A Benefit-Cost Analysis of the U.S. Grains Council's Market Development Activities

Presented
Feb. 14, 2018
Houston, Texas

Harry M. Kaiser, Ph.D.
Cornell University

U.S. GRAINS COUNCIL

Four Major Objectives

U.S. GRAINS COUNCIL

- Measure impact of FAS- and USGC-funded export promotion on U.S. grains global market share and exports in the world market.

- Evaluate benefits of U.S. grains export promotion, relative to its costs, on cooperators from grains industry as well as U.S. overall economy.

Four Major Objectives

U.S. GRAINS COUNCIL

- Estimate partial and general equilibrium effects of U.S. grains export promotion on the U.S. farm economy and ROW by examining alternative future funding level scenarios for 2015-2030:
  - Status quo (level funding)
  - 50% increased funding
  - Elimination of FAS funding combined with a 50% reduction in USGC funding
- Quantify the broader macroeconomic impacts of USGC's export market development programs on employment, employment income, value-added, contributions to GDP and tax revenue.

Process Used To Evaluate Impact Of USGC Export Promotion

U.S. GRAINS COUNCIL

1. Build multivariate trade model for U.S. grains: this econometric model must be capable of isolating the unique short and long run trade impacts of market development.

2. Measure trade and broader farm and economic impacts of increased MAP/FMD/USGC spending mandated by the 2002 Farm Bill and maintained through 2014.

3. Perform cost-benefit analysis that complies with OMB's A-94 guidance.

4. Simulate trade and economic impacts associated with a 50% cut in MAP and FMD spending starting in FY 2015.

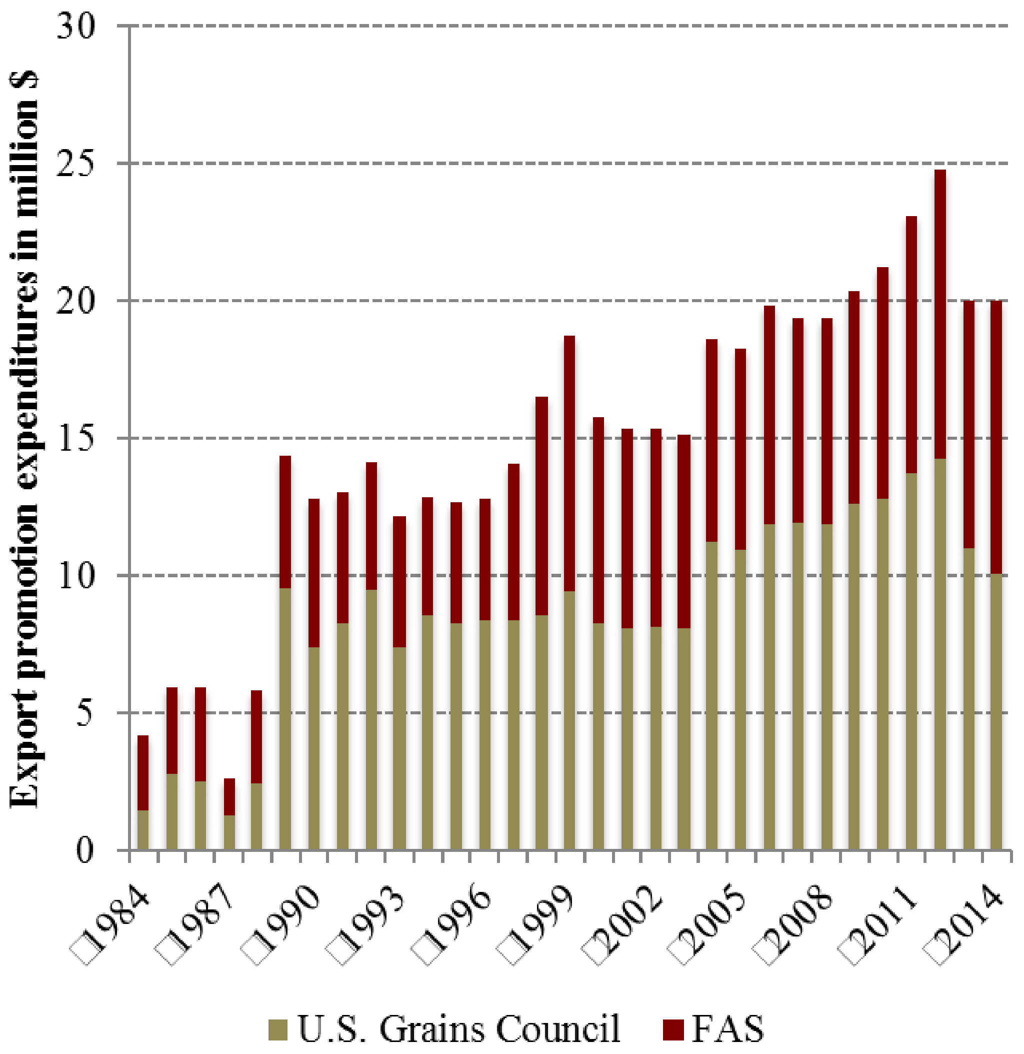
5. All analysis was updated to be consistent with the USDA's February 2016 long-term baseline.

