The North America Free Trade Agreement (NAFTA): Deepening Economic Integration and Responses to Competition

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Introduction

The implementation of the North American Free Trade Agreement (NAFTA) on January 1, 1994, coupled with the Canada-U.S. Trade Agreement in 1989, has increased the integration of the economies of the United States, Canada, and Mexico. Even so, with NAFTA is in its tenth year, questions remain about the impacts and effectiveness of the accord. Particularly important are the potential impacts that NAFTA has had on production and employment in North American agriculture. Simply put, if the goal of NAFTA was to increase North American trade, it has succeeded.

The high degree of economic integration within North America is evident in total merchandise trade, which has increased 172 percent since 1989, reaching $607 billion in 2002. The concentration within NAFTA represents one-third of U.S. total trade, compared to 24 percent in 1989. North American agricultural trade has more than tripled since 1989, exceeding $16 billion in 2002. Agricultural trade has grown in response to freer markets created by CUSTA and NAFTA, along with Mexico’s unilateral trade liberalization after joining the General Agreement Tariffs and Trade (GATT) in 1986.

U.S. trade dependence on NAFTA partners also reflects increased economic integration. In 1989, for example, U.S. agricultural exports to Canada and Mexico accounted for nearly five billion out of a total $40.0 billion in agricultural exports, or 12.4 percent (figure 1). By 2002, this share had risen to 30.0 percent, or $16.0 billion out of $53.1 billion. U.S. agricultural

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imports exhibit similar patterns. In 1989, U.S. agricultural imports from NAFTA were $5.2 billion and represented 23.8 percent of the total (figure 2). In 2002, U.S. agricultural imports from NAFTA partners were $15.8 billion, accounting for 37.8 percent of the total. The importance of this increased dependence was evident during the Asian financial crisis (1997-98). U.S. agricultural exports to markets outside NAFTA declined 15 percent, while exports to NAFTA countries rose 10 percent. Without NAFTA, U.S. agricultural exports would have been $7.5 billion lower, resulting in even further declines in farm prices and returns to producers.

Despite strong trade growth, there are those who believe that NAFTA has had detrimental effects on some sectors of North American agriculture. In the United States, for example, tomato and cattle producers voiced concerns about greater competition from Mexico and Canada. This led to the filing of several antidumping petitions. In Mexico, producers have resisted the lifting of import duties on poultry and have called for the renegotiation of NAFTA provisions for white corn and dry beans, along with permanent import safeguards for poultry.

Following a discussion of North American agricultural trade, this paper identifies the major impacts on North American agriculture resulting from NAFTA and discusses specific cases that emphasize these impacts. The competitive pressures created by increased trade, the changing patterns of production, and intra-NAFTA agricultural trade compared to NAFTA trade with other countries are examined.

**U.S. Agricultural Trade with Canada and Mexico**

In 1989, U.S. agricultural exports to NAFTA partners totaled $4.97 billion, while imports were $5.18 billion, bringing total U.S. NAFTA agricultural trade to $10.15 billion. The United States had a NAFTA agricultural trade deficit of $217 million. By 2002, U.S. agricultural exports to Canada and Mexico had reached $15.91 billion and imports were $15.87. Total U.S.
NAFTA agricultural trade was $31.8 billion, with a trade surplus of $40 million. The share of U.S. agricultural trade accounted for by NAFTA partners has also increased. In 1989, Canada and Mexico accounted for 16.4 percent of U.S. agricultural trade. By 2002 that proportion had increased to 33.5 percent, signifying a more than doubling of U.S. trade dependence on NAFTA partners.

