Center for Agricultural Policy and Trade Studies
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# NEWSLETTER

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## An Analysis of the Permanent Emergency Agricultural Assistance

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Almost every year portions of North Dakota are declared disaster areas due to weather related problems. Each year, sections of the country experience some weather related problems, and those areas reach out to Washington for assistance. Table 1 shows the ad hoc and emergency payments made to North Dakota and U.S. farmers. Senator Byron Dorgan has proposed legislation which would provide the means to support producers without having to appeal to Congress. This legislation would amend the Federal Crop Insurance Act to allow the Secretary of Agriculture to provide disaster relief to agricultural producers that incur crop and livestock losses as a result of damaging weather or related conditions in federally declared disaster areas. The legislation covers crop losses for both quality and quantity and livestock losses, including losses associated with rangeland depravation, due to weather.

Table 1. Ad Hoc and Emergency Government Payments to North Dakota and the United States

| | North Dakota | United States | North Dakota's Share |
|---|---|---|---|
| | ----------$1,000---------- | | -Percent- |
| 1996 | 246 | 172,538 | 0.1 |
| 1997 | 18,452 | 189,173 | 9.8 |
| 1998 | 124,092 | 2,884,633 | 4.3 |
| 1999 | 377,910 | 7,951,397 | 4.8 |
| 2000 | 402,366 | 8,623,672 | 4.7 |
| 2001 | 427,741 | 8,538,767 | 5.0 |
| 2002 | 79,760 | 1,654,969 | 4.8 |
| 2003 | 232,786 | 3,142,352 | 7.4 |
| 2004 | 13,984 | 583,139 | 2.4 |
| 2005 | 302,564 | 3,168,734 | 9.6 |

Source: USDA-ERS

It is proposed that producers who lost more than 35% of their crop are eligible for a payment of 65% of the crop price, and if producers experience quality losses of more than 35% of the crop value, a payment of 65% of the crop's value times 65% of production would be made. Livestock producers would be paid for losses due to floods, wildfires, extreme heat or other weather conditions as determined by the Secretary of Agriculture.

In this study we estimate the benefits of this legislation for North Dakota producers with crop quantity losses. Crop quality and livestock losses are not considered due to a lack of available data. To do the analysis, we generate probability distributions of crop losses based on historical yield patterns. Risk analysis requires two statistics, mean and standard

deviation, to generate a distribution of potential yields. Unfortunately, data for yield variations for individual farmers are not available. Instead, the standard deviations were calculated for the average yields of a group of 20-30 farmers for each crop and in each region over a nine-year period. An individual's standard deviation should be larger than that for the group because aggregated data tends to reduce variation within the data set. For example, the standard deviation of yield for a county is about 1.5 times larger than that for the state. We assume that the standard deviation of the individual farmer is about 1.5-1.9 times larger than that for the group, and we accordingly develop three scenarios in which the standard deviation of yields for individual farmers are 1.5 (Scenario 1), 1.7 (Scenario 2), and 1.9 (Scenario 3) times the base standard deviations from the group of producers (Base Scenario).

Total regional returns are calculated using the gross per acre return and the average acres planted for the major crops in the state. From that distribution of total regional production, the disaster payments are calculated. Table 2 shows the potential distribution of disaster payments made to North Dakota producers under the base and alternative scenarios. If the total gross return for any crop within the observation falls below 65% of the mean gross return, an emergency payment is calculated based on 65% of the crop value times the amount lost. It is assumed that Federal Crop Insurance pays for any losses greater than 30%. For the base scenario, the probability for producers to not receive any payments is about 9%, and the average emergency payment is about $73 million per year. The base scenario, however, is underestimating the amount of payments. The actual emergency payments during the past four years averaged about $150 million per year.

Under scenario 1, in which standard deviations in yields are 1.5 times the base standard deviations, average disaster payments would be $88 million per year. The average payment increases as variation in yields increase. With the standard deviation increased to 1.9 times the base standard deviation (scenario 3), the average expected emergency payment for North Dakota would be $112 million per year. Under scenario 3, producers in the state would not receive emergency benefits 2% of the time, while payments over $150 million would be made about 26% of the time, and payments over $210 million would be made about 19% of the time. Payments similar to the large amounts paid in 1999-2001 would be made less than 1% of the time.