6. Run IMPLAN model for macroeconomic and tax revenue impacts. Model assumes conditions of less than full employment.

First, some background…

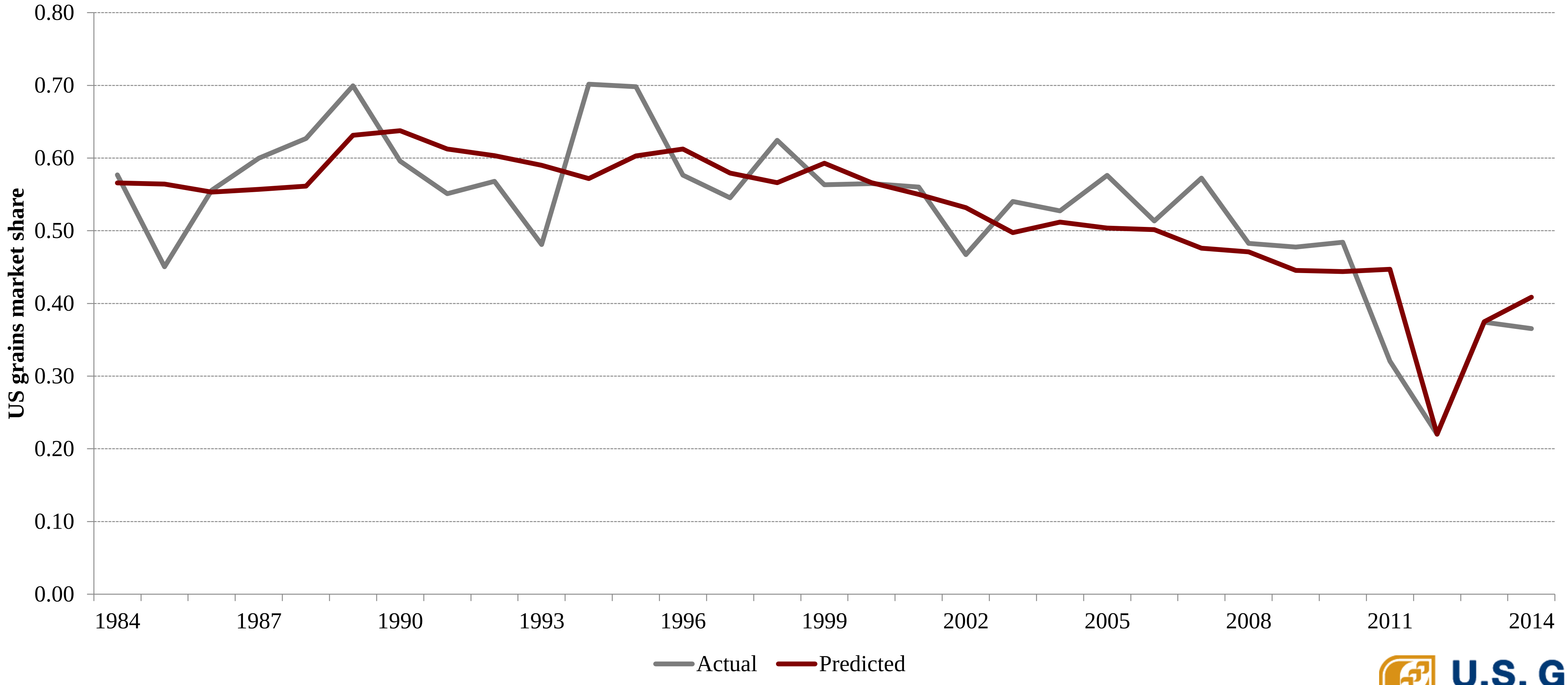
U.S. GRAINS COUNCIL

- USGC foreign market development investment has increased since 1984.
- Government commitment significantly increased in the 2002 Farm Bill (and maintained in the 2007 Farm Bill).
- This increase in government investment has attracted additional industry contributions, leading to a 36.2% increase in the level of industry investment since 2001.



Measuring the Trade and Economic Impacts of USDA's Market Development Programs

Market Share Model Accuracy



U.S. GRAINS COUNCIL

What does the model reveal about how market development affects U.S. trade?

U.S. GRAINS COUNCIL

Combined USGC+FAS grains promotion spending has positive and statistically significant impact on U.S. grain market share.

In short-run (less than one-year), a 10% increase in promotion spending increases U.S. market share by 1.03%, holding all other demand factors constant.

