically into value-added food processing in the United States and throughout the world.

Non-asset Based Trading Firms. This sector is comprised of fewer firms than in the past. Major players include Garnac (Andre), LDC, Phibro, Toepfer, and Glencore (Richco).[26]

A.C. Toepfer and Cooperative Exporting. A strategy on the part of cooperatives from around the world in exporting was through the formation of *Intrade* and a joint venture with ADM to acquire A.C.Toepfer. This is an organization owned jointly by ADM and Intrade.[27] The

[26] Others include J. Aron (Goldman Sachs), CAM (to serve primarily Algeria), and other more specialized firms.

[27] This was not the first attempt of cooperative activity into exporting. An earlier organization, Farmers Export Cooperative (comprised of several regional cooperatives including Far-Mar-Co, Growmark, AgriIndustries, and others) sought similar objectives. However, it folded after the 1980 U.S. grain embargo against Russia. It was the largest U.S. grain exporter in 1978/79. However, it also had problems with individual regions' desire to grow in direct export sales.

purpose of this was to allow an organization to expand direct exports from cooperatives through A.C. Toepfer. For various reasons, this concept did not proliferate as anticipated.

Farmland Acquisition of Tradigrain. Farmland Industries, a major regional cooperative in the HRW region, expanded in the grain business in 1992 with the purchase of Union Equity and chose to acquire Tradigrain to conduct its offshore marketing. Tradigrain would have been typified as a trading/marketing firm as in Figure 3.2 with no assets and exporting from and to many countries with trading offices in Argentina, France, Germany, the United Kingdom, and the U.S. It was formerly owned by the agribusiness unit of British Petroleum.[28] The cited reason for making this acquisition was to allow Farmland to "enhance the systems' access to international customers" (Farmland Industries 1994). This marked the expansion of a major originator of HRW into direct offshore trading activities.

Escalation in Direct Exporting by Vertically Integrated Firms. The vertical joint ventures between originators and exporters suggest more overt attempts to coordinate vertical marketing functions.

Previous Studies on the Structure of the Multinational Grain Industry

A number of studies have examined various structural and operational aspects of the multinational grain trading industry.[29]

Ease of Entry

Some earlier studies suggested that firms can easily enter and exit this industry. As evidence, the number of firms reporting export sales increased during the 1970s. The number of firms exporting wheat increased by 32 percent from 1974 to 1980, corn 38 percent, and soybeans 15 percent. These observations suggest ease of entry into the grain export business and suggest that industry was becoming more competitive (GAO 1982).

Asset Composition

GAO (1982) indicates that control of port facilities declined for major multinationals from 1968 to 1981 (from 56 percent to 50 percent), while agricultural cooperatives increased control

[28] See *Feedstuffs* (Dec. 6, 1993) for details.

[29] In addition to these studies, two others are of interest. Scoppola (1993 and 1995) analyzed competition among multinational grain companies and investigated their ability to arbitrage trade policies among exporting countries. Patterson and Abbott analyzed the market structure and pricing behavior of U.S. grain exporting firms for U.S. wheat and corn exports using a generalized Cournot model to examine discriminatory pricing. They found a significant relation among pricing behavior and firm concentration, U.S. market share, total export volume, and import market size. Estimated coefficients were relatively small, indicating little quantitative impact from market power. Discriminatory pricing was examined using the spread between average farm price and the export value for non-concessionaire wheat sales. This calculation, however, ignores both quality differences among buyers and actions of other players (i.e., other than the exporter) within the vertical market system. As such, the distinction between exporter behavior from that of railroads, barges, or country elevators is masked.

of port facilities from 9.7 percent to 21.4 percent. Caves (1982) noted that large firms tend to own more export facilities and less inland. For example, in 1977, the largest four firms held 53 percent of the export capacity, yet only held 18 percent of the inland capacity. This has changed radically in the past 15 years with the largest export handler's also being the largest originators.

A major aspect of competition among international grain trading firms is the number of origins from which they are capable of exporting (and, concurrently, the number of destinations to which they are capable of exporting). This is represented by the network of suppliers and buyers in Figure 3.2. Many grain trading firms originate grain from multiple sources around the world as well as within countries.

Cooperatives

There have been varying attempts by cooperatives to become more involved in the international grain trade in terms of direct sales. However, most cooperatives would have an inherent disadvantage in being single origin exporters (Warman 1993). However, this concern seems to have been overcome by Farmland in its acquisition of Tradigrain which continues to export from multiple origins.

Sources of Economies and Competitive Advantage

There are some curious threads to some of these studies and the literature ensued. Caves (1977-78 and1982) began by questioning why so few firms dominate in what appears to be such a highly competitive industry. To that end, he identified two primary sources of scale economies as those related to risk management and information. Subsequent authors (Cook, Scoppola, 1993, Ryan) all build on these issues along with other sources of competitive advantage. The intent is to identify sources of competitive advantage for firms in the international grain marketing sector.

Cook identified two types of commodity trading firms that will evolve in the future: 1) physical and information-intensive terminal operations and 2) information-intensive paper traders. He indicates that scale economies will focus on multi-origin, multi-port, and user facility-based intelligence systems and from centralized price, credit, execution, currency, and transportation risk management. Economies of scope dictate that firms will operate in multiple commodity markets (p. 124). Scale economies in exporting will inhibit new entrants, yet strategic alliances for storage and/or origination will be common. Attribute-specific commodities could impose contracting mechanisms for price which would disrupt the traditional pricing mechanisms. These forces will push toward more vertical coordination and negotiated pricing mechanisms.

Information

As suggested by Caves (1982), information involves a high fixed cost and is perishable. As a result, the per unit cost of information collection, assembly, and interpretation decreases with increased output. Thus, larger firms would have a lower per unit cost of information than others.[30]

There are several practical aspects of this source of advantage. Most important is information about demand (quantity, timing, quality, etc.) and expected trade flows. From a trader perspective, this provides an advantage in coordinating their logistics to take advantage of anticipated flows. Other types of information are more focused on factors affecting price changes. From a handler perspective these are likely of less importance compared to factors related to demand and flows. The source of the information is particularly important. For transnational firms, it likely comes directly from their communications with individual buyers and decision makers in importing countries. As a result, information is complemented by an extensive trading network.

Several changes in recent decades have affected this source of advantage. First, advances in telecommunications technology have resulted in more expeditious flows of information, generally lessening the cost of dissemination. Second, during the EEP era, information on demand and values became more transparent and accessible to numerous parties. However, increased privatization of import functions has resulted in less information being readily disseminated. There is a greater tendency for private buyers to procure using private negotiations (in contrast to public tenders) and not revealing the terms of trade.[31] This has an important effect on the competition and suggests an asymmetry, giving advantage to those more directly involved with extensive customer networks.

Risk Management

There are numerous risks in grain trading (price, basis, spreads, transport, premiums/discounts, quality, credit). Larger scale firms/organizations have an advantage in managing these risks through pooling. To examine this, Caves (1982) compared variability of shipments to a set number of countries to overall volume to examine the risk-spreading aspect of large export firms. He found the variability in shipments for the limited number of countries was larger than the variability for all export firms. Thus, he argues that there are economies of risk bearing in large grain firms.

Network of Suppliers/Customers

An important aspect of competition in international grain is the network of suppliers and customers. By having a large network of suppliers (customers) with quality differences, large-scale trading firms are capable of serving a large number of customers (suppliers). In addition,

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[30] To test the extent of this information advantage, Caves (1982) hypothesized that total volume shipped should increase as the number of importing countries exported to increases. He found a positive relationship for wheat, indicating that as the number of importing countries exported to increases, the volume of shipments to any country increases. This was interpreted as giving rise to substantial economies of information.

[31] One of the interviewees commented that in 1997, there were essentially no public tenders (i.e., in which terms of trade, including price, were released). He made the point that this is in stark contrast to extensive use of public tenders during the 1970s and EEPs and restitutions during the late 1980s and early 1990s.

total quality management, preferred supplier relationships, etc., are more efficiently executed by larger scale firms with multiple origin capabilities.

