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UPDATE

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Trade and North American Agriculture: Assessing NAFTA at 12

by

Colin Carter, Philip Martin and Alix Peterson Zwane

Is NAFTA on the verge of maturity or entering troubled teen years? NAFTA expanded trade in farm commodities as well as trade disputes, and was one factor in rising Mexico-U.S. migration. A January 13, 2006 conference will explore these issues.

The North American Free Trade Agreement (NAFTA) turns 12 on January 1, 2006. Is the transition to almost teen status a marker of maturity? Is there consensus that NAFTA illustrates the benefits of free trade, or is this the start of a troublesome period in which the gains from freer trade are increasingly questioned?

Political trends in the United States suggest that support for free trade in agriculture may be weakening. Even those groups that have traditionally supported liberalization, like the California agricultural community, are increasingly wary of new trade agreements. NAFTA was approved in the 435-seat House by 34 votes in 1993, while the similar Central American Free Trade Agreement (CAFTA) was approved by a margin of only two votes in the House in 2005. The President had to cut costly side deals in order to obtain sufficient votes for these trade agreements.

In California, enthusiasm over increased exports to new markets as trade liberalizes is increasingly tempered by concerns regarding increased competition in both the home and third markets. This unease is focused on countries that can compete seasonally with domestic growers, and on emerging agricultural exporters like China that have the potential to displace California products in markets such as Japan.

We examine the promises and pitfalls of freer trade for California agriculture by

drawing lessons from the NAFTA experience. NAFTA expanded trade in farm commodities among Canada, Mexico and the United States. There is no doubt that NAFTA changed the agricultural economy of North America profoundly, but it did not result in either the great benefits or costs that some analysts predicted in the early 1990s. This is a result of other intervening events, such as Mexico's mid-1990s economic crisis, and because some important barriers to trade in farm commodities were allowed to remain in place. Growers have also been aggressive in pursuing trade remedy actions, resulting in long-running disputes over specific commodities, including Canadian wheat, cattle and swine, and Mexican tomatoes, avocados and sugar. Some of the most significant effects of NAFTA have been in the Mexican countryside, which is experiencing a great migration to urban Mexico as well as to the United States, perhaps setting the stage for major U.S. immigration reform.

In future trade agreements like the Free Trade Agreement of the Americas (FTAA), we can expect many of NAFTA's lessons to be relevant. The U.S. domestic impact of this type of regional trade agreement is relatively small, but there is potential for greater upheaval abroad, particularly in poorer countries.

These issues will be discussed in more detail during an upcoming daylong public conference sponsored by the Giannini Foundation of Agricultural Economics on

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End Runs Around Trade Restrictions: The Case of the Mexican Tomato Suspension Agreements

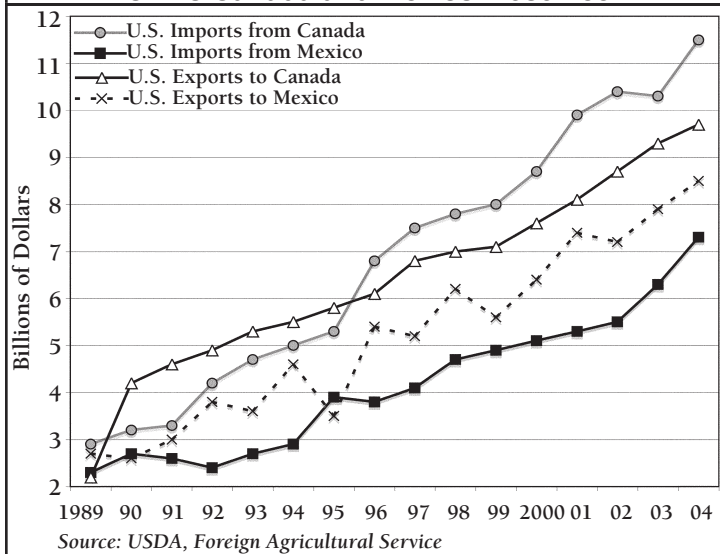
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Figure 1. Total U.S. Agricultural Imports and Exports from/to Canada and Mexico: 1989-2004



January 13, 2006 at the Sacramento Hilton. More information on the conference, as well as registration materials, are available at <http://giannini.ucop.edu/events.htm>.

NAFTA: Promise or Peril?

NAFTA aimed to liberalize trade and investment among Canada, Mexico and the United States. This regional trade agreement was expected to have a number of beneficial effects, including promoting economic efficiency throughout North America and reducing the cost of production for goods and services. With more trade and investment, the economies of all three countries were expected to grow faster, resulting in more jobs and higher incomes.

The United States and Canada negotiated a Free Trade Agreement (CUSTA) that went into effect in 1989, with little fanfare in the United States. However, this agreement was very controversial in Canada at the time. Most of CUSTA's agricultural provisions were incorporated directly into NAFTA. For example, most agricultural tariffs between the United States and Canada were phased out by January 1998, but Canada was allowed to maintain permanent tariff-rate-quota (TRQ) restrictions on imports of dairy products and poultry and eggs, while the United States was allowed to maintain TRQs on imports of sugar, dairy products and peanuts from Canada. Thus, for each country, highly protected commodities were left largely untouched by CUSTA, as the fine print of the agreement was far less radical than the title of a "free trade agreement" might suggest. Similar compromises would be made a few years later in negotiations with Mexico as part of NAFTA.