In long-run (longer than one-year), 10% increase in promotion spending increases U.S. market share by 1.3%, holding all other demand factors constant.

How about exchange rates? **U.S. grains market share 3 times more sensitive to changes in exchange rates than market development.**

What does the model reveal about how market development affects U.S. trade?

U.S. GRAINS COUNCIL

What’s the impact of U.S. ethanol production? U.S. grains market share is exactly as sensitive to changes in ethanol production compared with market development.

In short-run, a 10% increase in U.S. ethanol production decreases US market share by 1.03%, holding constant all other demand factors.

In long-run, a 10% increase in U.S. ethanol production decreases U.S. market share by 1.3%, holding constant all other demand factors.

2012 drought had significant negative impact on U.S. grains market share. Market share declined 64% in 2012.

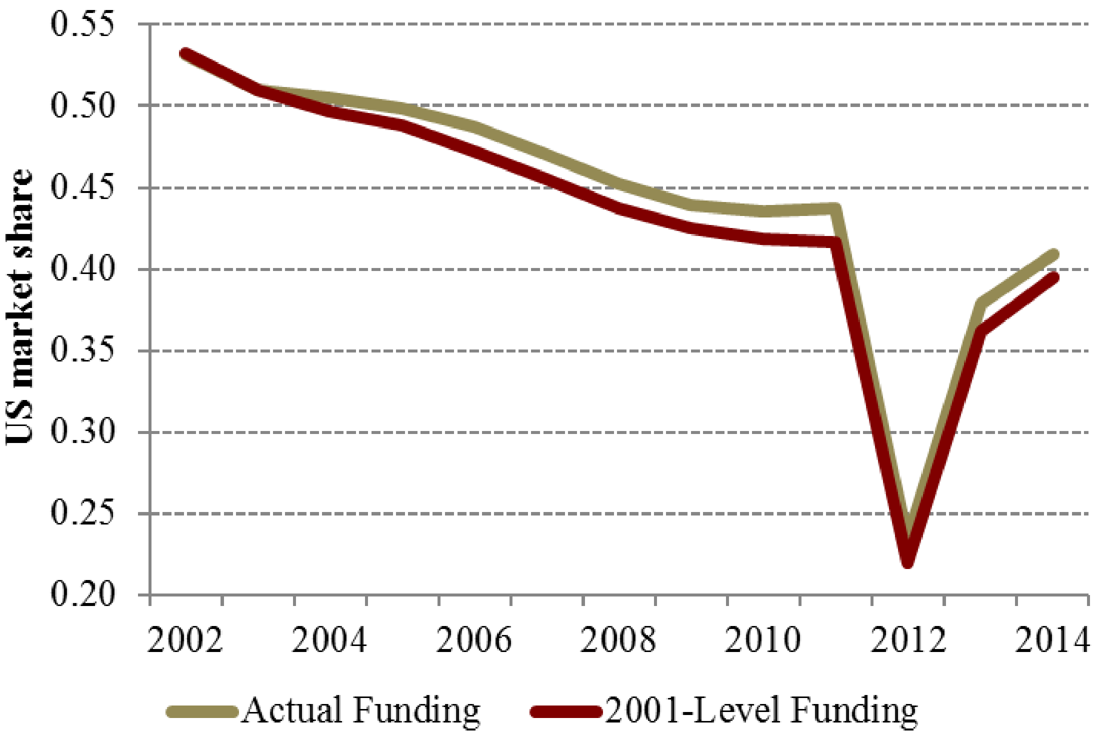
Impact On U.S. Market Share Of Increased Market Development Since 2002