Direct Versus Indirect Sales

An important strategic problem confronting some firms in this industry is that of making direct sales versus making FOB sales and allowing another firm to conduct the direct marketing. Caves (1982) examined the reliance on direct versus indirect exports by size of firm and found that large grain firms relied heavily on direct exports, while smaller firms tended to rely on indirect exports. This was expected given the sources of economies and risks identified.

U.S. firms (cooperatives in particular) have taken different approaches to this problem. Farmland acquired Tradigrain to provide a mechanism for more direct sales by a U.S. cooperative. In contrast, Harvest States, confronting similar issues, chose to expand through a combination of targeted vertical joint ventures (TEMCO, HSPV, United Harvest), direct sales, and FOB sales through transnational grain firms.[32]

Impacts of EEP on Export Firm Competition

The expansion of EEP had important effects on intercountry competition and on the structure of competition among grain firms.[33] Three important effects are described.[34]

Transparency

One of the important effects of the EEP mechanism was that it increased the level of price and demand transparency in the market, affecting both interfirm and intercountry competition. The auctioning mechanism used to execute EEP transactions resulted in demand (quantity, quality, timing) and prices being publicly released and easily accessible to all competitors. Administration of the bidding mechanism resulted in near instantaneous disclosure of bids by

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[32] As a description: "With marketing and transportation trends making the Center Gulf more important as grain exports rise, Harvest States also continued to pursue the goal of acquiring its own facilities there. The cooperative has export operations on the West Coast and on the Great Lakes, but has been relying on put-through agreements with other privately owned elevators for Center Gulf shipments. Early in 1994/95 fiscal year, the situation changed dramatically. Harvest States acquired an export terminal at Myrtle Grove, LA as well as river facilities in Iowa to help originate and ship grain to the new operation. The acquisitions tie in with a joint venture Harvest States completed at the same time with the Peavey Company, a Minneapolis-based grain firm that's part of ConAgra, Inc. ...The joint venture is designed for efficiency and flexibility in grain origination and shipments." (Harvest States *1994 Annual Report*, p. 6-7.)

[33] EEP also had the impact of liquidating stocks, which contributed to the demise of country elevators and terminals. In some cases, a significant share of elevator profits accrued from storage, and the loss of that income was more devastating to this sector of the handling industry.

[34] Sosland indicated "...the cessation of export subsidies has exerted a tremendously beneficial effect not just on the competitive pace of export business, but on the economics of the grain trade itself. Eliminating the stultifying impact of daily subsidy decisions has lifted a weight from the industry's shoulders...." (Sosland Publishing Co., Feb. 1996) *Milling & Baking News.*

importers and EEP allocations to winning bidders (exporters). This information, along with a fairly public knowledge of market values and transformation costs, resulted in U.S. export prices being highly transparent.

There were several effects of this. One was that competitor countries gained tremendous informational advantages relative to a less transparent system, thus making sales and marketing decisions relatively easy. Second, information asymmetries among grain exporting companies were reduced, and firms who had previously established informational advantages saw these advantages reduced. Thus, those firms/selling organizations not having extensive informational networks gained advantage relative to incumbent firms.

Ease of Entry/Expansion Into Direct Sales

The EEP mechanism also facilitated easier entry of non-traditional firms into grain trading. The EEP mechanism was to have required some form of incumbent status to be eligible, but in practice, it appears the mechanism partly facilitated an expansion of several firms into export activities. In addition, other grain-originating firms found the mechanism facilitated easier expansion into making more direct sales. Before EEP, the information and commercial mechanisms generally induced originating firms to export indirectly through multinational grain firms. However, EEP eased the transition for these firms to make a greater portion of their sales direct.

Incentives for Market Development and Sales

Sales and market development have always played an important role in export marketing activities; and more recently, quality has escalated in importance. However, EEP had a devastating effect on both. First, EEP generally favored transactions on more homogeneous qualities. The reason for this was to induce more intense bidding competition and to make it easier to monitor competitor values. As a result, allegedly, EEP had the effect of inducing lesser quality specificity than otherwise would have been the case.[35]

EEP also had the effect of mitigating incentives by individual firms to undertake market development and sales initiatives, at least among targeted countries. These have always been important functions of multinational grain firms. Sales allocated through the EEP mechanism, however, were strictly based on price (bids), thus mitigating incentives for innovative marketing strategies and market development on the part of individual firms. EEP had the effect of reducing incentives for individual firms to participate in sales and market development initiatives. The fact that EEP used a bidding process to allocate sales to a particular country among exporting companies meant that the duration of the relationship between buyer and seller was simply the transaction. As a result, incentives for firms to initiate sales and marketing strategies that would promote longer term sales relationships with individual customers were mitigated.

[35] This needs to be qualified because during earlier EEP years, there were large stocks of wheat of which some were of higher quality. These stocks were liquidated during the earlier years of EEP.

IV. Privatization of Grain Import Functions

One of the important commercial changes occurring in the international grain market is the privatization of importing functions. This has been occurring for some time, but the pace of change has accelerated in the past decade. This section provides a description of this change and some of the observed effects, notably increased contract specificity.[36] [37] [38]

Dynamics of Privatization

Historically, a vast majority of grain trade was controlled by government buying agencies. This had an important impact on the conduct of the international grain marketing system. For example, quite frequently, a reason cited for the development and retention of single seller agencies was to have a more appropriate organization for selling to grain importing agencies which were largely government.

During the past decade, there have been numerous and notable changes in the organization of importing. Wilson (1996) reports that 37 percent of the importing countries in the world are centralized and 41 percent are privatized.[39] It is significant that decentralized purchasing occurs in 100 percent of the countries in East and North Asia and South America. However, this is changing rapidly with many countries at some phase of change in procurement organization.[40]

[36] This is a summary of an analysis in Wilson (1995a).

[37] Sosland identified privatization of grain importing as one of the most important changes occurring in the world grain trading industry (*Milling & Baking News* Feb. 1996).

[38] In fact, it is interesting that one of the stated motivations for the acquisition of Continental by Cargill was identified by Micek who described this as follows: "In just the past decade, the old marketplace of a few buyers and a few sellers has become a thing of the past. Gone are the days of striking one big grain deal with a central buying desk for the Russian or Chinese governments. We are now dealing with thousands of private buyers who are in many different places with many different needs. The pipeline to serve that newly differentiated customer base needs to be long and flexible. And, we need to shift from a commodity mentality to a product and service orientation.."

[39] The remainder are either mixed or unknown.

[40] Wilson (1995a) contains a list of countries which are privatizing or are likely to privatize. These include countries that have privatized during the past decade. A more recent change is occurring in Morocco which apparently became private in May 1996. Russia and the FSU are a special case. Technically, Russian imports are eligible to be imported by the private sector, though sovereign credit arrangements as administered have precluded private importers. However, that is in a state of rapid change. China remains largely dominated by Ceroils, but is giving way to supply responsibility by city and provincial grain bureaus.

Procurement Organization and Behavior Under Privatization

Several organizational forms have emerged as countries have privatized. Three types of private import organizations are defined. These include private traders who purchase and resell grain to an importing country, industry purchasing groups such as an organization of millers who collectively purchase for their own use, and private processors or end users who import wheat for their own use in milling or baking.

Casual observation of purchasing associations suggests they are seeking to exploit economies of procurement (i.e., purchasing costs, shipping, and handling) through cooperation. By purchasing jointly, end users can reduce shipping and storage costs and other costs associated with procurement. This is important because in many of these countries, individual end users, once privatized, require smaller volumes, relative to that which would be associated with minimum-efficient-purchases (i.e., the economic order quantity that minimizes total procurement costs). However, another motivation (or side effect) for organizing procurement as an association is that it provides a mechanism to assure that all end users pay the same price for their principal ingredient. The effect of this is to preclude procurement competition which should be an important element of competitive advantage for some firms.

The essence of these changes is that the *channel of influence* is changing. End users have a greater impact on purchase decisions, specifications, and terms of trade. These buyers are directly affected by different terms of trade (e.g., with respect to quality differences, alternative logistical arrangements, and credit terms) and are more capable of assessing their value in terms of cost savings, their ability to produce different products, and profits.