U.S. agricultural exports to Mexico doubled from 1993 to 2002, rising from $3.6 billion to $7.23 billion (figure 3). Three product categories composed three-fourths of U.S. agricultural exports to Mexico in 2002: grains and feeds at $2.05 billion (28.3 percent), animals and products at $2.02 billion (27.9 percent), and oilseeds and products at $1.30 billion (17.9 percent) (figure 4). With respect to grains and feeds, the single largest U.S. export to Mexico is corn valued at $639 million in 2002. This was followed by sorghum ($452 million), wheat ($394 million), and rice ($103 million). Beef is the largest animal product export to Mexico at $592 million, followed by dairy products ($203 million), fats, oils, and greases ($171 million), poultry meat ($154 million), live animals ($140 million), edible offal ($133 million), and pork ($124 million). The major oilseed product export to Mexico is soybeans at $806 million, followed by soybean oil and meal ($180 million). Cotton exports to Mexico were $319 million in 2002, however, when semi-processed cotton products such as yarn and woven cotton are included, those exports were $980 million.

U.S. agricultural imports from Mexico also have increased since NAFTA, from $2.7 billion to $5.5 billion, or 104 percent. Vegetables and preparations, fruits and preparations, and beverages accounted for 73 percent of agricultural imports from Mexico in 2002. Vegetables and preparations were valued at $2.05 billion (37.1 percent), beverages at $1.24 billion (21.3 percent), and fruits and preparations at $784 million (14.2 percent). The largest U.S. vegetable
import from Mexico is fresh tomatoes at $552 million, followed by peppers ($300 million), cucumbers ($171 million), frozen vegetables ($159 million), and onions ($120 million). Beer valued at $1.0 billion accounted for 81 percent of beverage imports from Mexico during 2002. Other major U.S. imports from Mexico include sugar and related products ($296 million) and live beef cattle ($300 million). As with U.S. exports to Mexico, most of the imports categories have grown significantly since 1993; only cattle have decreased due mainly to the swings in the Mexican cattle cycle, a drought driven reduction in the size of the Mexican cattle herd, and a lack of Mexican agricultural credit to finance herd rebuilding.

U.S. agricultural trade with Canada has increased by 270 percent since 1989, the first year of CUSTA, with U.S. agricultural exports increasing from $2.2 billion to $8.66 billion, or 293 percent (figure 5). The top three product categories accounted for the just over 57 percent of all U.S. agricultural exports to Canada: vegetables and preparations at $1.80 billion (20.8 percent), grains and feeds at $1.76 billion (20.3 percent), and animals and products at $1.4 billion (16.2 percent) (figure 6). Other major categories of exports to Canada include fruits and preparations at $898 million (10.4 percent), sugar and tropical products at $767 million (8.9 percent), and oilseeds and products at $749 million (8.7 percent).

The largest U.S. vegetable product export to Canada is lettuce at $189 million, followed by potatoes ($113 million), tomatoes ($112 million), and broccoli/cauliflower ($87 million). Corn is the largest grain product export to Canada at $431 million, followed by animal feed preparations ($356 million), and rice ($61 million). The largest animal product export to Canada is beef at $218 million, followed by poultry meat ($160 million), pork ($112 million), hides and skins ($87 million), and live cattle ($50 million). Also, when taken as a group, dairy products account for $238 million in exports to Canada. Major U.S. fruit exports to Canada include
grapes ($142 million), citrus ($141 million), stone fruit ($110 million), strawberries ($100 million), apples ($87 million), and melons ($85 million). And as with exports to Mexico, virtually all of the export categories have grown since 1989, with corn once again being the highest with 474 percent growth.

Since CUSTA, U.S. agricultural imports from Canada have increased from $2.9 billion to $10.35 billion in 2002, or 257 percent. Animals and products, grains and feeds, and vegetables and preparations accounted for 72 percent of U.S. agricultural imports from Canada. The distribution by category was: animals and products $3.96 billion (38.3 percent), grains $2.06 billion (19.9 percent), and vegetables $1.48 billion (14.3 percent). For animal products, fed cattle accounted for $1.15 billion, followed by beef ($1.11 billion), and pork ($735 million). Biscuits and wafers (cookies/ crackers) represent the largest grain products import from Canada at $570 million, followed by dough, flour and meal ($317 million), wheat ($252 million), pasta and similar prepared foods ($251 million), and oats ($115 million. As with U.S. exports to Canada, most of the imports categories have grown significantly since CUSTA was implemented in 1989.

