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Economic Impact of USDA Export Market Development Programs

EXECUTIVE SUMMARY

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A. Introduction

The purpose of this study is to measure the economic impact of USDA's Foreign Market Development Program (FMD) and Market Access Program (MAP), and industry market promotion contributions (referred to in this report jointly as the USDA Export Market Development Programs) on U.S. agricultural exports and the broader effects on the farm economy and the overall macro economy. The study's goals are to:

- Evaluate the effectiveness of the USDA Export Market Development Programs on increasing U.S. agricultural exports.

- Analyze the benefits this market promotion funding provides to the U.S. farm economy and the overall U.S. macro economy.

- Determine whether the benefits of the USDA Export Market Development Programs outweigh their costs by calculating benefit-cost ratios (BCRs).

- Conduct future market promotion funding scenarios to provide guidance on the implications of maintaining, increasing, or eliminating funding for the USDA Export Market Development Programs.

1. Differences in Methodology

- This is the third cost-benefit analysis study of the USDA Export Market Development Programs. The two prior studies employed an econometric model that measured market share effects. This 2016 study, however, employed a different approach through export demand analysis to measure the impact of market development programs. Undertaking the analysis with a completely different methodology ensures that the results are not influenced by using the same analytical method repeatedly and establishes a new baseline of direct returns on export value, farm income and assets, and general economic indicators from the market development programs.

- This study also takes price effects into account since it is likely that market promotion funding not only impacts exports but also influences prices.
  - This study interfaces the results of the export demand function model with a global model of agriculture known as the Global Agricultural Sector Model (GASM) to generate price-responsive simulations of the impact of the USDA Export Market Development Programs.

- As in the prior studies, this study utilizes a computable general equilibrium (CGE) model to measure the economic impacts on the farm economy and the macro economy under a full employment assumption. But this study also uses an IMPLAN model to measure the economic impacts on the farm economy and the macro economy under a less than full employment assumption.
  - Using both a CGE model and an IMPLAN model to analyze the national economic effects of the market promotion programs limits the possibility that a result could be driven by

particular modeling assumptions. Together the two approaches better approximate the range of possible outcomes.

- The IMPLAN model also provides geographic regional impacts, based on production and processing differences across the United States, which the CGE model cannot provide.

2. GAO Concerns Addressed

The GAO review of the previous study was critical that the market share model omitted important variables such as commodity prices, foreign production and foreign competition. To address those concerns, the econometric models in this study included:

- An export unit price variable; and
- Foreign production (non-U.S. countries) variable.

The study took into account the effect of foreign competition on export demand, price, and revenue through the use of the Global Agricultural Sector Model (GASM) which includes the agricultural sectors and trade of 30 foreign countries across a wide range of primary crops, processed products, bioenergy products, and livestock.

3. Extensive Sensitivity Analyses Conducted

This study conducted extensive sensitivity analyses to comply with OMB guidelines and to test the stability of the models and key parameters to provide increased confidence in the study results[1].

4. Literature Review and Market Development Participant Interviews

An extensive review of the literature was conducted to build on past studies and evaluate prior empirical work about the effectiveness of market development activities.

Forty personal interviews of recipients of market development funds were conducted to understand their views about the effectiveness of USDA market promotion efforts. The interviewees accounted for 78% of participants in FMD programs and 52% of participants in MAP. Interview questions focused on the effectiveness of market development programs and what would be the impact on their market promotion activities if government promotion expenditures were ended or increased. The interviews supported the future funding scenario findings.

B. Major Findings

1. Conclusions

- Regardless of whether an export demand function model or market share model is used, or whether a CGS or IMPLAN model is used, or different time periods are used (1977-2014 or

[1] The study used the guidelines contained in the office of Management and Budget (OMB) Circular A-94. For summary of sensitivity tests conducted see pages 10 and 11 in Background chapter.

2002-2014), the results of this study and previous studies all demonstrate the importance and effectiveness of market promotion funding on exports, the farm economy and the overall macro economy.

- There is overwhelming evidence that export promotion has a positive and statistically significant impact on increasing demand for U.S. exports even though other demand factors such as price and exchange rates have a greater impact.