There are several implications of more decentralized grain import decision making. First is a greater tendency for smaller transactions and, potentially, shipments. Second, private importers are more likely users of hedging to manage price risk. As such, purchase decisions become divorced from overall price level and, in addition, buyers will have greater interest in alternative pricing options (basis contracts, maximum price contracts). Third, financing grain trade will provide both opportunities and problems. Finally, there is a tendency for greater specificity regarding terms of trade. These include primarily quality specifications and logistics.

Though the general effect of privatization is for more specific terms of trade (i.e., logistics, credit, etc.), the most significant change is more specificity in quality requirements. Basically,

when milling is privatized, end users want to say more about quality which has great implications for the grain marketing system.[41] [42] [43]

Implications for Trading Firm Strategies

Traditionally, trading firms would be thought to have advantages in serving the needs of the changing composition of customers.[44] Organization of trading firms, networks of agents, and vertical integration should contribute to their advantage in serving the needs of the evolving buyers. Several firms have reorganized to pursue strategies to serve these market segments. Aside from increased quality specificity, reduced transaction size, and an increased portion of C&F sales, there are several important issues.[45]

Selling Versus Bidding

Much of the world grain trade evolved during the past decade to be executed using bidding or tenders. This is a result of overt strategies on the part of government import agencies and on the effect of the execution of some U.S. policies, notably EEP. As a result, standard specifications and terms of trade were adopted to the extent that the ability to provide additional services was precluded. Private buyers, though still cognizant of the advantages of tendering, are more receptive to purchase specifications and alternatives offered by suppliers.[46] However, they must truly add value to their operations. To execute these strategies, trading firms will have to focus more on sales and marketing strategies than in the past decade.

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[41] In speaking on this, Miller indicated "...these changes [privatization] have transformed countries once willing to take almost anything into active buyers of the very wheat U.S. millers formerly competed only among themselves in purchasing." Recognizing this problem, Wakefield indicated that "feedback from customers in all countries indicates that they are becoming more vigilant and sensitive in their requirements regarding quality factors, and are demanding written assurance that our grain meets their standards" (p. 11).

[42] Wilson (1995a) identifies how purchase specifications have changed as a result of privatization and, in all cases, points to specification of higher quality in the period following privatization. Dahl and Wilson demonstrate some of these effects using export shipment data. One of the effects of the dynamics of the competitive environment is that over time, the number of segments (defined using cluster analysis of shipment characteristics) in terms of quality specifications purchased by individual country importers in the world hard wheat market has increased substantially. The number of segments increased from 3 to 4, HRS from 2 to 5, and HRW from 2 to 4 segments. For hard wheat shipments from the United States, the market segment with the fastest growth rate is for No. 1 grade specifications for each HRS, durum, and HRW. Further, among all hard wheats, that which has experienced the fastest growth rate has been US HRS, followed by Canada Other (reflecting feed wheat shipments), CWRS, and CWAD.

[43] Sosland suggested the effects of privatization would be for: 1) reduced size of average transactions, 2) an increased emphasis on quality, and 3) increased C&F sales versus FOB (*Milling & Baking News* Feb. 1996).

[44] Implications of this structural shift are interpreted in the discussion in Appendix 2.

[45]See *Top Producer* for an interesting interpretation of these issues.

[46] Several of the firms interviewed identified the drastic reduction (to nil) of conventional public tenders.

Import Country Internal Distribution

An important aspect of this change relates to extending the value chain to internal distribution within importing countries (See Figure 3.1). One of the effects of privatization is to reduce an individual buyer's optimal purchase size compared to procurement by a government agency or import association. In many cases, the optimal purchase size is less than that which would minimize all logistical costs if shipments could be combined.

One strategy that has emerged to exploit this difference is for export firms to make large-scale shipments to an importing country and to place the grain in storage (and, in some cases, under warehouse receipt). Smaller sales and shipments would be made from these facilities to individual buyers who, operating individually, would prefer the smaller transaction size. This type of transaction apparently is emerging as a generalized model in several importing countries and likely will expand further as privatization proliferates and matures. The change is practical and has important implications for the vertical boundaries of trading firms and organizations.

Vertical Integration and Contracting

Essential requirements for serving private buyers with autonomous quality requirements will be some form of vertical coordination. The nature of the challenges for controlling quality has numerous implications for handling firms. Generally, those firms having control over handling will have advantages over others depending more on pure trading. How much advantage they will have as a result of vertical integration versus those pursuing trade through contracting remains to be seen.

Firms with multiple origination capabilities will likely have an advantage. This will be due to their ability to procure from multiple facilities within a system across numerous origins. This advantage will become more important as: 1) quality variability in production increases, 2) demand specificity by customers increases, and 3) factors that are more difficult to measure and sample are introduced into contracts. Finally, with these market characteristics, firms will have to develop a network of customers with diverse demands.

V. SUMMARY

Dynamic Changes in The World Grain Market

During the 1970s, world grain trade increased rapidly. An important impact of this change was increased export volumes which provided incentives to expand handling and shipping capacity throughout the world grain industry, and in the United States in particular. Decisions to expand capacity were made, resulting in excess handling and shipping capacity. However, during the early 1980s, U.S. surpluses began to grow. Partly because of these surpluses and developments in the European Community, the use of EEP and other government assistance mechanisms increased. Several important aspects of EEP affected both the intercountry and interfirm competitive environment. Of particular importance was that specific countries were targeted. In addition, transparency increased, thereby mitigating advantages of some firms. The

important feature of the international grain trade during the 1990s will likely be the increased privatization of grain import functions which will have important impacts on the structure of competition among firms and single seller agencies.

Structural Changes and Conduct in the U.S. Grain Marketing System

Four major trends are apparent in the changing structure of the U.S. grain handling sector.

1. Changing Composition of Firms. The composition of firms involved in the industry has changed. In addition to the entry of the Japanese trading companies in export handling in the 1970s, two notable changes occurred during the 1990s. One is the increased participation of regional cooperatives in the handling sector. While cooperatives have always been active in this industry, their expansion into the export sector has been noteworthy. In addition, at least in the Northern Plains, they have retained the competitive position despite the dramatic rationalization that has occurred. Second is the increasing dominance of more public firms in the sector. This industry has conventionally been dominated by private firms that are alleged to have greater ability to take risks and operate with less disclosure. However, growth within the sector is dominated by firms with a greater public exposure. These include ADM and ConAgra (in addition to General Mills) as publicly held stock companies, regional cooperatives (Harvest States and Farmland) that report publicly, and the increasing public disclosure of Cargill's financial performance (due to broader distribution of its stock).

2. *Vertical Integration.* The U.S. marketing system evolved from vertically disintegrated firms linked through market transactions. However, much of the structural change within the industry has been toward more vertically integrated firms or agreements. Several impetuses for these changes are noteworthy: 1) economies of transportation and handling and related demands for greater logistical control, 2) quality control, and 3) strategic changes to mitigate market power of firms elsewhere in the vertical market system. The first two are efforts to further pursue cost savings through vertical linkages.

3. *Value-added.* A major thrust of many of these firms has been toward value-added. While value-added could simply be viewed as a special form of vertical integration, it is important that, in most cases, it has been for grain firms to integrate into commodity processing or for commodity processing companies to integrate backward into grain origination. Examples include: 1) dominance of the flour milling industry by grain handling firms, 2) dominance of the malting industry by either firms with extensive grain handling operations or by brewers, and 3) similar observations in the livestock sector. Each of these firms, particularly for regional cooperatives, has indicated that their strategic intent is to grow in areas related to adding value to commodities.

4. *Joint Ventures*. Much of the structural change that has occurred has been in the form of joint ventures. Vertical joint ventures are particularly important because they suggest the need to create relationships to jointly exploit advantages of grain origination and offshore exporting firms. The alternative to joint ventures would be vertical expansions, resulting in redundant assets and excess capacity, or continued use of bidding as a mechanism of vertical control. Either of these is less desirable relative to what could be achieved through a joint venture which should be intended to share benefits of repeated transactions and exploit vertical efficiencies.

Despite the consolidation in this sector, various measures of concentration suggest the industry is highly competitive. Comparison of market power at different points in the system demonstrate that generally, the grain storage and handling sectors are highly competitive relative to the processing sector which is more concentrated.