One important aspect of U.S. trade with Canada and Mexico is that most products traded are competitive. In fact, 94 percent of U.S. agricultural imports from Mexico and 93 percent of imports from Canada are classified as competitive with U.S. products. For instance, the United States, Canada and Mexico produce grains, meats, vegetables, fruits, with all being traded within NAFTA. Some of this trade occurs during different seasons of the year, taking advantage of different market windows in all three countries, but other trade has resulted in increased competition due to overlapping market windows for perishable fruits and vegetables and the increased trade of storable products such as grains. Increased competition has placed downward
pressure on prices and lowered returns to U.S. producers in some cases.

**Reactions to Competitive Pressures from NAFTA**

With the vast majority of NAFTA trade being competitive, agricultural producers throughout North America have faced increased pressures resulting from higher imports. Since most vulnerable industries were known before the implementation of the agreement, longer transition periods were negotiated. For instance, prior to NAFTA, Mexico had an import license for corn, and as a result, the U.S. exported only 287 thousand metric tons to Mexico in 1993. Mexican corn imports are under a fifteen-year tariff-rate quota (TRQ) to be completely phased out by January 1, 2008. During 1994, the first full year of NAFTA, U.S. corn exports to Mexico had jumped to 3.06 million metric tons, an almost ten-fold increase, and they were valued at $341 million. Beginning in 1998, annual U.S. exports of corn to Mexico have been over five million metric tons valued at over half a billion dollars each year. During this same time, the per unit value of U.S. corn exports to Mexico ranged between $2.50 to $2.86 per bushel, below the value of previous three years but above the international corn price prevailing during 1998 to 2002.

While the price decline is mainly attributable to many non-NAFTA factors such as increased global production, U.S. farm policy, and the Asian financial crisis, the presence of more imports, lower prices, and a perception of Mexican government indifference has caused many Mexican producers and producer groups to demand that NAFTA be renegotiated. President Fox has resisted these calls, but he has announced the formation of a new $10 billion farm policy in Mexico called “agricultural armor.” The exact types of programs are unclear, but concerns in the United States have been raised about the prospects for higher duties on corn exported to Mexico, higher farm prices in Mexico stimulating production and leading to less
imports, and policies making it easier for producers to petition the government to provide antidumping duties or snapback tariffs. On April 16, 2003 Mexico announced that it would seek to negotiate permanent import limits with NAFTA partners to restrict the amount of white corn and beans allowed under NAFTA and that an additional $280 million in farm support would be provided this year (Reuters).

Another case of competitive pressure involves rising U.S. corn exports to Canada. After averaging 955 tmt from 1993-99, exports increased to 1.5 mmt in 2000 prompting review by the Canadian government and issuance of a finding that Canadian corn producers were being injured. However, no retaliatory duties were placed on U.S. corn imports, in large part due to the need for greater volumes of corn needed to support the growing Canadian cattle-feeding industry. This relationship will be further explored in the next section.

U.S. producers have also faced competitive pressures resulting from increased imports from both Canada and Mexico and have sought protection. Import competition is significant in the livestock and meat industry. In 1998, members of the U.S. livestock industry filed antidumping and countervailing duty (AD/CVD) petitions against the imports of live cattle from Canada and Mexico. Filed by the Ranchers-Cattlemen Action Legal Foundation (R-Calf), the claim was made that increased cattle imports, particularly from Canada, were occurring due to sales at less-than-fair value (LTFV) and harming the U.S. cattle industry. The International Trade Commission (ITC) dropped the petition against Mexico at the preliminary investigation stage. The petition against Canada was pursued, but the final finding was that cattle imported from Canada were not being dumped on the U.S. market.

The U.S. tomato industry has filed several AD/CVD petitions against both Mexico and Canada. In the most recent petition involving green house tomatoes from Canada, the ITC found
in 2002 that even though Canadian tomatoes were entering the U.S. at less than fair value, there was no material injury to the U.S. tomato industry\(^2\). In the case of tomatoes imported from Mexico in 1996, the ITC found that the U.S. tomato industry was materially injured. In the second petition filed against Mexican tomatoes that same year, the USITC found that tomatoes were “not being imported into the United States at such increased quantities as to be a substantial cause of serious injury” or threat thereof. The former never came to a final disposition as the U.S. and Mexican tomato industries negotiated a suspension agreement that effectively set a price floor for tomato imports from Mexico.