The expansion of free trade in North America to include Mexico was far more controversial in the United States than was the earlier CUSTA. As one of the first comprehensive free trade agreements between an industrial and a developing country, NAFTA aroused exaggerated hopes and fears in the United States despite the fact that the Mexican economy was about the size of Los Angeles County's. President Clinton promised that NAFTA would increase prosperity "from the Yukon to the Yucatan" while the AFL-CIO made the defeat of NAFTA its number one priority in 1993. Reform Party candidate Ross Perot warned that there would be a "giant sucking sound" of U.S. jobs fleeing to lower-wage Mexico.

There were many studies of NAFTA's likely economic effects, mostly predicting large impacts of the agreement on the Mexican economy and more modest impacts for Canada and the United States. One widely cited work, for example, concluded that NAFTA would be mutually beneficial to Mexico and the United States because increased trade would create jobs in each country. One study predicted each \$69,000 of increased U.S. exports due to NAFTA would create one U.S. job, and each \$11,700 increase of Mexican exports would create one Mexican job. Based on projections of \$17 billion in additional U.S. exports annually to Mexico due to NAFTA, and \$8 billion in additional imports from Mexico because of NAFTA, the United States was expected to gain 130,000 jobs and Mexico, 609,000 jobs. Of course, these aggregate gains masked predicted net job losses in certain sectors.

Trade liberalization means change, and many of the changes expected as a result of freer trade and investment were in Mexican agriculture. In the early 1990s, a third of all Mexicans, and two-thirds of Mexico's extremely poor, lived in rural areas and were dependent on agriculture. Falling commodity prices could potentially have had large negative impacts for these farmers if they were net sellers of crops prior to liberalization. If these growers were net buyers of food crops, or did not interact significantly with markets, falling commodity prices after NAFTA would have smaller, or even positive effects. Great effort was put into studies attempting to determine how the rural poor would be affected by changing prices for staples after NAFTA, and concerns for this population in part led to a decision to institute a 15-year phaseout of restrictions on sensitive commodities, including corn and dry beans in Mexico, and orange juice and sugar in the United States.

The market that was most sensitive in Mexico was corn, in part because of the central role of this staple in Mexican diets and culture. Corn was planted on 50 percent of Mexican farmland in the early 1990s and three million Mexicans depended at least partially on corn production, with the poorest corn farmers producing white corn used to make their own tortillas. NAFTA was expected to result in more U.S. corn shipped south to Mexico, and poor corn farmers were expected to respond by switching to produce fruits and vegetables for more affluent Mexicans and U.S. consumers. Realistic assessments pointed out that the ability of small Mexican farmers to switch to fruits and vegetables would be slow because of financial and informational constraints, as well as the fact that most Mexican fruit and vegetable production occurs in what is the U.S. off-season, except for Florida.

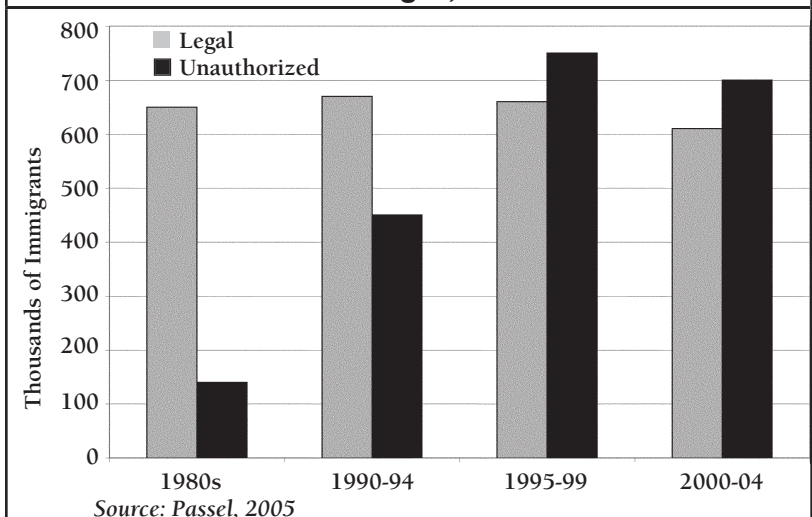
NAFTA: Trade Realities

Trade between the United States and its NAFTA partners increased sharply between 1993 and 2004—U.S. merchandise exports to Canada rose from \$100 billion to \$189 billion, and U.S. exports to Mexico increased from \$28 billion to \$111 billion. U.S. merchandise imports grew even faster: from Canada, from \$91 billion to \$256 billion, and from Mexico imports rose from \$30 billion to \$156 billion.

Agricultural trade increased as well, increasing over four-fold with Canada and Mexico (Figure 1), and hastened the integration of the North American food and fiber industry. Today, U.S. agricultural exports to Canada are diverse, led by cattle and feed; U.S. exports to Mexico are more concentrated in a few commodities, but are also led by animal feed and meat. U.S. farm imports from Canada are dominated by animals, meat and feed, while imports from Mexico are mostly fruits and vegetables that arrive in the United States seasonally.