Transnational Grain Marketing Firms

The vertical boundaries of firms involved in international grain trading depend on the functions they perform. However, functions performed in grain exporting are more encompassing than conventionally viewed. Some firms are highly integrated throughout the marketing system (with a focus on executing sales through to the importer). In contrast, some firms appear to be focused strictly on the interface between export handling and the import/processor interface. Other firms that traditionally sell in FOB export positions are extensively integrated backward.

An important element of competition in the international grain trade is the organization of a network of suppliers and buyers. Some firms specialize in targeted markets/customers; others have a broader approach. Firms compete among each other through the composition of this network.

Evolution of the International Grain Trade. The composition of firms involved in the multinational grain industry has changed. In the 1960s and early 1970s, the U.S. wheat trade was dominated by six firms (ADM, Bunge, Cargill, Continental, Louis Dreyfus, and Peavey) who exported 90 percent of U.S. wheat from 1960 to 1967 and held similar market shares in 1970s. However, this has changed radically, particularly in the past five years. Most notable are: 1) Continental's exit from the handling and exporting sector; 2) LDC and Garnac's (Andre) liquidation of many of their handling and shipping assets in the United States, but their continued presence in international trading suggests a change in strategy, generally toward non-asset based trading firms; 3) Bunge's liquidation of many of its U.S. grain handling and shipping assets, which marked a reduced participation in broad-scale exporting; 4) the contraction in the non-asset based trading firm sector; 5) worldwide strategy on the part of cooperatives to form *Intrade* and a joint venture with ADM to acquiring A.C.Toepfer to provide a mechanism for direct exports; and 6) Farmland's acquisition of Tradigrain to conduct its offshore marketing to allow Farmland to "enhance the systems' access to international customers."

Studies on the international grain trade suggested that entry is relatively easy and the major sources of economies and competitive advantage were information and risk management.

Impacts of EEP on Export Firm Competition. Proliferation of EEP had some important effects on the structure of competition among grain firms. One was that the EEP mechanism increased the level of price and demand transparency in the market, affecting both interfirm and intercountry competition. There were several effects of this. First, competitor countries gained tremendous informational advantages relative to a less transparent system, thus making sales and marketing decisions easier. Second, information asymmetries among grain exporting companies were reduced, and those firms who had established informational advantages were adversely impacted. This was critical for several reasons. Foremost was that informational advantages were mitigated. Thus, those firms/selling organizations not having extensive informational networks gained advantage relative to incumbent firms.

EEP had several other important effects. EEP generally favored transactions on more homogenous qualities. EEP also had the effect of mitigating incentives by individual firms to undertake market development and sales initiatives, at least among targeted countries.

Privatization of Grain Import Functions

One of the important commercial changes occurring in the international grain market is the privatization of importing functions. This has been occurring for some time, but the pace of change has accelerated in the 1990s. The essence of these changes is that the *channel of influence* is changing. End users have a greater impact on purchase decisions, specifications, and terms of trade. Buyers directly impacted by different terms of trade (e.g., with respect to quality differences, alternative logistical arrangements, and credit terms) are more capable of assessing their value in terms of cost savings, their ability to produce different products, and profits.

There are several implications of more decentralized grain import decision making. First is a greater tendency for smaller transactions and, potentially, shipments. Second, private importers are more likely users of hedging for price risk management. As such, purchase decisions become divorced from overall price level. In addition, buyers will have greater interest in alternative pricing options (basis contracts, maximum price contracts). Third, financing grain trade will provide both opportunities and problems. Fourth, there is a tendency for greater specificity regarding terms of trade. These include primarily quality specifications and logistics.

Though the general effect of privatization is for more specific terms of trade (i.e., logistics, credit, etc.), the most significant change is likely that of quality requirements and specificity. Basically, when milling is privatized, end users tend to become more specific about quality which has great implications for the grain marketing system.

Survey Results

A series of interviews was conducted to gain insight into changes occurring in that industry and was the basis for much of the qualitative analysis in this report. The survey is fully described in Appendix 3. Some of the highlights include:

Market Development. Each company was actively involved in market development activities. It is important that activities encompassed into the term market development varied. It is also important that the demands for and focus on market development have escalated in the past three-five years, primarily due to privatization of importing and competition among firms. There were various responses to activities included in market development. For several firms, market development was not a unique stand-alone activity, but rather was part of a longer-term plan of targeting customers, developing marketing plans, and cultivating longer-term relations as suppliers.

Quality. All firms recognized and emphasized that demand for quality specificity has escalated and, except for one, had promoted its evolution. This was thought to be directly in response to privatization and reduced EEP.

Response to Privatization. All firms identified that a significant shift in importing became apparent in the past three-five years. Most of this was attributable to the privatization of import functions. Though not mentioned directly, there was also recognition of the ruinous competition among exporters due to trading of generic commodities and terms of trade.

Shift in Market Power. Most of the firms believed there has been a shift in market power to originators. However, there was some dispute about the definition of origination. One view was that it involved controlling country elevator origins. The other view was control at some point intermediate in the market system (i.e., at river terminals) that assembles from multiple country origins and makes outbound shipments of blended homogenous products. Irrespective of this distinction, it was commonly recognized that most of the value-added was at the country elevator.

Multiple Origin Exporters. Most firms indicated that being able to originate from multiple origins was essential and fundamental to the success of export programs. Others acknowledged the advantages of multiple origin exporters.

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Appendix 1:

Background Data on Ownership Changes in U.S. Grain Marketing System

Table A.1. Cargill: Joint Ventures and Acquisitions, 1991-1998			
Date	Partner/Firm	Type	Description
Oct. 1998	Continental	Acquisition	Cargill purchases grain merchandising assets of Continental.
May 1998	Montsanto	Partnership	Joint venture to develop and market biotechnologically enhanced products for grain processing and animal feed.
Apr. 1998	Pawnee County Cooperative	Deinvest	Sold two elevators located at Rozed and Macksville, KS.
Dec. 1997	Alberta Wheat Pool	Acquisition	Formed joint venture with Alberta Wheat Pool for the Vancouver grain export terminal.
Nov. 1997	Schreier	Acquisition	Acquired Schreier Malting Company of Wisconsin.
Oct . 1997	Heartland Co-op	Acquisition	Acquired seven elevators in eastern Illinois.
Oct. 1997	AGP Grain	Acquisition	Acquired nine elevators in Ohio and Indiana.
Sept. 1997	Frick Services Inc.	Acquisition	Acquired four grain elevators in Northern Indiana, plus all stock in the short line rail which services the elevators.
Feb. 1997	Joliette Farmers Co.	Acquisition	Acquired the Joliette Farmers Grain Cooperative Elevator in Joliette, N D.
Aug. 1996	Akzo Nobel	Acquisition	Cargill acquired the North American Salt processing and marketing assets of Akzo Nobel.
May 1995	Bunge Corp	Acquisition	Cargill acquired Bunge export elevator at Portland, OR; 3 subterminals in Bowdle, SD, Fairmont and Heron Lake, MN; and 2 terminals in Hutchinson and Salina, KS.
May 1995	Bunge Corp	Swap	Cargill swaps Osceloa, AK, river elevator for Bunge river elevator at Price's Landing, MO.
Feb. 1995	Bunge Corp	Acquisition	Cargill acquires 19 Bunge elevators.
1994	AGRI Industries	Joint Venture	Extended joint venture (AGRI Marketing) another 10 years.
1993	Kazakjstan	Joint Venture	Creates Den Grain (firm will sell Kazakjstan grains).
1993	Tosco Corp.	Acquisition	Cargill acquires Seminole Fertilizer from Tosco Corp.
1992	Cargill, Inc	Divestment	Deleted river facilities at Demopolis and Perdue Hill, AL, and terminals at Des Moines and Sioux City, IA, and Memphis, TN.
1991	Cargill, Inc	Divestment	Deleted terminals at Omaha, NE, and Milwaukee, WI.
1992	General Mills	Divestment	Montana elevators.
1992	ATL	Acquisition	Elevators in Alberta.
1989	Temple-Askar	Acquisition	Colorado elevators giving large share of regional originations.
1986	AGRI Industries	Joint Venture	Cargill and Agri Industries form joint venture (AGRI Grain Marketing).