U.S. GRAINS COUNCIL

Overall investment in market development (FAS and USGC) increased significantly with 2002 Farm Bill and have been maintained at these levels.

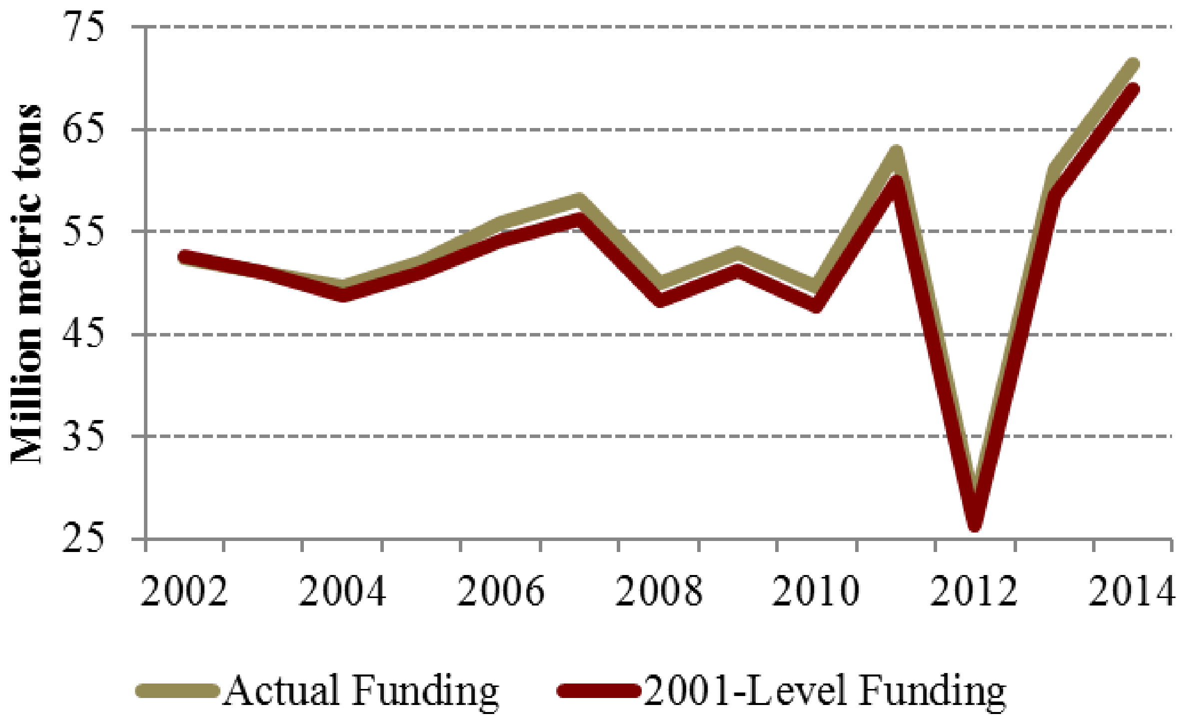
Combined FAS+USGC spending increased by 26% from 2002-2014 due to 2002 Farm Bill.