Increased import competition has not always resulted in AD/CVD petitions or calls for NAFTA renegotiation. In the 2002 Farm Security and Rural Investment Act (FSRIA), the Agricultural Marketing Service (AMS) was given the task of implementing a mandatory country-of-origin labeling (MCOOL) system for fresh and frozen muscle cuts of beef, pork and lamb, including ground, seafood and aquaculture, fruits, vegetables, and peanuts sold at large retail outlets. The announced reason for MCOOL is the consumers’ right to know the origin of foods to facilitate food safety in the case of an outbreak of food-borne illness. Supporters think that U.S. consumers prefer U.S. products and that labeling will give U.S. products an advantage in the marketplace for which consumers will be willing to pay a premium. MCOOL provisions related to meats and livestock are now entangled in a debate regarding costs of implementation brought about by the preliminary regulations written by AMS.

**Changing Patterns of Agricultural Production in North America**

Since the beginning of NAFTA, several production trends have emerged in North America to take advantage of opportunities created by increased trade and economic growth.

\(^2\) Less than fair value is defined as selling a product below the total cost of production or below the price in the home market.
First, the North American cattle and beef industry has become increasingly integrated, both during and even before NAFTA took effect. In the southern United States, Mexican feeder cattle are imported into the United States, fed and processed. U.S. beef exports are then shipped to Mexico. Integration of the beef cattle sector has existed for decades, with feeder cattle imports from Mexico averaging about one million head since 1970. U.S. beef exports to Mexico have grown from 39 tmt ($116.3 million) in 1993 to 207 tmt ($595.7 million) in 2002. This represents growth of over 400 percent in both quantity and value and placed Mexico as the number two market for U.S. beef from 1997 to 2001, behind Japan. In 2002, Korea re-assumed its place as the number two U.S. beef export destination, a position it held most years prior to 1997. Lower tariffs, coupled with per capita income growth, have stimulated most of this increased beef trade with Mexico and assisted U.S. beef exports during the Asian market collapse of the late 1990s.

The second part of the changing beef cattle sector has been greater integration between Canada and the United States (figure 7). U.S. exports of beef to Canada have remained relatively stable since 1991, averaging just below 90 tmt. Trade in live cattle has increased. For instance, U.S. cattle imports from Canada rose from 585 thousand head in 1989 to a record high of 1.69 million head in 2002, an increase of 188 percent. The majority of these cattle are fed steers that are fed both Canadian barley and U.S. corn.

U.S. beef imports from Canada have increased even more, from 88 tmt in 1989 to 389 tmt in 2002, a growth of 341 percent. Further, sixty percent of this Canadian beef is processed at Tyson/IBP and Cargill plants located in Alberta. Both firms have significant investments in Canada and have the two largest plant capacities in the country. Increased cattle feeding in Canada has also stimulated imports of feeder calves from the United States. From 1998 through 2002 U.S. exports of live cattle averaged 224,000 head, with a low of 117,000 head and a high of
350,000 head in 2000. Prior to that, the highest single year total since the implementation of CUSTA was 92,000 head in 1994, and the average was 57,000 head from 1989 to 1997.

Crop production has also shifted throughout North America, spurred by freer trade. In Mexico, NAFTA helped to accelerate the growth of border communities taking advantage of the maquiladora system. Ciudad Juarez, located across the border from El Paso, has seen its population grow from 567,000 in 1980 to 1.2 million in 2001. Nearly half of the working population is employed in the industrial manufacturing sector, with the maquiladoras in Juarez accounting for 235,887 workers. While maquiladora employment is down slightly from the all time high of just over 262,000 in October 2000, these businesses remain the single largest employer in Juarez.