Table A.2. ADM: Joint Ventures and Acquisitions, 1990-1998			
Date	Partner/Firm	Type	Description
May 1998	ConAgra	Partnership	Half ownership in grain export facility in southwestern Washington.
May 1997	Minnesota Corn Growers	Partnership	Acquired passive interest in Minnesota Corn Growers plants.
June 1997	Glencore Grain Holding Company	Acquisition	Acquired all of Glencore Grain Co.'s grain handling facilities in Brazil and Paraguay.
July 1997	United Grain Growers	Partnership	Acquired 45% interest in the Canadian Grain and Agriculture Company.
Sept. 1997	Jamaica Flour Mills	Acquisition	Purchased Jamaica Flour Mills LTD, a Kingston based conglomerate comprised of a flour mill, a mixing manufacturing plant, and several other operations.
Sept. 1997	Gruma	Partnership	Acquired two wheat flour brand names, Diluvio and Monterrey.
Aug. 1996	Gruma	Partnership	Acquired 22% in Gruma to begin a partnership in the corn flour and tortillas industry.
Mar. 1996	ADM		ADM purchased the Canadian Milling interests of Maple Leaf Foods Inc.
Jan 1996	ADM	Acquisition	Purchase Benson-Quinn, a Minneapolis-based grain merchandising company, as a wholly owned subsidiary.
1995		Acquisition	Added river terminals at Granite City, Havana, Morris, and Pekin, IL; Montorse, IA; St. Paul, MN.; added subterminals in Dunlap, Farmer City, and Princeville, IL; Monroe City and Winslow IA; and Moreauville, LA.
1995		Divestment	Deleted terminals in Hutchinson and Dodge City, KS.
1994		Acquisition	Added terminals at Fremont and South Sioux City NE; Sioux City, IA; Kansas City, KS; Kansas City, North Kansas City, and St. Joseph, MO; and Fort Worth, TX. Added subterminals at Denison, IA; Althus, OK; and Forth Worth and Hillsboro, TX.
1994	ADM	Divestment	Deleted terminal at Enid, OK, and subterminal at Rutland, IL.

Table A.2. ADM: Joint Ventures and Acquisitions, 1990-1998			
Date	Partner/Firm	Type	Description
1993	Farmers Grain Terminal	Divestment	ADM sold river facility at Lake Village, AR. Closed subterminals at Long Point and Monmouth, IL.
1993	Louis Dreyfus Corp.	Joint Venture	Joint venture where ADM will operate most Louis Dreyfus elevators in the United States.
1992	ADM	Divestment	Deleted river facility at Owensboro, KY, and closed terminal at Minneapolis, MN.
1992	Garnac Grain	Acquisition	ADM acquires 13 grain storage facilities of Garnac Grain.
1992	ADM Grain Co., ADM/Growmark, Collingwood Grain Co., Smoot Grain Co. And Tabor Grain Co.	Reorganization	All subsidiaries of ADM combined into one listing (ADM Co.)
	AGP	Joint venture	To acquire elevators and feed plants from IMF.
1991	Tabor Grain (ADM sub)	Acquisition	Acquired subterminals at Altamont, Edgewood, Farina, Greendale, Patoka, and Shobonier, IL.
1991	ADM Co and Collingwood Grain Co.	Acquisition	ADM to acquire all issues and outstanding shares of Collinwood Grain (40 line elevators including Hutchinson, KS, owned by Smoot Grain (ADM sub.) and operated by Collingwood Grain.
1990	ADM/ Growmark	Acquisition	Included river facilities at Owensboro, KY, and Ottawa, IL.
1990	ADM Grain	Divestment	Closed Port Elevator at Superior, WI.
1985	Growmark	Joint Venture	ADM and Growmark formed joint venture (ADM/GROWMARK) to operate Growmark's seven river facilities.
1985	The Farmers Export Company	Acquisition	ADM acquired remaining assets of The Farmers Export Company.

Table A.3. Harvest States: Joint Ventures and Acquisitions, 1990-1998			
Date	Partner/Firm	Type	Description
1998	United Grain Corporation	Joint Venture	Created United Harvest LLC a joint venture to market grains at Pacific Northwest
June 1998	Cenex	Merger	On June 1, 1998 the companies will merge to form Cenex Harvest States Cooperative.
Mar. 1998	Sparta Foods Inc.,	Acquisition	Acquired 18% of Sparta Foods Inc., a St. Paul based manufacturer of tortilla products.
1997	Peavey	Divestment	Harvest States and Peavey dissolve HSPV a joint venture to market grains at the U.S. Gulf
1997	Lank O' Lakes	Partnership	A joint venture of 16 feed plants.
1995	Wolcott & Lincoln	Acquisition	Assumed operations of terminal in Kansas City, MO, from Wolcott & Lincoln
1995		Acquisition	Harvest States acquired export elevator at Myrtle Grove, LA.
1994	Hyline Seven Cooperative Marketing, Inc.	Joint Venture	Harvest States leasing Hyline terminal elevator in Kansas City, providing grain marketing support to Hyline.
1994	Grain Growers, Inc.	Acquisition	Harvest States acquires elevator in Glendive, MT, and operations merged with Circle, MT.
1994	Peavey Co.	Joint Venture	50/50 Joint venture to operate 3 river grain elevators in Iowa and 2 export grain terminals in Louisiana.
1993	Farmers Elevator Company	Joint Venture	Regionalization of 10 Harvest State and 7 Farmers Elevator facilities.
1992	Continental Grain Co.	Joint Venture	Created Tacoma Export Marketing Co. Joint venture to export to PNW ports from sources in Montana - west.
1992	Southwest Grain Cooperative	Joint Venture	Regionalization of 13 Southwest Grain locations, GTA Feed Mill, and Harvest States elevators in Lemmon and Thunder Hawk, SD.
1986	A.C. Toepfer	Joint Venture	Harvest States joins A.C. Toepfer.
1983	North Pacific Grain Growers, GTA	Merger	North Pacific Grain Growers and GTA of St. Paul merger to form Harvest States Cooperatives.

Table A.4. Bunge Corp.: Joint Ventures and Acquisitions, 1990-1998			
Date	Partner/Firm	Type	Description
Oct. 1998	Zen Noh	Joint Marketing Agreement	Zen Noh and Bunge agree to jointly operate Gulf Port facilities and market grains.
Feb. 1998	Au Boi Poir Co.	Acquisition	Acquired Au Boi Poir Co., a frozen dough producing plant.
Apr. 1997	La Espiga	Partnership	Acquired an equity position in La Espiga S.A. de C.V.
Aug. 1997	Lauhoff Grain Company	Acquired	Lauhof Grain company, a subsidiary of Bunge Corp., acquired Homer Grain company.
1995		Acquisition	Added river facility at Satartia, MS.
May 1995	Perdue Farms	Divestment	Sold river facility to Perdue Farms, Inc. at Livermore, KY.
May 1995	Cargill, Inc.	Divestment	Cargill acquired Bunge export elevator at Portland, OR; 3 subterminals in Bowdle, SD, Fairmont and Heron Lake, MN; and 2 terminals in Hutchinson and Salina, KS. Cargill also swaps Osceloa, AK, river elevator for Bunge river elevator at Price's Landing, MO.
Feb. 1995	Cargill, Inc.	Divestment	Cargill acquired 19 Bunge elevators in Kansas, Colorado, South Dakota, and Minnesota.
1993		Divestment	Deleted terminal at Pontiac, IL.
1992	Continental Grain Co.	Joint Venture	Formed a joint gulf export venture.
1992		Divestment	Deleted subterminals at Leonville and Prairie Ronde, LA.
1991	St. Landry Farmers Grain, Inc.	Acquisition	Bought Krotz Springs, LA., river elevator.
1991		Acquisition	Added subterminals at Leonville and Prairie Ronde, LA.
1991	Great River Grain Corp.	Acquisition	Bunge Corp. acquired elevators and grain related assets of Great River Grain including 5 river facilities.