Result: by 2014, overall U.S. market share was 1.4 percentage points higher than it would have been without export promotion.



Impact On U.S. Ag Exports Of Maintained Increases In Spending Since 2002

- 2002-2014: grains exports averaged 2.14 million metric tons higher per year, or 3%
- By 2014, value of grains exports were $360 million higher than they would have been without the increase in market development called for in the 2002, 2007 and 2014 Farm Bills.
- **<u>Marginal return on promotion</u>:** $61 of additional exports per dollar of market development (using OMBs multiyear discounting methodology)
- This compares to $35:1 for the 2010 Global Insight Study of bulk commodities.



Impacts from increased market development go well beyond U.S. grains export gains!

U.S. GRAINS COUNCIL

<u>Increased exports from U.S. grains market development generates positive externalities, including $23.6 million gains in annual net farm income, $358 million in cash receipts, and $165 million in farm asset value</u>.

	2002-14 Change in $ Million	Average Percent Change
US Grains Cash Receipts	+$358.0	+0.90%
Net Farm Income	+$23.6	+0.10%
Government Payments	+$15.3	-0.24%
Farm Assets	+$165.0	+1.04%

More Positive Externalities

<u>Increased exports from U.S. grains market development generates positive externalities to overall economy as well.</u>

Total Economic Welfare to Government Expenditure Ratio	60.7:1
Total Economic Welfare to Total Expenditure Ratio (USGC+FAS)	51:01:00
Total Economy Welfare Gain to US Economy	$204 million
Total Economic Welfare Gain to Outside US	$304 million

General Equilibrium Impacts Since 2002

U.S. GRAINS COUNCIL

Farm cash receipts increased by an average of $358 million a year.

Direct government payments to U.S. grains fell as prices rise – down an average of $15.3 million a year.

Farm net cash income increased $23.6 million per year (0.1%).

Farm asset values increase over $165 million, on average, due to higher farm income and farm activity.

Overall macro economy experiences gains of roughly $204 million in annual economic welfare gains. This means grains farmers gains from FAS don't come at the expense of the overall U.S. economy. Likewise, consumers in the ROW experience a welfare gain of $304 million as additional U.S. export competition modestly lowers grains prices in the rest of world.

Reduced Future Funding Impacts

U.S. GRAINS COUNCIL

Projecting the trade and economic impacts of a 50% funding cut relative to current authorized levels in the future:

Status quo baseline: defined as total FAS remaining at $10.1 million, USGC contribution remaining at $9.9 million = total of $20 million per year

FAS funding elimination scenario: defined as FAS immediately eliminating funding. Assumes industry reduces contributions by 50%. This is equivalent to about a $15 million per year reduction in combined FAS+USGC spending.

All results are updated and consistent with the February 2016 USDA baseline.