More people with higher incomes have increased the demand for foods, infrastructure, and other border services. This increased food demand has been met with increased agricultural production in the Mexican state of Chihuahua and other areas located along the Rio Conchos. From 1990 to 2001, irrigated production of corn, alfalfa and other forages, vegetables, fruits and tree nuts has increased in Chihuahua. Most of these crops, such as the fruits, vegetables and alfalfa, are higher valued products that were able to bid the irrigation water away from lower valued crops, such as grain sorghum. Others, such as corn and beans, are staples in the Mexican diet. The most significant increase has been in watermelons, increasing by 1,605 percent from 1990 (8.6 tmt) to 2001 (146.6 tmt), followed by cantaloupes (603 percent growth), beans (256 percent), and green peppers (178 percent) (table 1). Alfalfa, the largest single irrigated crop in Chihuahua, grew from 521 tmt in 1990 to 789 tmt in 2001, or 51 percent. Other forages totaled 683 tmt in production, growing 100 percent since 1990, and corn production grew by 73 percent over the same time period, from 256 tmt to 443 tmt. Many of the horticultural products, such as
green peppers, onions, cantaloupes, watermelons, and pecans, are among the products that have experienced increased exports to the United States. Some of these products are also consumed in Mexico. Virtually all of the corn, alfalfa, other forages, and beans remain in Mexico. Corn is processed into tortillas, beans are made into frijoles, and the alfalfa and other forages are fed primarily to dairy cattle to provide milk, cheese, and other dairy products to the large population centers in the region.

These new crops are also among the largest water-intensive crops. Alfalfa, the most abundantly produced irrigated crop, is estimated to use 7.5 acre feet (af) per acre, the highest of the crops produced in Chihuahua. As a result, alfalfa production required 1.03 million af of irrigation water in 2001, or 29 percent of the 3.55 million af of total irrigation water used in Chihuahua that year. Also among the largest water users are pecans, using 376.6 thousand af and requiring 5.55 af/acre, and corn, using 568.0 thousand af and requiring 3.0 af/acre. While not among the crops with large increases in water use or production, apples and cotton are also among the largest water users. Other crops such as onions (4.36 af/acre), cantaloupe (4.23 af/acre), and watermelon (3.73 af/acre) also require larger irrigated water-use rates.

Increased irrigation water use in Chihuahua caused Mexico to fall behind on treaty obligations to provide a minimum of 350,000 acre feet of water annually to the United States from the Rio Conchos River tributary system. Even though the Mexican water deficit has reached 1.5 million acre feet, irrigation water from the Rio Conchos continues is critical to the continued growth of domestic and export oriented agriculture in Mexico.

Another sign of changing production is revealed in the trends of foreign direct investment (FDI) among the three countries. In 2001, U.S. FDI abroad totaled $1.38 trillion, up from $238 billion in 1985, growth of nearly 500 percent. During this same time, U.S. FDI in the food and
kindred products industry grew 282 percent, from $9.3 billion to $35.5 billion (figure 8). During 1985, the share of U.S. food and kindred products FDI going to Canada and Mexico was $2.2 billion, of 23.7 percent of the total. By 2001, that share had grown to 25.6 percent, or $9.1 billion, split almost evenly between Canada and Mexico. While down slightly from the record year of 2000, U.S. FDI stayed above nine billion dollars, a level first reached in 1997.

Growth in NAFTA-destined U.S. food and kindred products FDI is mostly attributed to increased investment in Mexico. While U.S. FDI in Canada remains greater than that in Mexico, the growth in the food category in Mexican-bound FDI has been 96 percent since NAFTA began. Growth in Canada-bound FDI has been only 28 percent over the same period. There are, however, two important caveats related to NAFTA-bound U.S. FDI in the food industry. First, the base for Canada was higher throughout the 1980s as Canada was as member of the GATT while Mexico did not join until 1986. Second, the CUSTA was implemented in 1989, five years prior to NAFTA. Therefore, much of the growth in U.S. FDI in the Canadian food and kindred products industry occurred prior to the implementation of NAFTA likely as a result of greater economic integration resulting from CUSTA. Even with these considerations, U.S. food FDI is now growing faster in Mexico than in Canada.