This increase in trade was not without formal disputes. Canada uses a government state-trading agency to handle its wheat and barley exports, and U.S. grain growers believe that this government corporation trades unfairly in the U.S. market and elsewhere. A number of wheat disputes have been brought before the U.S. International Trade Commission (USITC) and, as a result, the U.S. government has imposed new tariffs against Canadian wheat. Swine farmers in the United States also sought relief from Canadian competition but they

Figure 2. Legal and Unauthorized Immigration, Annual Averages, 1980-2004



failed to convince the USITC that imports of live swine from Canada economically harmed the U.S. industry. More recently, a case of Mad Cow (BSE) Disease closed the border to imported Canadian cattle, and the United States continues to collect tariffs on Canadian softwood lumber exports from government-owned land. Canadian corn farmers are in the process of launching legal trade action against imports of U.S. corn, under the argument that U.S. corn is highly subsidized and this results in excessive exports to Canada, lowering the price in that market.

Disputes have also arisen in farm trade with Mexico that have been effectively used by growers to mitigate the impacts of increased competition as a result of trade liberalization. Mexican farmers led protests as U.S. exports of corn and other feed grains roughly doubled between 1993 and 2003, accelerating the expansion and consolidation of the Mexican pork and poultry industries, and displacing many smaller producers. Florida tomato farmers won minimum export prices for Mexican tomatoes in the mid-1990s, and California avocado growers successfully limited avocado trade, claiming that pests would accompany Mexican imports. More recently, Mexico's tax on imported U.S. corn sweeteners was declared by U.S. corn farmers to be an unlawful interference with free trade. The Mexicans imposed the tax to retaliate against protectionist U.S. sugar policy.

NAFTA: Migration Realities

Supporters of NAFTA in the United States directly linked passage of the trade agreement with the issue of illegal immigration, claiming that the jobs and higher wages that would be generated by NAFTA would eventually decrease

unauthorized Mexico-U.S. migration. U.S. Secretary of State Warren Christopher, in November 1993, said: "As Mexico's economy prospers [under NAFTA], higher wages and greater opportunity will reduce the pressure for illegal migration to the United States." Former President Gerald Ford urged Congressional doubters to vote for NAFTA, saying: "If you defeat NAFTA, you have to share the responsibility for increased immigration into the United States, where they want jobs that are presently being held by Americans."

Despite these predictions, Mexico-U.S. migration did not decline after NAFTA went into effect in 1994. However, in the short run this was largely due to unforeseen events unrelated to the trade agreement. There was an economic crisis in Mexico in 1995 that led to a sharp devaluation of the peso and the disappearance of 10 percent of all formal sector jobs, prompting increased emigration. The Mexican economy recovered, but the U.S. economy also boomed in the late 1990s, helping to draw more young Mexicans to the United States to fill jobs as unemployment rates hit 30-year lows. Both the sources of Mexican migrants and their destinations in the United States expanded, so that indigenous Mixtecs from southern Mexico joined West Central Mexicans in meatpacking plants in the Midwest and poultry processing in the South. Today, Mexico-U.S. migration is at record levels, despite a tripling of the U.S. Border Patrol, and surveys find that especially young rural Mexicans see the United States as their land of opportunity. Security concerns and an economic slowdown following the terrorist attacks on September 11, 2001, have stymied efforts to develop a new immigration policy.

Despite the claims of some NAFTA advocates that the agreement would immediately reduce incentives for Mexicans to migrate to the United States, some observers did predict that adjustments in the structure of the economy of the Mexican countryside would result in a great migration off the land, with some Mexicans spilling into the United States. However, no one expected the upsurge in migration in the 1990s, the so-called migration hump, to be so large. Since 1995, unauthorized immigration, mostly from Mexico, has exceeded legal immigration from all countries.

The impact of migration flows to the United States on the Mexican economy and labor force is significant. About 10 percent of all persons born in Mexico have moved to the United States, and a quarter of Mexicans with formal sector jobs (covered by minimum wages) are employed in the United States. Mexican-born workers

are 90 percent of those hired to work for wages on U.S. crop farms, and are half or more of those employed in food processing and other farm-related industries. For the past decade, unauthorized immigration from Mexico has exceeded legal immigration, making Mexicans about 60 percent of the unauthorized foreigners in the United States and 30 percent of the legal immigrants. The relevance of this experience for other countries is uncertain; few other developing countries are in the unique position of sharing a border with a country as wealthy as the United States.

Conclusions

NAFTA was neither the panacea promised by supporters nor the Pandora's box predicted by its critics, a finding that is likely to be repeated for other regional trade agreements. NAFTA clearly accelerated the integration of the economies of Canada, Mexico and the United States, leading to production specialization and lower costs due to economies of scale, as predicted by economic theory. However, there have been bumps on the road to economic integration, symbolized by ongoing disputes over wheat, corn, swine, cattle, tomatoes, avocados and sugar. Interest groups will work to protect themselves from the discipline of free trade under future trade agreements, just as they have in the case of NAFTA.

NAFTA helped accelerate the structural changes required to turn Mexico into a globally competitive modern economy and it committed Mexico's politicians to orthodox economic policies. But a free trade agreement is not a substitute for national economic development policies. Rural poverty remains a pressing concern in Mexico, as it would be in other Latin American countries if they were to liberalize trade with the United States. Moreover, the experience of China and India both show that large gains in economic growth and average incomes can be achieved without preferential trading arrangements with rich countries.

For more information on the public conference sponsored by the Giannini Foundation of Agricultural Economics on January 13, 2006, see the box on page 8.

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Does the Internet Increase Farm Profits?

by

Aaron Smith and Catherine Morrison Paul

Half of California farms have Internet access and 38 percent use a computer in their business.

Using results from a farm-level survey, we find that most farmers who use the Internet for business purposes perceive small, if any, financial payoffs from the Internet.