Table 2. Estimated Frequency of Disaster Payments Made To North Dakota Producers, Under Various Standard Deviation Estimates

| | Frequency of Payments | | | |
|---|---|---|---|---|
| Payment level | Base Scenario | Scenario 1 | Scenario 2 | Scenario 3 |
| million $ | Percent | | | |
| 0 | 8.8 | 5.1 | 3.3 | 2.2 |
| 0-30 | 18.5 | 14.8 | 12.5 | 9.0 |
| 30-60 | 29.2 | 28.1 | 23.4 | 21.7 |
| 60-90 | 17.2 | 18.3 | 19.2 | 19.5 |
| 90–120 | 8.6 | 9.4 | 13.1 | 14.1 |
| 120-150 | 3.4 | 5.5 | 5.5 | 7.2 |
| 150-180 | 3.3 | 4.0 | 3.8 | 3.4 |
| 180-210 | 2.3 | 3.4 | 3.4 | 4.2 |
| 210-240 | 3.1 | 4.8 | 5.5 | 5.6 |
| 240-270 | 3.0 | 3.7 | 5.7 | 7.0 |
| 270-300 | 1.7 | 2.0 | 3.2 | 4.2 |
| 300-330 | 0.4 | 0.6 | 1.2 | 1.5 |
| 330-360 | 0.0 | 0.2 | 0.1 | 0.3 |
| 360-390 | 0.1 | 0.1 | 0.1 | 0.1 |
| Average payment million $ | 72.8 | 88.0 | 101.5 | 111.8 |

Gross returns vary wildly even with this proposed legislation. Without the emergency disaster payments, gross crop returns for the state could vary between $1.86 billion and $3.64 billion. Under the base scenario, gross crop returns vary between $2.06 billion and $3.64 billion, and under scenario 3, gross crop returns plus emergency disaster payments varies between $2.01 billion and $3.77 billion. This study looks only at crop losses due to low yields. Thus, the estimated payments under the disaster program are the minimum payments under the different scenarios.

For more details see Agricultural Policy Brief No. 13.

# The Growing U.S. Trade Deficit in Consumer-Oriented Agricultural Products

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U.S. agricultural exports have fluctuated and increased slowly over the past decade, while imports have increased rapidly. As a result, the U.S. trade surplus has declined from $26.9 billion in 1996 to just $3.9 billion in 2005. The decline in the U.S. agricultural trade surplus is mainly due to the increase in the trade deficit for consumer-oriented agricultural and food products.

USDA classifies traded agricultural products into consumer-oriented, bulk, and intermediate products. Bulk agricultural products include commodities that have received little or no processing such as wheat, corn, soybeans, and cotton, etc. Intermediate products are those that have received some processing but are generally not ready for final consumption. These include products such as wheat flour, soybean meal, live animals, and hides and skins, etc. Consumer-oriented products are those that are generally ready for final consumption, such as snack foods, meat and dairy products, processed or fresh fruits and vegetables, beverages, and other processed or ready-to-eat foods.

The importance of consumer-oriented products in U.S. agricultural trade has increased over time. The share of consumer-oriented products in U.S. agricultural trade has increased from 34% in 1989 to 55% in 2005. By contrast, the share of bulk goods has decreased from 46% in 1989 to 25% in 2005. Figure 1 shows the changes in trade balances for consumer-oriented, bulk, and intermediate products. The U.S. trade surplus for bulk products has fluctuated around $15 billion, while the U.S. trade surplus for intermediate products was around $4.6 billion prior to 2002 and then decreased to $1.21 billion in 2005. By contrast, the U.S. trade balance for consumer-oriented products has declined sharply from a trade surplus of $2.4 billion in 1995 to a trade deficit of $12.7 billion in 2005.

Canada and Mexico are the most important countries for U.S. imports of consumer-oriented products. Partly due to the North American Free Trade Agreement (NAFTA), U.S. imports from these two countries increased from $2.8 billion in 1989 (accounting for 22.7% of U.S. total imports) to $15.8 billion in 2005 (accounting for 39.5% of U.S. total imports). U.S. imports have also increased rapidly from other important trading partners, including the European Union, Australia, China, and some Latin American countries (e.g., Chile, Colombia, Costa Rica, and Ecuador).