The question remains as to the impacts of FDI on trade. One popular hypothesis is that FDI diminishes trade among countries, that is, as investment flows increase, the foreign plant, in this case food processing facilities, will service the foreign market and fewer exports will be required. However, in the case of intra-NAFTA FDI, trade has grown along with U.S. food and kindred products FDI.

Furtan and Holzman found that U.S.-Canada FDI is actually a significant factor in the increase of U.S-Canada agricultural trade. Their results indicate a 75 percent probability that
FDI is endogenous to both exports and imports. Further, U.S. food and kindred products FDI into Canada was a significant factor affecting total agricultural trade positively between the United States and Canada. Specifically, a one percent increase in U.S. FDI led to a 0.42 percent increase in total agricultural trade, a 0.23 percent increase in Canadian exports to the United States, and a 0.62 percent increase in Canadian imports from the United States.

When considering individual sectors, dairy is the most responsive, with a one percent increase in U.S. FDI into the Canadian dairy industry resulting in a 0.90 percent increase in Canadian exports to the United States and a 2.41 percent increase in U.S. dairy exports to Canada. The next highest impacts came in the fruit and vegetable sector with a one percent increase in U.S. FDI resulting in a 0.49 percent increase in Canadian exports and a 0.61 percent increase in Canadian imports. Results for grains and oilseeds show that a one percent increase in FDI leads to a 0.19 percent increase in Canadian exports and a 1.22 percent increase in Canadian imports. U.S. FDI into the Canadian meat and poultry industry results in the smallest impact with a one percent increase causing a 0.009 percent increase in Canadian exports and a 0.037 percent in Canadian imports. Therefore, regardless of the sector, preliminary results of Furtan and Holzman show that increased FDI led to an increase in both imports and exports.

**NAFTA and Trade Diversion**

Another major result of NAFTA has been the growing dependency of the United States, Canada, and Mexico on intra-NAFTA trade. U.S. agricultural trade with the rest of the world has decreased from 83.4 percent of the total in 1989 to 62.6 percent in 2002, reflecting the increasing importance of NAFTA partners in agricultural trade. This is illustrated by increased intra-NAFTA trade in grains and beef.

North American grain trade has doubled since the early 1990s, responding to freer
markets after Mexico joined the GATT in 1986, the implementation of CUSTA in 1989, and NAFTA in 1994. In 1993 intra-NAFTA grain trade represented only about nine percent of all grain traded by NAFTA countries. By 2002 this proportion had increased to about 18 percent, reflecting the increasing importance of NAFTA countries as trading partners. Intra-NAFTA grain trade has nearly doubled during this period from 11 mmt to 21 mmt (figure 9). These gains in trade have occurred at a time when NAFTA grain trade with the rest of the world has declined by about 15 percent.

Intra-NAFTA corn trade accounted for 44 percent of the total NAFTA partner grain trade in 2002, followed by 20 percent for grain sorghum, 11 percent for wheat, four percent for each of rice and oats, three percent for barley, and two percent for buckwheat/millet. This is in contrast to 1993 when grain sorghum (34 percent) and wheat (26 percent) dominated intra-NAFTA grain trade. During that same year, corn represented only 14 percent of grain trade, followed by oats (nine percent), barley (six percent), and rice (two percent). Intra-NAFTA corn trade has been the primary recipient of more open markets, along with rice.

The transition to more open grain markets has been less than smooth. One of the first major issues to arise was the U.S.-Canada durum wheat dispute. Later came the Mexico-U.S. dispute over high-fructose corn syrup, a by-product of corn wet milling. There has also been scrutiny of U.S. corn exports to Canada and antidumping duties imposed on U.S. rice exports to Mexico. More recently, passage of new U.S. farm legislation in 2002 created more friction and could lead to future trade disputes. Particular attention has been focused on pulse crops and corn.

U.S. grain exports to Canada are primarily corn, accounting for 4.1 mmt in 2002, up one-third from 2001 and more than four times the level of exports prior to NAFTA. Corn, grain
sorghum, and wheat are the major U.S. grain exports to Mexico. Corn accounts for about 40 percent, while sorghum represents 36 percent, and wheat (except durum) 19 percent. Barley, seed corn, oats, millet, and buckwheat account for the remainder of U.S. grain exports to Mexico.