Computer and Internet use by California farmers decreased in the last two years, according to a recent report released by the USDA. In 2005, 58 percent of California farms had access to a computer, down from 64 percent in 2003. This decline came after steady increases during the preceding decade, and mirrors a similar decline in the proportion of farms with Internet access. However, many farmers use computers and the Internet only for non-business tasks such as e-mail and web surfing, and fluctuations in such personal activities drove the overall declines in use. The proportion of California farms using computers for farm business actually remained constant at 38 percent between 2003 and 2005.

In this article, we show that the average farmer finds few benefits to using the Internet for business purposes. Specifically, Internet purchases generate small cost savings and Internet marketing produces small increased returns. In qualitative terms, only about half of farmers who use the Internet for business perceive that it enhances their competitiveness. Nonetheless we expect the benefits of the Internet to increase in the future as more farm-specific applications develop.

How Much Do California Farmers Use Computers and the Internet?

The proportion of California farmers using computers for farm business increased sharply in the late 1990s, as we show in Figure 1. The proportion then decreased in the early part of this decade before leveling off at about

40 percent, compared to a national average of about 30 percent. Thus, the gap between the business use of computers for California farmers and those in the rest of the country has narrowed since the late 1990s but remains greater than five percent.

Internet use by California farmers also jumped in the late 1990s, but then leveled off between 2001 and 2005, as we show in Figure 2. Nationally, Internet use by farmers increased initially at a slower rate than in California. However, the nationwide rate of increase did not slow down as much as in California, enabling the rest of the nation to catch up in 2005. The proportion of farms with Internet access is now about 50 percent in both California and the rest of the nation, similar to the corresponding proportion for U.S. households.

Farmers' propensity to use the Internet varies by farm size and farm type. The USDA report indicates that farms with total revenue greater than \$250,000 make the most use of the Internet, with 72 percent having Internet access. The proportion drops to 59 percent for farms with revenue between \$100,000 and \$250,000, and 47 percent for farms with revenue less than \$100,000. A comparison between crop and livestock operations reveals little difference in Internet access, but differences do exist by commodity. Cotton and grain/oilseed farms are the most likely to have Internet access, with 59 percent and 56 percent, respectively, having access nationwide. Dairy and beef farms have a lower level of Internet access, with 48 percent and 44 percent, respectively, having access nationwide.

Figure 1. Percent of Farms Using Computers for Farm Business

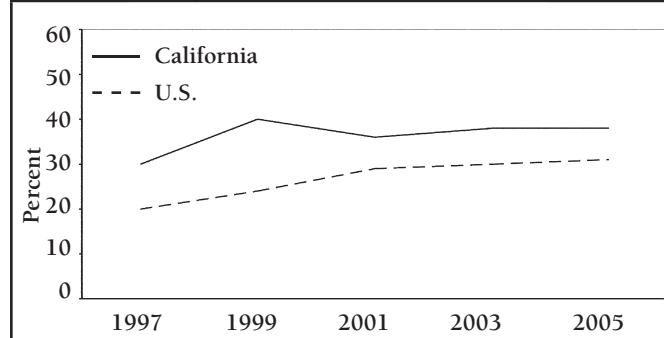
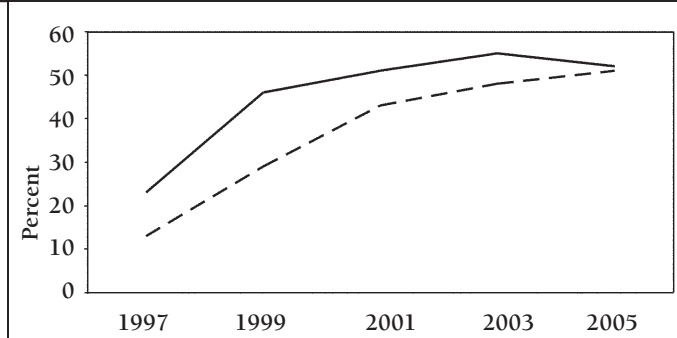


Figure 2. Percent of Farms with Access to the Internet



Why Do Farmers Use Computers and the Internet?

Farmers' use of computers and the Internet for business depends on their anticipated returns in terms of farm performance, and resulting competitiveness and profitability. Such returns could stem from various internal types of computer use, such as better record-keeping, accounting, tax reporting, decision-making and production processes. External Internet uses such as researching and marketing might also generate returns through the accumulation of information with competitive value. The magnitude of returns to the Internet also depends on the intensity of use, e.g., the amount of purchases made or number of tasks carried out through the Internet.

The potential benefits of computers and the Internet have likely increased over time, as their costs have fallen and availability and applicability have risen. For example, direct costs have fallen as the technology has advanced and computer prices have plummeted.

Learning costs have also dropped as more people gain familiarity with computers through their use in homes, schools and outside employment. The number of user-friendly applications also continues to rise.

To gain insight into the benefits of computers and the Internet to farmers, we used data from a year 2000 survey of computer and Internet use by Great Plains farm operators. This survey contains much more detailed information on computer use than is available currently for California farmers. The 1,679 farmers in the survey were randomly selected from the membership rosters of the Farm Bureau Federations in Kansas, Iowa, Nebraska and Oklahoma. Responses were received from 579 farmers—a response rate of 34.5 percent. For our analysis we used data for the 517 farmers who had no missing information on the variables of interest.