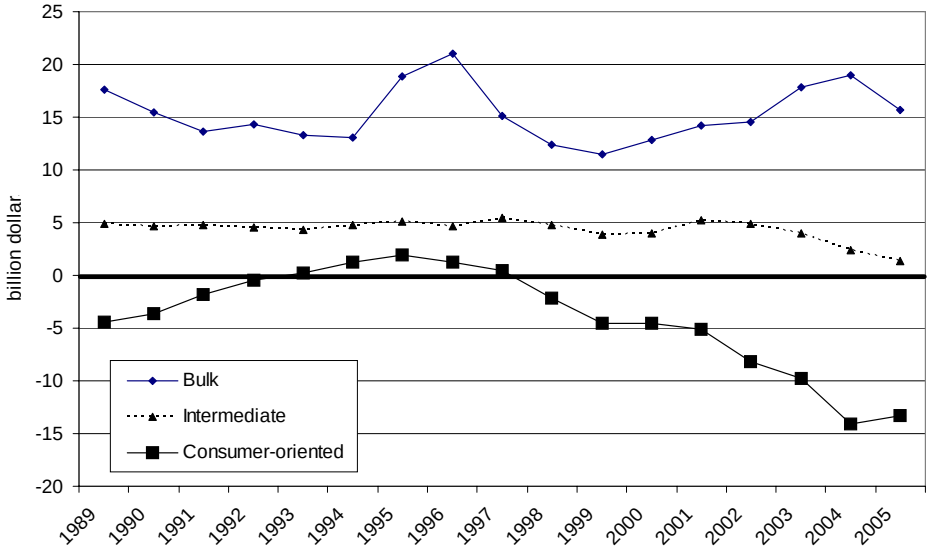


**Figure 1. U.S. Agricultural Trade Balance by Group, 1989-2005**

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U.S. exports to Canada and Mexico increased from $2.0 billion 1989 (accounting for 23.7% of U.S. total exports) to $12.3 billion in 2005 (accounting for 45.1% of U.S. total exports). Japan was the single largest market for U.S. exports of consumer-oriented products in 1989. U.S. exports to Japan in 1989 accounted for 35.1% of its total export, but this share dropped to just 12.1% in 2005. Exports to Japan grew at a significant pace from $3.0 billion in 1989 to a high of $5.4 billion in 1995. However, exports to Japan have declined since 1995, from $4.5 billion in 1998 (partly due to the Asian financial crisis in 1997-1998) to $3.3 billion in 2005. The rapid decrease in U.S. exports to Japan in recent years is mainly because of the reported occurrence of mad cow disease in the state of Washington in December 2003. Red meats have been the leading U.S. export of consumer-oriented products to Japan. Other important markets for U.S. exports of consumer-oriented products include South Korea, China, Philippines, and the EU member countries, including Belgium, France, Germany, Spain, the Netherlands, and the United Kingdom.

The primary types of consumer-oriented agricultural and food products imported and exported by the United States differ across the countries. For instance, while leading U.S. imports from the EU member countries are wine and beer, its leading imports from Canada are snack foods and red meats, and those from Mexico are fresh vegetables. By contrast, leading U.S. exports to the EU member countries are nuts, those to Canada are fresh or processed fruits and vegetables and snack foods, and those to Mexico and Japan are red meats.

In this study, we have investigated the reasons behind the growing U.S. trade deficit in consumer-oriented products, using a panel data set covering 28 countries and a time period of 25 years from 1989 to 2005. An empirical trade model is derived based on international trade theory. Per capita income in the United States appears to be the most important determinant of U.S. trade balance in consumer-oriented products. A 1% increase of U.S. consumer income, ceteris paribus, would decrease the U.S. trade balance by 1.151%. The estimated results suggest that an increase in per capita income in foreign countries and trade liberalization would improve U.S. trade balance. U.S. FDI abroad in food manufactures has increased in recent years, and this is found to have had a negative effect on U.S. trade balance. The results also suggest that a strong U.S. dollar and NAFTA have contributed to the decline of the U.S. trade balance.

For more details, see the forthcoming Agribusiness & Applied Economics Report.