- USDA Export Market Development programs continue to achieve what Congress intended when they were created to:
  - Boost agricultural export revenue and volume;
  - Support farm income; and
  - Enhance the overall U.S. economy.

- The USDA Export Market Development Programs generate high benefit-cost ratios (BCRs).
  - The standard method of determining whether export promotion has been beneficial is to calculate a benefit-cost ratio (BCR) in terms of additional gains that the promotion program has generated per dollar spent over time.
  - This study determined that the U.S. agricultural export value increased by $24 (2002-2014) and $28 (1977-2014) for every dollar invested in export market development.
  - The previous study was also updated and the BCR was found to be $32, somewhat below the 2010 study's result of $35 and still above the 2007 study's result of $25. Appendix A provides a thorough discussion of the previous study's methodology and the updated findings.
  - All of the above BCRs are well above the average of about $11 BCR reported by individual commodity promotion program studies in the literature review.
  - A common error is to assume that a high BCR implies a high impact and a low BCR implies a low impact of the program. Just because a BCR is lower for the more recent time period than for an earlier time period does not mean the program is less effective. The lower BCR simply reflects an increase in funding.
  - Although such high BCRs indicate the programs are very effective; they also suggest the programs are underfunded.
    - For example, a BCR of 24 to 1 indicates $24 in additional agricultural export revenue is forfeited for every dollar not allocated to the USDA Export Market Development Programs[2].

- However, multiple measures are needed to provide a comprehensive evaluation of USDA export market development program effectiveness.
  - While BCRs are commonly used to determine the effectiveness of programs, they do not consider the overall scale of a program's impact.
  - Analyzing other measures, such as changes in export revenues, farm income, GDP, etc., in conjunction with BCRs provides a more comprehensive understanding of the full impact of market development programs.

- In addition to a high BCR, the new report indicates that the USDA Export Market Development Programs:
  - Boost export revenues and volumes.

[2] See pages 58 and 59 for additional detail.

- To calculate the historical benefits of market promotion funding on U.S. exports under the USDA Export Market Development Programs, the study linked the two U.S. agricultural export demand analysis models (for bulk/intermediate and high value products) to the Global Agricultural Sector Model (GASM). The objective of linking the models was to generate price-responsive simulations of the impact of the USDA Export Market Development Programs.
- The results show the programs sharply increased revenues by:
  - Adding $12.5 billion on average annually to export value from 2002-2014 and adding $8.15 billion on average annually, to export value from 1977-2014.
  - Adding $162.5 billion, 14.3 percent, in agricultural export revenues over the entire 2002-2014 period and a total of $309.7 billion more, 15.3 percent over the 1977-2014 period than would have been generated without the programs.

o Contribute substantially to the farm economy.
- The national economic analyses of the impacts of the USDA Export Market Development Programs demonstrate that the effects of the programs go well beyond generating additional exports. These impacts were measured under two different assumptions of full employment (CGE model as required by OMB) and less than full employment (IMPLAN model).
- The results show that the programs benefitted the farm economy by:
  - Adding $8.7 billion to farm cash receipts, $1.1 billion to farm income and $1.0 billion to farm assets on average annually assuming full employment (2002-2014).
  - Adding $8.4 billion to farm cash receipts, $2.1 billion to farm income and $1.1 billion to farm assets on average annually assuming less than full employment (2002-2014).

o Benefit the macro economy.
- The simulation results of the impact of the USDA Export Market Development Programs on U.S. agricultural exports during the 2002-2014 period were also used to measure the impacts of the programs on the larger macro economy under both the full employment (CGE model as required by OMB) and less than full employment (IMPLAN model) assumptions.
- The results show that the programs benefitted the macro economy by:
  - Adding $7.1 billion in economic output, $4.4 billion in GDP and $1.7 billion in labor income in each year assuming full employment, and
  - Adding $39.3 billion in economic output, $16.9 billion in GDP and $9.8 billion in labor income assuming less than full-employment (2002-2014).

o Create jobs.
- The USDA Export Market Development Programs also contributed to employment across the entire economy under the less than full employment assumption.
- The results show that the programs benefitted employment by:
  - Adding up to 239,800 full and part-time jobs across the entire economy assuming less than full employment (2002-2014).
  - Reducing unemployment by up to 3%.