In this sample, 61 percent of the farmers had a personal computer, which is similar to the California level documented in the recent USDA report. In addition, 43 percent of the farmers said they used a computer for

business purposes and 51 percent reported having a computer that had access to the Internet. A total of 152 farmers (30 percent) used not only their computer, but also the Internet, for business purposes.

Table 1: Benefits for Farmers Who Use the Internet in Their Business

Question	Average	
	% Yes	Dollar Value
<i>Use for information</i>		
Using the Internet to acquire business information has increased financial returns during the past year.	27	
Estimated dollar value of the increased financial returns in 2000.		3,753
<i>Use for purchasing</i>		
Do you use the Internet to purchase goods and services that you use in operating your farm or ranching business?	33	
What is the estimated dollar value of the goods and services that you purchased over the Internet in 2000 for use in operating your farm or ranch?		7,655
In 2000, what would you estimate to be the dollar value of your cost savings from using the Internet to purchase goods and services that you use in operating your farm or ranching business?		1,036
<i>Use for marketing</i>		
In 2000, did you market any of the commodities that you produce or any services using the Internet?	5	
What is the dollar value of the commodities and services that you marketed over the Internet in 2000?		29,071
What was the dollar value of the extra sales revenues that you received in 2000 as a result of marketing commodities over the Internet?		6,188
<i>Overall benefit</i>		
Overall, has using the Internet improved the ability of your farm or ranch to compete in your industry?	53	

Costs and Benefits of Internet Use

Our data captures two direct costs of Internet use: connection and subscription expenditures. The true cost also includes the purchase of the computer and the learning required for its effective use. The average annual cost of an Internet connection for business-related Internet users was \$237. However, 99 percent of business users also used the Internet for personal matters, so the additional cost of connecting to the Internet for business was likely minimal. Most business-Internet users collected information about running their farm from the Internet—141 out of 152, or 93 percent. The average subscription cost for this information was \$10 (including the 129 out of 141 farmers who reported zero costs). The combined direct cost of Internet connection and subscription services to farmers is therefore very low. However, for many farmers the time cost of learning to use the Internet may be large, and thus present the greatest barrier for effective use.

We measure the benefits of the Internet using farmers' estimates of returns. We have quantitative dollar measures of farmers' estimated returns from various Internet applications, and a qualitative (yes or no) measure of whether or not the farmer thought the Internet contributed to farm competitiveness. These perceived benefits varied substantially, and many farmers reported zero returns from Internet use.

Of the 152 farmers who used the Internet for business purposes, only 27 percent reported that information obtained on the Internet helped them increase their financial returns. For these farmers, the increase in average financial returns was \$3,753 (Table 1). Aside from the 27 percent who reported increased financial returns, seven percent collected no business-related information on the Internet and 66 percent used the Internet to obtain business information but reported that this information did not help increase financial returns. Thus, most farmers who obtain business information over the Internet receive no financial benefits. However, the low cost of this information means that farmers also do not incur significant losses from using the Internet to obtain business information.

Of the farmers who used the Internet to make business-related purchases and reported the dollar value of total purchases, average cost savings was \$1,036 (Table 1). Given their average total purchases of \$7,655, this implies an average cost saving of 14 percent. However, only 42 percent of the farmers who made Internet purchases reported cost savings; for these farmers cost savings averaged \$1,836, 23 percent of their total purchases. For the five percent of business-Internet users who marketed their products on the Internet, the average reported increased returns were \$6,188, or approximately 20 percent of the value of the marketed goods. This group contains only seven farmers, which makes it difficult to generalize and also indicates that most of the farmers in the dataset chose not to even try marketing their products on the Internet. Internet marketing opportunities for Midwestern grain or livestock farmers are probably very limited however, and the potential for Internet marketing may be higher in California.

Most farmers did not report a positive dollar value for their financial benefits from Internet use, but 53 percent of the 152 farmers who used the Internet for business reported that Internet use enhanced their competitiveness (Table 1). To explain which farmers found the Internet beneficial in this sense, we used a statistical logit model to predict the probability that farmers believed the Internet helped them compete, based on

various farm and farmer characteristics. We estimated this model only for those farmers who used the Internet for business.

The only farm or farmer characteristic that significantly affects perceived benefits of the Internet is whether the farm is a family farm. The probability that the Internet is deemed beneficial is 25 percent lower for family farms, suggesting that such farmers may have a higher propensity to use the Internet primarily for personal tasks. However, the perceived benefits of the Internet as a business tool seem unrelated to the size of a farm, the age of the farmer, or the education level of the farmer.

The most important determinants of farmers' perceived returns to Internet use involve how it is used in the business. Farmers who make purchases on the Internet are not significantly more likely to find that Internet use improved their competitiveness. However, using the Internet to get information on input pricing or agricultural commodity markets each increased the probability of finding the technology useful by about 30 percent.

Gathering other types of information from the Internet did not seem to help farmers compete. For information on weather, this may be because close and low-cost substitute sources exist in the form of newspapers and radio. By contrast, information on commodity markets and input prices are less readily available from other sources. Obtaining information on agricultural policy or technical characteristics of inputs also does not seem to enhance competitiveness, perhaps because such information is difficult to use in production decisions and so is gathered more out of curiosity.

The number of years using the Internet for business is also associated with a higher probability of greater perceived returns. This result could indicate a learning effect; farmers find the Internet more useful as they spend time using it and discover where the benefits lie. Alternatively, it could indicate that farmers simply continue to use the Internet for business if they find it useful.