Table A.5. Continental Grain: Joint Ventures and Acquisitions, 1990-1998			
Date	Partner/Firm	Type	Description
Oct. 1998	Cargill	Divestment	Continental sells grain merchandising assets to Cargill.
1998	PSF	Acquisition	Continental buys majority share of PSF.
Oct. 1997	Seaboard	Partnership	Partnership consortium acquired flour mill in Port-Au-Prince, Haiti.
1995	ConAgra	Divestment	ConAgra took over operations of terminal at Amarillo, TX, formerly operated by Continental. Deleted terminals at Tupelo, MS, and Kansas City, MO.
1994		Acquisition/ Divestment	Added river facility at Hickman, KY, deleted terminal at Guntersville, AL, and a subterminal at Wilcox, NE.
1993		Acquisition/ Divestment	Added river facility at New Johnsonville, TN,.and a subterminal at Dyersburg, TN. Deleted terminal at Enid, OK, and a subterminal at Bagley, IA.
1992	Bunge Export Marketing Group.	Joint Venture	Formed a joint gulf export venture.
1992	Harvest States	Joint Venture	Joint export venture known as Tacoma Export Marketing Co. PNW exports and Montana (west) origination.
1992		Divestment/ Acquisition	Added subterminals at Kerrick, TX, and Emery, SD. Added river elevator at Richardson Landing, TN. Deleted subterminals at Capps Switch and Gruver, TX,. and river facility at Elizabeth Cith, NC.
1991	Scoular	Joint Venture	Manage Scoular facilities in Great Plains.
1991	Central Counties Cooperative	Divestment	Continental Grain Co. sold subterminal at Pickering, IA, to Central Counties Cooperative.
1991	Elders Grain, Inc.	Acquisition	Continental Grain acquired terminals at Atchison, Colby, Kansas City, Salina, and Topeka, KS.; Lincoln, and Sioux City, NE, and subterminals at Brawley, CA, Litchfield, Ne; and Topeka, KS., from Elders Grain, Inc.
1991	Port of Longview, Wash.	Divestment	Continental Grain Co. gave up lease on Longview, WA, port elevator. Port is now vacant.
1990	Ceroilfood	Joint Venture	Created Continental-COF Co. to manage 14 elevators acquired from Elders Grain Inc. and 22 elevators previously operated by Continental's Southwest region.
1990	Elders Oilseed, Inc.	Divestment	Continental sold Culberston, MT, terminal to Elders Oilseed, Inc. (Elders Grain Co. Ltd.)
1989	United Grain Growers	Joint Venture	Formed joint venture export company to market prairie agricultural products.

Table A.6. ConAgra/Peavey: Joint Ventures and Acquisitions, 1990-1998			
Date	Partner/Firm	Type	Description
Feb. 1998	Original Italian Products Co.,	Acquisition	Acquired Original Italian Products Co., a producer of fresh and frozen pasta products
May 1998	Farmland	Joint Ventures	Created 2 joint ventures Concourse LLC to jointly operate and market grains at the U.S. Gulf and Farmland-Atwood LLC which was formed by ConAgra sale of 50% of assets of Atwood-Kellogg to Farmland.
1997	Tiger Oats Limited	Partnership	Purchased a majority interest in ITC Agro-Tech Limited, a branded and commodity edible oil business in India. Also, by stake in Agro-Tech.
1996	Tiger Oats Limited	Deinvested	Sold 50% of world wide malting business.
1995	Continental	Acquisition	ConAgra took over operations of terminal at Amarillo, TX, formerly operated by Continental. Added subterminal at Superior, WI.
1995	Canada Malting Company	Acquired	Acquired Canada Malting Company, a large processor of malted barley.
1995	Van Camp's	Acquired	Acquired Van Camp's canned bean and Wolf brand chili business.
1995	Knott's Berry Farms	Acquired	Acquired Knott's Berry Farms Foods.
1995	HSPV	Divestment	Transferred ownership of some facilities to HSPV. Transferred operations of Clarks Grove, MN, to Hunting Elevator. Closed Pioneer Steel terminal in Minneapolis, MN.

Table A.7. Farmland: Joint Ventures and Acquisitions, 1990-1998			
Date	Partner/Firm	Type	Description
1998	ConAgra	Joint Ventures	Created 2 joint ventures Concourse LLC to jointly operate and market grains at the U.S. Gulf and Farmland-Atwood LLC which was formed by ConAgra sale of 50% of assets of Atwood-Kellogg to Farmland.
1998	SF Services	Acquisition	SF Services becomes a regional division of Farmland.
1998	County Milling Company	Joint Venture	Invested with County Milling Company in a wheat milling plant in Saginaw, TX.
1995	Farmers Co-op Grain Association and Danville Co-op Association	Joint Venture	Formed joint venture to operate terminal facility in Wellington, KS, formerly operated by Wolcott & Lincoln.
1993	British Petroleum	Acquisition	Farmland acquires Tradigrain from British Petroleum.
1993	Intercontinental Terminals	Divestment	Farmland sells deep water grain facilities near Houston, TX, to Intercontinental Terminals.
1992	Union Equity Co-op Exchange	Acquisition	Farmland acquires remainder of assets of Union Equity Co-op Exchange.
1985	Union Equity Co-op Exchange	Divestment	Farmland Industries sells wheat and grain sorghum marketing facilities of Far-Mar-Co to Union Equity Co-op Exchange.
1989	Union Equity Exchange	Joint Venture	Created Harvest Equity, Inc. to specialize in cross-country grain trading. returned to Harvest States after UE acquired by Farmland.

Appendix 2

Vertical Control
in Grain Marketing and Trading

Impetuses for and Implications of Escalated Vertical Control

One of the more important structural changes occurring in the U.S. and international grain trading sector is what could be referred to as changes in vertical control mechanisms. Similarly, one of the fundamental issues in the Canadian marketing system is that of vertical control and the potential for changes in institutional mechanisms. An important issue related to changes in control is that of changes in the distribution of market power among vertically aligned market participants. This section provides a conceptual interpretation of the distribution of market power and the effects of changes in the structure of the grain industry. The effects of two important structural changes are highlighted.

Concept

A crucial reason for vertical market failure, thus providing impetus for vertical integration, is that of a reduced number of buyers and/or sellers. The number of buyers and /or sellers has an important impact on the terms of transactions, notably price, but other terms are similarly affected. The *balance of power* is ultimately determined by the number of buyers and/or sellers and their distribution. Figure A2.1 demonstrates these relationships.[47]

A bilateral monopoly (one buyer and one seller) results in each seeking to leverage his monopoly status resulting in a highly unstable balance, and is characterized by "high trading risks." In market situations with many buyers and many sellers, no one can dominate. However, in either of the two alternatives whereby the number of buyers/sellers is not symmetric, the balance of power is shifted as illustrated. In these bilateral oligopolies, the vertical coordination problems are especially complex. It is in these situations that incentives emerge to either merge horizontally or vertically to seek to neutralize the balance of power.

Interpretation of Changes in International Grain Trading

This type of competitive situation has emerged in numerous industries and has similar logic and implications in at least two interfaces in the international grain trade. Each are discussed.

Exporter/Originator

One of the important structural changes within the U.S. domestic industry is the consolidation that has occurred in grain trading, both in terms of a reduced number of sellers (i.e., reflecting elevator and merchandising consolidation) and a reduction in the number of exporters. Several notable vertical strategies have emerged to be of greater importance to the structural

[47] This interpretation is taken from Stuckey and White.