U.S. grain imports from Mexico are limited to about 10 tmt of durum wheat and small volumes of corn. U.S. grain imports from Canada are dominated by non-durum wheat and oats, about evenly split in most years. Durum wheat imports from Canada have averaged more than 300 tmt since the mid-1990s, rising to 595 tmt in 2002. Other major grain imports from Canada are barley and corn. Canada is the major U.S. import supplier of durum wheat, wheat, barley, and corn, accounting for more than 90 percent of imports in most years.

Canada is also an important supplier of wheat to Mexico. During 2001, the latest year for which data were available, Canada accounted for 33.5 percent of Mexican wheat imports while the U.S. accounted for 62.5 percent for a 96 percent combined total. Canadian exports of wheat to Mexico have grown from 532 tmt in the 1994/95 marketing year to 871 tmt in 2001/02. Exports during the 1993/94 year were higher at 908 tmt before falling 41 percent the next year and even more during 1995/96. While U.S. exports of wheat to Mexico fell 36 percent between 1993 and 1994, the recovery to an upward trend began in 1995.

In addition to the increased integration of the North American cattle and beef industry discussed above, there has also been substantial concentration in beef trade, with intra-NAFTA trade accounting for 762 tmt out of a total of 2.97 mmt of total NAFTA beef trade in 2002, or 25.7 percent (figure 10). This is up from when 279 tmt of intra-NAFTA beef trade accounted for 16.8 percent of total NAFTA beef trade.

When considering U.S. beef exports, Mexico and Canada accounted for 35.1 percent of
the total in 2002. This is up from 29.0 percent in 1993 with most of the growth coming in exports to Mexico. In fact, U.S. beef exports to Canada have been fairly constant since 1993, averaging 90 tmt with a range of 80 tmt to 103 tmt. This is primarily due to the growth of the Canadian feed lot and packing industries and the recent expansion in Canadian beef imports from Argentina and Uruguay. During this same time period, U.S. beef exports to Mexico have grown from 39.4 tmt to 207 tmt.

Canadian beef exports are also fairly concentrated in North America, primarily to the United States. In 1993, Canadian beef exports to the United States were 151.2 tmt, representing 98 percent of total beef exports. In 2002, this had grown to 381.8 tmt and the U.S. market remains the destination for 71.8 percent of Canadian beef exports, though down from 1993. Canadian beef exports to Mexico have increased from 54 metric tons to nearly 76 tmt in 2002 and Mexico now ranks as Canada’s number two export market for beef at 14.6 percent of the total. Thus, the United States and Mexico may account for a smaller share of Canadian beef exports, 86.4 percent, but it is the vast majority of much larger total beef exports. In fact, the growth in the Canadian beef industry has enabled Canada to continue the development of export markets in Asia, namely Japan and Korea. Additional beef production, due both to increased domestic output and imported cattle, has led to increased feeding and processing efficiency, greater economies of scale, and lower prices for consumers.

Mexico is the most NAFTA-dependent market for beef imports. In 2001, the last year for which Mexican data were available, 95.3 percent of Mexican beef imports came from the United States or Canada, three-quarters coming from the United States alone. As noted, Canada is a growing supplier of beef to Mexico. By contrast, in 1993, only 51.3 percent of Mexican beef imports came from North American trading partners, all of from the United Sates.
The United States has also become more dependent on North America for imported beef, almost exclusively from Canada. In 1993, the U.S. imports from Canada were 154.9 tmt, 19.5 percent of the total. In 2002, U.S. beef imports from Canada 36.3 percent of total U.S. beef imports, or 388.9 tmt. By contrast, Canadian dependence on the United States for imported beef has remained relatively stable since 1993 when it was 40.1 percent. After a slight increase in dependence on U.S. beef from 1994 to 1998, it has now returned to the forty percent level.