Conclusion

In this article we explore farmers' use of computers and the Internet. Only about half of the farmers in our Great Plains data who use the Internet for business believe that it has increased their competitiveness, and even fewer report positive economic returns. This limited perception of the technology's contribution to farm

performance may be partially explained by its general-purpose attributes. Because the purchase of a computer is a fixed cost, and Internet access is typically priced at a flat rate, business and personal use may be too intertwined to distinguish effectively. If a farmer already has a computer with Internet access for personal use, the marginal cost of performing some business applications on the Internet is close to zero. Such a farmer is therefore more likely to use the Internet to gather, for example, business-related information even if the financial benefits of this information are negligible. This argument applies equally well to California farmers, for whom overall computer-use rates do not differ substantially from the rest of the country (Figures 1 and 2).

Perceived benefits of Internet use for farm business will likely increase as more farmers move up the learning curve, as the technology becomes more pertinent to farm business, and as new applications and services become available. For example, voice over Internet Protocol (Voice over IP) will eliminate long-distance charges, and wi-fi wireless networks will permit mobile Internet applications on the farm. Such applications will be particularly useful in helping the industry to track produce from planting to the store. Further research tracking these changes and better identifying and distinguishing both business and non-business benefits of farm Internet use seem particularly important for understanding how the technology might change farm production processes and competitiveness in the future.

For more details on the use of computers and the Internet in agriculture, the authors recommend the following reading:

Smith, A., W.R. Goe, M. Kenney, and C.J. Morrison Paul, "Computer and Internet Use by Great Plains Farmers," *Journal of Agricultural and Resource Economics*, 29(3):481-500, 2004.

USDA National Agricultural Statistics Service Report, "Farm Computer Usage and Ownership," available at <http://usda.mannlib.cornell.edu/reports/nassr/other/computer/>.

Aaron Smith is an assistant professor and Catherine Morrison Paul is a professor in the ARE Department at UC Davis. They can be reached by e-mail at asmith@primal.ucdavis.edu and cjmpaul@primal.ucdavis.edu, respectively.

(Continued from page 4)

North American Agriculture: Assessing NAFTA at 12

Friday, January 13, 2006

Sacramento Hilton, 2200 Harvard Street
tel 916-922-4700

AGENDA

8AM: *Registration and continental breakfast*

9AM: *Welcome and Introduction,*
David Zilberman, UCB

9:15: *Assessing NAFTA, CAFTA, and the FTA.*
Chair, Philip Martin, UCD
Gary Hufbauer, Institute of International
Economics
Discussants, Ann Harrison, UCB
Rob Feenstra, UCD

10:15: *Coffee break*

10:30: *Trends in Specific Commodities*
Chair, David Zilberman, UCB
Canada-U.S. Trade, Colin Carter, UCD
Mexico-U.S. Trade, Steve Zahnheiser, USDA
Discussant, Roberta Cook, UCD

12PM: *California in the 21st Century*
Lunch with Dan Walters, Sacramento Bee

2PM: *NAFTA's People Impacts*
Chair, Colin Carter, UCD
Mexico-U.S. Migration, Ed Taylor, UCD
Impacts of Mexican Migration,
Philip Martin, UCD
Discussant, Alix Peterson Zwane, UCB

3:30: *Coffee break*

3:45: *What Can Agriculture Expect from Doha?*
Jason Hafemeister, Director for WTO
Agricultural Negotiations,
U.S. Trade Representative's Office

4:30PM: *Adjourn*

The registration fee is \$75, which includes meals and conference materials; registrations received will be acknowledged with receipts and conference materials. If you would like to participate, please send a check made payable to UC Regents before December 13, 2005 to:

Philip Martin
Dept. of Agricultural and Resource Economics
UC Davis
1 Shields Ave
Davis, CA 95616

Rooms can be reserved at the Sacramento Hilton at the special rate of \$84 plus tax, by using the UC-Giannini Group, code SDA. Rooms must be reserved by December 20, 2005.

For additional information on the conference and the registration process, visit the Giannini Foundation Web site at <http://giannini.ucop.edu>.

End Runs Around Trade Restrictions: The Case of the Mexican Tomato Suspension Agreements

by

Kathy Baylis and Jeffrey M. Perloff

A voluntary bilateral trade agreement caused a reduction in Mexican exports of tomatoes to the United States. However, diversion of exports to and from other countries reduced the effect of this agreement on tomato consumption and prices within the United States.

At the urging of U.S. tomato producers, the United States negotiated a voluntary price restraint (VPR) on fresh tomato imports from Mexico starting in 1996. This voluntary floor price on Mexican fresh tomato exports met the U.S. producers' objective of blocking some tomato exports when prices were low. Did the U.S.-Mexico voluntary floor price on fresh tomato exports from Mexico to the United States result in reduced shipments to the United States? Did it cause major trade diversions to other countries and to the processing sector? Were these diversions significant enough to largely offset the effect of this bilateral trade barrier? To answer these questions, we examine the effect of this bilateral trade barrier on fresh tomato trade flows among the United States, Mexico, Canada, and the rest of the world and to the Mexican processing sector.

We find that the diversion effects of the VPR are large—representing nearly three-quarters of the direct effects of the trade barrier. When the VPR was binding, Mexico exported more tomatoes to Canada, while Canada and the rest of the world increased their exports to the United States. The VPR also caused fresh tomatoes in Mexico to be diverted into paste production, which was exported to the United States.