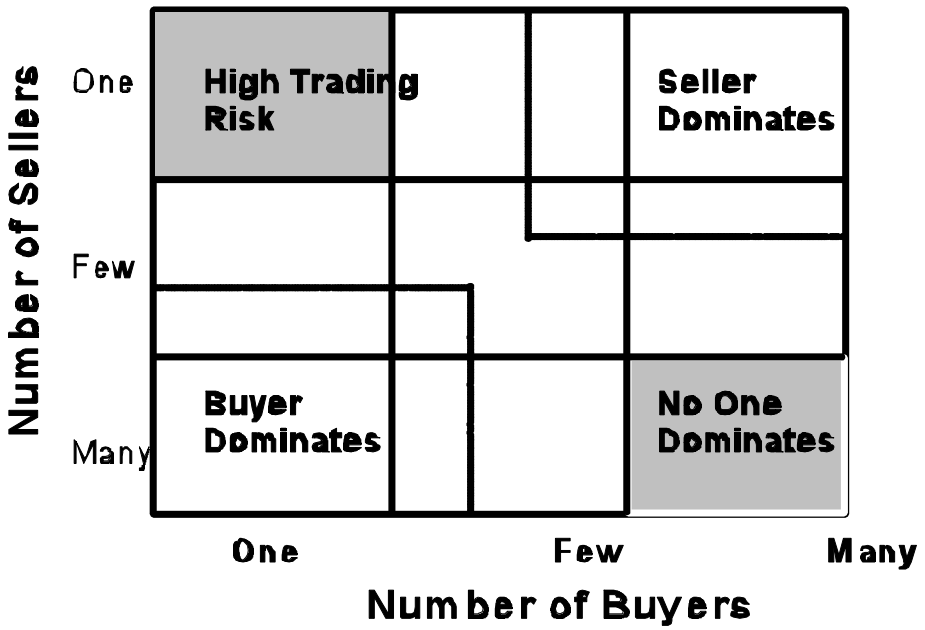

Figure A2.1. Vertical Market Structure and the Distribution of Market Power

change in the U.S. grain industry. One important structural change has been consolidation throughout all aspects of the industry, notably, country origination, exporting, and domestic processing. The latter two can be interpreted as a reduction in the number of buyers, the former, a reduction in the number of sellers.

A reduction in the number of buyers (both domestic and export) results in a shift in the balance of power toward buyers. However, concurrent with the reduced number of buyers has been a reduced number of sellers, through elevator and merchandising firm consolidation. As a result, there has been a proliferation of vertical relationships and acquisitions that have emerged, presumably as a mechanism to balance the power among these firms and organizations.

It is difficult to assess from the data reported in this study whether there has been a greater reduction in buyers or sellers. However, casually, it appears there has been greater consolidation in country handling and origination and interior merchandising, which would suggest a shift toward greater power of sellers. Several other changes would also support this conclusion, including reduced cost of information and technical changes in transportation and quality giving rise to a greater potential for value-added by originators.

Importer/Exporter

The second important structural change has been toward the privatization of import functions in many countries that could structurally be interpreted as an increase in the number of buyers. For our purposes, it really does not matter about the size of buyers; most important is existence of more buyers acting independently. By definition, this implies a larger number of

buyers which would imply a shift in market power toward sellers; in this case, toward exporters and trading organizations. Whether and to the extent they gain sufficient power to exploit their position depends on the number of other sellers active in that market.

Thus, generally, privatization of import functions has the effect of yielding more power to sellers. This is with exception of the highly particular case where a single import association conducts the importation exclusively for its members.

Appendix 3

Survey Results

Survey Results

Organization and Conduct of the Survey

A series of interviews was conducted to gain insight into potential changes in roles of transnational grain firms. The general scope of questions is defined. Seven interviews of senior management of grain firms were conducted. A broad cross section of firms was interviewed. We assured interviewers that any results would be presented anonymously and as generalizations, as opposed to being identified with specific companies.

Fundamental Issues and Scope of Discussion Questions

A series of questions was developed for discussion. The general thrust of these questions included: 1) firm background, 2) international grain marketing functions, and 3) sources of firm competitive advantage in international marketing. Not all questions or groups of questions were relevant to all firms. In the cases where they declined to answer or did not know the answer, the questions were not pursued.

Summary of Survey Responses

1. Firm Background

The firms ranged from asset-intensive companies that were fully integrated into offshore marketing to asset-intensive firms exporting indirectly to firms operating exclusively in offshore marketing. All firms were active in exports from the United States and, in some cases, from Canada. Volume of grain traded varied substantially, partly due to how it was defined and partly due to the scope of measurement. Following are examples of responses from individual firms:

- 20 percent of the world and U.S. trade in all grains
- 10 percent of the world trade
- 10-12 *mmt* world wide
- 11 *mmt* wheat originated, of which 50 percent was exported
- 6.0-6.5 *mmt* for all grains (1995), with about 2 *mmt* from the U.S. (1.5) and Canada (.4)
- 3.6 *mmt*

2. International Grain Marketing Functions

A series of questions was used to assess and delineate the relative importance of the grain marketing functions. The questions used and generalizations about the responses to each are presented.

2.1 How many import countries do you routinely serve either through direct sales or agents?

The number of countries served by an individual firm varied substantially. Responses were from those companies selling directly. One firm indicated it served all countries not governed by sanctions on U.S. sales or CWB direct sales. Most firms routinely sold wheat to 20-30 importing countries.

2.2 What proportion of offshore wheat sales are made FOB vs. C&F?

All the multinational companies develop marketing programs around C&F sales and, as such prefer, C&F transactions. In some cases due to the importer either having its own vessels or chartering its own (e.g., China, Russia), sales are made FOB.

For those exporters making direct sales, the answer to this question ranged from 50-90 percent.

2.3 What proportion of offshore sales are made direct or indirect through agents?

The portion exported directly, as opposed to through agents, varied substantially. Some indicated their sales structure was such that essentially, all sales would be categorized as direct. Others sold a portion indirectly through agents. These depended highly on the country because the country's risks were great and/or commercial practices were sufficiently complicated that working through agents was more cost effective.

Another indicated that it quantified import country and company risk and evaluated the risks to determine whether exporting directly or indirectly through other exporters or agents was more efficient.

One company was seeking to (or at least evaluating whether to) expand its rate of direct export sales. The reason for this was that it believed that offshore exporters were not fully reflecting offshore values for quality and other delivery terms in bids received.[48]

Another important change was that EEP had the effect of equalizing the playing field between originators and offshore exporters.

2.4 Do you have geographic areas of concentration in the import markets? If so, which regions would be your primary focus?

Among the multinationals, most tended to have regions of the world in which they focused their marketing efforts. They tended to focus more effort in certain regions. However, one company focused on the world.

Several firms focused on individual millers in those countries where there has been privatization (Southeast Asia and Latin America).

2.5 What is your role in marketing grains from other exporting countries?

[48] Specifically, this firm felt export sales were made on No. 1 values, but offer prices for purchases were based on No. 2 values.

See question 3.7 except for 2, all were involved in exporting, either as a handler or exporter, from other countries.

2.6 How has your firm responded to liberalization of grain marketing functions in other exporting countries?

The typical sequence of entry into producing countries was to first establish an agent relationship, followed by having a stand-alone office within that country, and subsequently, to invest in assets.

Several examples were cited, but most had minimal presence in Australia and Canada.

2.7 To what extent does your firm conduct "market development" activities? Please give some examples. How has this changed over time?

Each company was actively involved in market development activities. It is important that activities encompassed into the term market development varied. It is also important that the demands for and focus on market development have escalated in the past 3-5 years, primarily due to privatization of importing and competition among firms.

Responses about activities included in market development varied. For several firms, market development was not a unique stand-alone activity, but rather was part of a longer term plan of targeting customers, developing marketing plans, and cultivating longer term relations as suppliers.

Responses from individual firms were

" Worked through existing U.S. institutions.[49] For them, they concluded it was more efficient and effective to work through these institutions.

" Provided service to customers by advising on procurement strategies, working with customers on requirements, having a staff that traveled worldwide to work with customers on technical aspects of milling and specific types/blends of wheat, and defining requirements. Overall, these were considered, in part, educational programs for their customers.

This firm also had several other components of their market development efforts:

- providing offers from multiple origin as a supplier to the customer (see 3.7).

- assembling and shipping more combination vessels (i.e., vessels with combined shipments of corn, wheat, or multiple qualities and classes). This was viewed as an apparently rapid growing trend in international grain trade and a crucial aspect of marketing.

[49] Including U.S. Wheat Associate, U.S. Feed Grains Council, Northern Crops Institute, etc.

- dealing directly with customers through a subsidiary in one region of the world.

- hosting buyers/customers for extended in-house exchanges.

This firm indicated that it no longer hired *traders* (in the conventional sense), but rather hired and created career paths for "*marketers*." This distinction is important and reflects the attitude of many of the firms interviewed. Specifically, a trader would generally view the relation with the customer as lasting the duration of the transaction, whereas a marketer would view the customer as a longer-term investment.