There are several major implications of increased integration and trade dependency that are highlighted by the cattle and beef. First, growing integration, spurred by increased FDI and trade, results in economies of scale that in turn leads to greater production at lower costs and more abundant supplies to consumers at lower prices. The North American cattle and beef industries exhibit these characteristics. Investment in cattle and beef has increased among the United States, Canada, and Mexico. Beef production, particularly in Canada, has greatly increased trade in North America resulting in more beef for consumers in each nation while the United States and Canada still have more beef to export to non-NAFTA markets.

The second major impact is that when such a degree of integration and trade occur, an event that disrupts the market could have greater ramifications across the region. A prime example of this is the recent discovery of bovine spongiform encephalopathy (BSE), or mad cow disease, in Canada that resulted in the United States and 33 other countries closing their borders to Canadian beef and cattle. Not only does this adversely impact the Canadian industry, it limits the amount of beef available to the United States and Mexico, and affects the efficiency of many U.S. beef processors who rely on the weekly flow of cattle from Canada.

Finally, more trade and integration also lead to greater competitive pressures, driving down prices and returns to producers. As a result, members of the U.S. cattle industry and the Mexican
beef industry have filed antidumping petitions with their respective governments. The United States may be on the verge of instituting mandatory country of origin labeling in part to give domestic beef a competitive advantage in U.S. retail stores.

Conclusions

The North American Free Trade Agreement has created trade opportunities for some and adjustment for others, and this will likely continue in the future. U.S. agricultural trade with Canada and Mexico has more than doubled since 1989 and the United States maintains an agricultural trade surplus with NAFTA partners. The economic integration of North American agriculture began when Mexico joined the GATT in 1986, well before the implementation of CUSTA or NAFTA. These trade agreements did, however, increase the depth and rapidity with which agricultural industries in all three countries became more dependent on trade with each other.

NAFTA has led to increased trade in most agricultural sectors. Intra-NAFTA trade in grains, cattle, meats, and produce has increased substantially. Grain trade within North America, for example, has more than doubled. As a result, many agricultural industries have become more closely integrated through trade and more open markets. One consequence has been increased import competition, lower prices, and adjustment in the use of variable factors of production, such as labor.

Growing integration, spurred by increased FDI and trade, results in economies of scale that in turn leads to increased business efficiency. Increased output at lower costs and more abundant supplies to consumers at lower prices will follow. Beef production, particularly in Canada, has greatly increased trade in North America resulting in more beef for consumers in each nation, while the United States and Canada still have more beef to export to non-NAFTA
markets. Increased investment appears complementary to trade, rather than acting as a substitute for trade.

Increased economic integration has also been met with greater use of antidumping petitions and other nontariff barriers in attempts to restrict trade and prolong the need for adjustment in some sectors. Grains, cattle, hogs, meats, poultry and sweeteners have all experienced trade disruptions. Further, when such a degree of integration and trade occur, an event that disrupts the market could have greater ramifications across the region, such as the recent discovery of BSE in Canada had impacts in the United States, Mexico and beyond.

Finally, since NAFTA was implemented, there have been shifts in production throughout North America. For instance, trade-spurred population growth in Juarez, Mexico, and fresh vegetable export opportunities has led to increased irrigation water use in the state of Chihuahua for the production of water-intensive crops. As a result, less water has been available for agricultural needs in Texas and some Mexican border states.

There are many other examples of trade, investment, and production shifts resulting from NAFTA. Once again, if the goal of NAFTA was to increase trade, it has succeeded, and it has also led to a more integrated and efficient North American agricultural sector.
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Figure 7. Integration in the North American Cattle and Beef Industry, 2002

- $1.1 Billion, 1.7 Million Head of Beef Cattle
- $1.1 Billion, 392,000 Metric Tons of Beef
- $283 Million, 76,000 Metric Tons of Beef
- $50 Million, 134,000 Head of Beef Cattle
- $2.18 Million, 67,000 Metric Tons of Beef
- $75 Million, 105,000 Head of Beef Cattle
- $592 Million, 206,000 Metric Tons of Beef
- $301 Million, 816,000 Head of Beef Cattle
- $23 Million, 6,000 Metric Tons of Beef
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