Background

Tomatoes are an important product in the three North American Free Trade Agreement (NAFTA) countries: the United States, Canada and Mexico. Each country exports to and imports from each of the other two countries. Mexico accounts for 83 percent of U.S. imports of fresh tomatoes, and Canada is responsible for nine percent of U.S. imports. The vast majority of all U.S. fresh tomato exports go to Canada (91 percent of 1999 exports), while U.S. exports to Mexico (four percent) rank a distant second. Figure 1 illustrates the flow of tomatoes within North America.

Florida and Mexico historically compete for the U.S. and Canadian winter and early spring markets. Over the past ten years, Mexico has increased its

market share of the U.S. winter tomato market from 27 percent to close to 50 percent.

Most of the Mexican tomatoes enter the United States at border crossings in Laredo, Texas; Nogales, Arizona; or San Diego, California. The price for most tomatoes is established by contracts with distributors before the tomatoes enter the United States. Other truckloads of tomatoes are sold at the Phoenix market where they are bought by distributors, retailers and shippers, who in turn sell them at regional terminal markets throughout the United States. If the market in Phoenix cannot accept all the tomatoes at the reference price, shippers often wait for a few days in hopes that the price will rise. Their ability to hold the tomatoes is limited, since tomatoes need to be sold at retail within two to three weeks after shipping. If the tomatoes are nearly ripe and still cannot be sold in the Phoenix market, they are either sent back to Mexico to be turned into paste or they are destroyed.

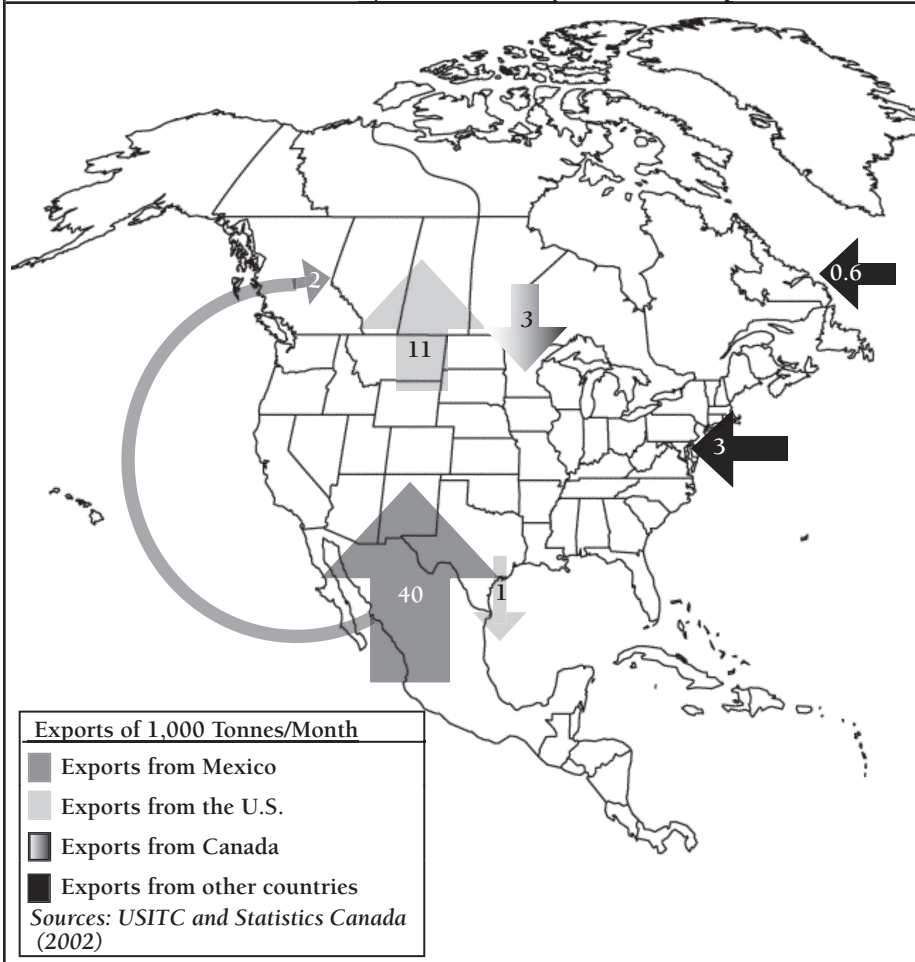
Close trade ties in a sensitive agricultural product among the three countries have, perhaps predictably, led to repeated trade disputes. In the 1980s, Florida producer groups brought an anti-dumping case against Mexican winter vegetable production. The



Tomatoes are an important product in the three NAFTA countries: the United States, Canada and Mexico. Each country exports to and imports from each of the other two countries.

Courtesy of USDA Agricultural Research Service Library

Figure 1. Average Annual Exports within and to North America, 1989-2001: 1,000 Tonnes (Metric Tons)



U.S. International Trade Commission (USITC) did not find evidence of dumping and the case was dropped, but tension between Floridian and Mexican producers continued. On April 1, 1996, various U.S. tomato growers (primarily Florida growers) filed an anti-dumping petition, alleging that their industry was threatened by fresh tomatoes from Mexico imported “at less than fair value.” The petition was in response to a 276 percent rise in tomato imports from 1992 to 1996, the bulk (93 percent in 1996) of which came from Mexico. U.S. production fell 21 percent over the same period, and U.S. domestic prices dropped from \$0.79 per kg. to \$0.63 in 1996.