" Their market development was focused mainly through millers. Before liberalization, there was little scope for market development because millers had to use whatever grain they were given. Current developments include advice to millers on blending.

" Routine meetings with customers identified their needs, products, inventories, and financing needs/requirements/alternatives. In some cases, they would set up agent relations if they were more effective at executing transactions. In addition, combining shipments among different customers was an important role.

" Market development entailed identifying customers and their needs, taking orders, executing sales, and maintaining in-country stocks. In addition, it involved traveling, entertaining, and hosting country specialists for extended exchanges.

2.8 Explain your firm's approach to quality control to meet importer requirements. How has this changed over time?

All firms recognized and emphasized that demand for quality specificity has escalated and, except for one, had promoted its evolution. This was thought to be directly in response to privatization and reduced EEP.

In addition to providing and conforming to tighter grade factor specifications, the firms indicated:

" An escalation in wheat cleaning with most buyers now specifying tighter levels[50] and

" An increase in the use of non-grade determining quality requirements as contract terms. Besides protein and dockage which have always been critical, all firms indicated a dramatic escalation in the use of specifications for falling number, wet gluten, and Zeleny.

[50] Japan apparently has considered changing its specification for dockage to be 0.5 percent which would have a major impact on some of these firms and industry.

" Though other baking tests could not be readily contracted, several of the firms indicated their importance and worked with customers to fulfill their needs for a good reputation and to increase repeat purchases.

" One firm indicated remarkable success in marketing (selling to end users and executing contracting programs with growers) varieties of corn produced for specific end uses. However, this is not a major market factor in the case of wheat, but its intent was to extend its success in corn into the wheat sector.

2.10 Response to privatization

Though specific questions related to privatization of import functions were not prepared, all firms spoke about the topic. One firm indicated more progress has been made in this direction in the past 5 years than in the previous 30 years.

" All firms identified that a significant shift in importing became apparent in the past three-five years. Most of this was attributable to the privatization of import functions. Though not mentioned directly, there was also recognition of the ruinous competition among exporters due to trading generic commodities and terms of trade.

" Several firms have reorganized the trading activities in response to privatization; and, in all cases, there was a greater focus on marketing, broadly defined.

" The complexity of credit and financing arrangements without sovereign guarantees was exacerbated in some newly privatized countries, thus escalating the importance of credit and banking in exporting.

" All suppliers recognized (and most encouraged) the trend toward tighter quality specifications and increased use of non-grade factors. Several noted that the structure of the Canadian system did not allow a response to this trend.

" In addition, a significant effect and response to privatization was the merging of marketing and importing functions. Most of the countries acknowledged the demand for exporters placing wheat in-store in the importing country and making smaller sales to individual end users from there. Although it is common knowledge that this is being pursued in Mexico, it is apparently being pursued as a strategy in numerous other countries.

Generally, these arrangements entail some form of bonded warehouse system. However, other configurations were being used and developed to accomplish the same goal.

" A common response by some firms was to increase overseas staffing, recruit more local employees, and develop long-term trade relationships.

" In general, private buyers required more service and considered more alternatives than did previous regimes. All companies viewed this positively. Besides issues of quality, logistics (smaller shipments, combination vessels, or interior logistics), and credit terms, it was emphasized that as sellers, they can offer more elaborate pricing mechanisms (fixed and basis priced forward contracts, maximum price contracts, and longer term pricing options).

3. Sources of Firm Competitive Advantage in International Marketing

3.1 What is the average cost of "trading" wheat (or executing a sale)--approximately, excluding handling, shipping, and other physical costs?

Given all the caveats on this definition, only one firm responded and indicated the cost of supporting a trading and marketing network was about $1-1.50/mt.

3.2 Over time and across countries, how much and why would this vary?

No response.

3.3 How would you describe the elements of offshore marketing functions?

All referred to and provided comments in development of Figure 3.1.

3.4 What are major sources of scale economies (the ability to operate with lower average costs) in wheat exporting?

The two most common were identified as risk management (broadly defined primarily by encompassing price risk management) and transportation and logistics (including the ability to execute vessel transactions with multiple grains and qualities).

3.5 Has the distribution of market power among participants in the grain marketing system changed in the past decade? If so, how?

All spoke extensively on this topic, some with firm conviction, others with less. Before giving their responses, it is important to identify major contributing factors that affect the distribution of market power. One of these was the reduced shipments to Russia (and presumably other large single-desk buyers). This has had the effect of reducing the number of paper traders in the market, reducing the portion of shipments made in large single lot/destination vessels, and reducing the homogenization of qualities. In addition, the import market power of Russia itself was reduced. [51]

[51] In addition to and as a result of these, there has been a reduction in paper trading throughout the system, which has forced linkages within the marketing system.

4. Rail Deregulation

Concurrent changes in pricing strategies provided incentives for shippers to invest in more efficient shipping configurations and become more logistically sophisticated. Due partly to these two major contributing factors and no doubt others (including effects of EEP), there were several views of the change in the distribution of market power.

Originators. Most of the firms believed there has been a shift in market power to originators. Most important were the combined effects of:

- Economies of larger scale origination due to changes in transportation as well as economies of quality control which is thought to be more efficient at the origin,

- Information from being involved in origination (specifically, knowing when farmers were selling was strategically advantageous), and

- Consolidation which has been more pervasive in origination.

The combined effect of these was a shift in market power to originators. However, there was some dispute about the definition of origination. One view was that it involved controlling country elevator origins. The other was at some point intermediate in the market system (i.e., at river terminals) that assembles from multiple country origins and makes outbound shipments of blended homogenous products. Irrespective of this distinction, it was commonly recognized that most of the value-added was at the country elevator.

Importers. Given the change in the structure of importing and the demise of single-desk sellers, there was a consideration that market power would be reduced. However, one firm said that there has been no loss of market power by importing countries which had ended state food buying agencies. In most of these countries, privatization had led to a consolidation in the structure of both flour mills and feed mills, more effective production in larger units, and the removal of inefficient millers from the market. Millers can negotiate more effectively with exporters than could state buying agencies; and, most important, millers now get the grains they need and not what the state buying agency happened to buy.

Information. This was debated among all interviewees. All recognized the increased volume of readily available information, etc., and that increasingly, much of the traditionally relevant supply/demand information was less proprietary. The effect of this would be to decrease the value of this type of information. However, there were two important considerations or refinements on the effect of changes in the role of information, each having the effect of giving greater power to export firms actively engaged in a large number of transactions on a routine basis.

One is the reduced role of public tenders. Traditionally, this has been the source of cash price information that was broadly disseminated throughout the world. For example, one cited that when Brazil bought under public tenders, it would routinely receive 16-19 independent offers, and the results were made public. That information was broadly

disseminated; and nearly instantaneously, all interested participants would know the value and could translate it to relevant pricing points elsewhere in the world. However, for numerous reasons, the use of public tenders has nearly ceased, and at least several traders indicated they do not remember the last formally public tender.

The second important change in the role of information is due specifically to private buyers. The more common mode of pricing in many cases is through negotiation on several important contract terms, one of which is price. Since these other contract terms each have a value, it has become increasingly more difficult to assess the value of competitor offerings without being involved in comparable transactions.

Each of these roles of information has resulted in a different spin than previous roles that information played in this sector. However, the information is still critical, but now has a different function. Nevertheless, those directly involved in numerous comparable transactions would benefit from the changes.

3.7 How important is the capability of exporting from multiple countries (and multiple commodities) to longer competitive advantage as a trading company?

The distinction between multiple and single origin exporters has been made and is part of the literature on the exporting industries. Four of the exporters indicated that it was essential and fundamental to the success of export programs. Others acknowledged the advantages of multiple origin exporters.

There were several sources of advantage attributable to being a multiple origin exporter.

Information. Of particular importance is knowing competitive values in formulating offers from a competing origin.

Customer service. Being able to offer customers wheat from more than one origin of potentially different qualities was thought to be an advantage. Further, a multiple origin exporter would be viewed as a more reliable supplier than others being capable of covering themselves elsewhere if a crop or quality shortage emerged in the home country.

Diversification. Earnings from reduced crops in some regions could be offset by increased shipments from other regions.