■ Substantial impacts occur with changes in future market promotion funding.

o The study analyzed the possible effects of varying levels of future program funding over the 2015-2030 period to provide a clearer picture of the potential impact of increased or decreased funding on U.S. exports and the farm and macro economy. The future funding scenarios conducted included:

- *Flat Funding Scenario*: Flat funding beginning in 2015 with full annual program expenditures for the FMD and MAP programs ($234.5 million) plus 2014 cooperator contributions ($468.7 million) through 2030.
- *Increased Funding Scenario*: A 50% increase in 2015 budgeted program expenditures for FMD and MAP programs (from $234.5 million to $351.75 million) with cooperator contributions remaining at 2014 level through 2030 (a 17.4% increase in funding from the Flat Funding scenario).
- *Reduced Funding Scenario*: Elimination of government funding for FMD and MAP programs with a 50% reduction in 2014 current cooperator contributions (from $468.7 million to $234.35 million) through 2030 (a 65.5% reduction in funding from the Flat Funding Scenario).

  - The results for the increased funding scenario relative to the flat funding scenario show that the programs would benefit exports, the farm economy and macro economy by:
    - Adding on average annually $3.5 billion to exports.
    - Adding annually $1.7 billion to farm cash receipts, $0.6 billion to net cash farm income and $0.2 billion to farm assets assuming full employment, while adding $2.4 billion to farm cash receipts, $0.6 billion to farm income and $0.3 billion farm assets assuming less than full employment.
    - Adding annually $0.9 billion to output, $0.6 billion to GDP and $0.2 billion to labor income assuming full employment, while adding annually $10.8 billion to output, $4.7 billion to GDP and $2.7 billion to labor income assuming less than full employment.
  - On the other hand, the results for the reduced funding scenario relative to the flat funding scenario show that the reductions would substantially adversely impact exports, the farm economy and macro economy by:
    - Decreasing exports $14.7 billion on average annually.
    - Reducing farm cash receipts annually by $7.0 billion, net cash farm income by $2.4 billion and farm assets by $0.7 billion assuming full employment, while lowering cash receipts annually by $9.9 billion, farm income by $2.5 billion and farm assets by $1.3 billion assuming less than full employment.
    - Lowering output annually by $3.6 billion, GDP by $2.6 billion and labor income by $0.9 billion assuming full employment, while decreasing output annually by $45.3 billion, GDP by $19.5 billion and labor income by $11.3 billion assuming less than full employment.
  - Industry interviews were consistent with the above future funding scenario findings.

- The market development programs provided substantial impacts on all major regions (2002-2014).
  - In the Midwest the average annual impact of the USDA Export Market Development Programs was up to $13.5 billion in output, $5.4 billion in GDP, $3.1 billion in labor income, and 79,100 full- and part-time additional jobs.
  - In the South, the Programs contributed an annual average of $7.7 billion in output, $3.0 billion in GDP and 55,300 full- and part-time additional jobs.
  - In the West, the Programs contributed an annual average of $6.2 billion in output, $2.9 billion in GDP and 39,900 full- and part-time additional jobs.
  - In the East, the Programs contributed an annual average of $1.8 billion in output, $0.8 billion in GDP and 9,500 full- and part-time additional jobs.

- Study Interviewees view the MAP and FMD programs as vital to their industry because they:
  - Are necessary to remain competitive in world markets.
  - Are important in opening new markets and responding to trade disruptions.

        - Resolving market access issues is becoming a more important focus because of volatile world trade where animal diseases or changes in regulatory requirements can disrupt imports at any time or make it nearly impossible to enter a new market.
    - Encourage the government and private sector to work together, thereby increasing investment and synergies.
    - Allow smaller industries to conduct market promotion activities that they could not do alone because of limited funding or knowledge of market promotion.
    - Encourage individual groups within an industry to work together with one voice rather than competing with each other.
    - Encourage industries to work across sectors in doing joint promotions and create benefits from a halo effect.