In May 1996, the Department of Commerce found that tomato imports threatened the domestic industry with material injury, the first step in setting supplemental anti-dumping tariffs to protect the U.S. industry. On December 6, 1996, the United States and Mexico reached a “suspension” agreement where Mexico would voluntarily limit its exports and, in

return, the United States would suspend the anti-dumping case and remove the anti-dumping tariffs. Mexico agreed to set a reference (floor) price of \$0.21 per pound of tomatoes exported to the United States. For the suspension agreement to hold, producers representing 85 percent of the exports had to agree to be bound by the minimum. In 1998, separate winter and summer reference prices were set. Until July 2002, summer tomatoes (primarily produced in Baja, Mexico) were covered under one reference price of \$0.17 per pound that ran from July 1 to October 22, while winter tomatoes (affecting tomatoes produced in Sinaloa) were covered October 23 to June 30, with a higher floor price of \$0.21 per pound.

In July 2002, the suspension agreement was repealed after a number of Mexican tomato shippers refused to renew their commitment to the reference price agreement. The end of the suspension agreement

re-initiated the 1996 anti-dumping case, and the Department of Commerce resumed its investigation. The two countries entered into a new suspension agreement in December 2002, which remains in effect. (Our analysis covers the effect of only the initial suspension agreement.)

Statistical Model

We used a statistical model to assess the contribution of many factors in determining the quantities shipped between NAFTA countries. Factors we examined included weather (temperature and rainfall), prices of inputs (fertilizer, chemicals, labor), tariffs, the VPR, seasonal differences (having to do with how growing seasons vary across regions), prices relative to the VPR price floor, gross domestic product of each country, exchange rates and others.

If they cannot sell their fresh tomatoes at a high enough price, Mexican firms convert some fresh tomatoes into paste, which they ship to the United

States, so we separately examine the factors that determine Mexican paste production. Although paste is produced primarily using winter tomatoes, paste is storable and is exported year-round.

According to our statistical model, the VPR statistically significantly affected trade between the various pairs of countries. To determine whether the effects on tomato sales in the United States were large, we conducted two simulation experiments, as shown in Table 1. The first column reports the average change in the thousand tonnes (metric tons) of tomatoes shipped during the period in which the VPR was in place. The second column expresses the quantity change in the first column as a percentage of the monthly average trade flow estimated for the periods when the policy was binding (16 percent of the time).

The direct effect of the policy was to reduce Mexican exports to the U.S. by 197.2 thousand tonnes per year. We estimate that exports would have been 32 percent higher had the policy not been in effect.

In addition to the direct effect, there were sizeable fresh tomato diversions and diversions into processing. The drop in Mexican exports to the United States was partially offset by shipping 5.9 thousand tonnes more tomatoes from Mexico to Canada (22 percent of normal shipments) and converting 18 thousand tonnes (fresh equivalent) into paste, which were exported to the United States, so that net Mexican exports fell by 173.3 thousand tonnes (12 percent was diverted to Canada or into paste).

The drop in U.S. imports from Mexico was largely offset by increased imports of 161.8 thousand tonnes of fresh tomatoes from Canada and the rest of the world. In total, 75 percent of the direct effect was offset by this indirect effect. If we include the paste, then 84 percent of the drop in fresh tomato exports from Mexico to the United States was offset by diversions.

Given that domestic U.S. tomato consumption is slightly over two million tonnes, the direct reduction in Mexican imports would have caused prices to increase by 18 percent. However, because of the diversion of extra fresh tomatoes to the United States,

we estimated that the price increase would have been only four percent. Indirect supporting evidence of this mitigation effect is that the average farm-level price rose by only two percent from the period before the VPR (1988-1996) to the period when the VPR was in effect (1997-2002).

Summary

We find that the U.S.-Mexico VPR not only had direct effects on trade between the United States and Mexico, but that the resulting increased shipments from Canada and other countries were substantial and sharply reduced the protectionist effect of the border measure in the United States. Further, the VPR on the raw product encouraged Mexico to process the tomatoes and export them to the United States, which increased the competition to the United States' processors.

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Table 1. Annual Effects of the Voluntary Price Restraint

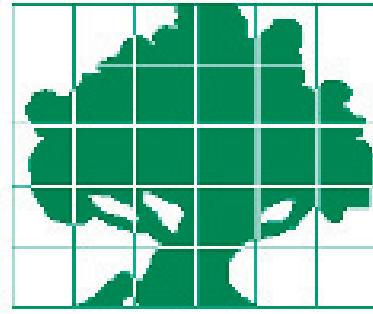
	Change in 1,000 Tonnes	Percent
Direct effect on fresh tomatoes exports from: Mexico to the U.S.	-197.2	-32 ^a
Diversion effects on fresh tomatoes exports		
United States to Canada	13.4	10 ^a
Canada to United States	17.5	22 ^a
Mexico to Canada	5.9	22 ^a
Rest of World to United States	144.3	175 ^a
Diversion into Mexican paste exports to the U.S. (fresh tomato equivalent)	18.0	9 ^a
Net effect on Mexican fresh tomato exports (including paste)	-173.3	88 ^b
Net effect on U.S. imports of fresh tomatoes (fresh only)	48.8	25 ^b
Net effect on U.S. imports of fresh tomatoes (including paste)	30.8	16 ^b
^a Percentage of average shipments during the years when the VPR was in effect.		
^b Percentage of direct Mexican exports to the United States.		

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