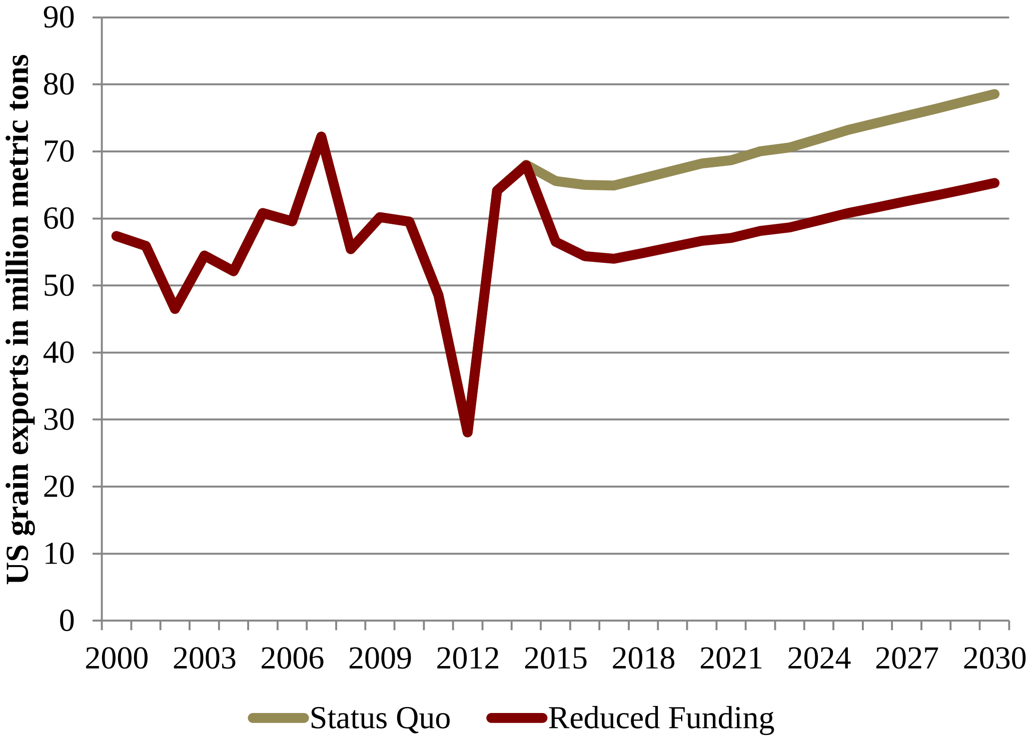
Impacts Of 50% Cut

Maintaining partnership spending at current levels should help grains exports grow to almost 80 million MT per year by 2030.

Cutting spending by 50% could reduce this to 65 million MT per year by 2030, a 16.7% reduction.

U.S. grains market share reaches 40.4% in 2030 under status quo funding. It is only 33.6% in 2030 when FAS funding is eliminated.

Market development partnership can play a key role in expanding U.S. grains exports through 2030.



Reduced Future Funding Impacts

U.S. GRAINS COUNCIL

Decreased exports from a reduction in market development will generate negative externalities for the U.S. economy.

Total Economic Welfare to USGC Expenditure Ratio	168.7:1
Total Economy Welfare Loss to US Economy	$835 million
Total Economic Welfare Loss to Outside US	$1,371 million

Each $1 reduction in USGC spending COSTS the total economy $168.70!

Reduced Future Funding Impacts

U.S. GRAINS COUNCIL

Maintaining market development appears to be an efficient means of generating positive externalities for the farm sector.

	Change in $ Million	**Average Percent Change**
U.S. Grains Cash Receipts	-$1,690.0	-4.32%
Net Farm Income	-$115.8	-0.50%
Government Payments	+$76.6	+1.22%
Farm Assets	-$770.0	-4.90%

Impacts of 50% Decrease

U.S. GRAINS COUNCIL

Farm cash receipts. Farm receipts fall by almost $1.7 billion as farm prices/production drop.

Farm net cash income. Drops by an annual average of $115.8 million (0.5%) – every $1 decline in spending on market development reduces farm net cash income by $7.19.

Farm asset values. Down by an average of $770 million. Land is a fixed resource and is the largest farm asset - changes in farm income and activity have a sizable impact on land values and hence, total asset values.

Direct government payments. Government payments to US grains producers increase with reduced spending as farm prices fall (increase by $76.6 million annually).

Overall, the U.S. economy experiences negative welfare effects ($835 million loss) as does the rest of world (almost $1.4 billion).

Macroeconomic Impacts

U.S. GRAINS COUNCIL

- **What are the indirect impacts of USGC market development on the general economy and on tax revenue?**

- **IMPLAN model solves to examine the total impact of USGC and USDA funding on general economy.**

- ***<u>Results show sizable positive impacts.</u>***

Impact On U.S. Exports

Recent impact of USGC and USDA export promotion was to increase total grain export value by an average $1.71 billion per year.

→ Had there been no U.S. export promotion, U.S. grain export revenue would have decreased by $1.71 billion per year, from $13.4 billion to $11.69 billion.

→ Each $1 invested in U.S. grain export promotion increased U.S. grain export revenue by $78.35.

Impact On U.S. Employment

Total impact of USGC and USDA funding of export promotion for U.S. grains had a significant impact on employment in the U.S.

Creation of 23,599 full time jobs and $1.125 billion in labor income, on average, from 2010-2014.

Note general economic impact analysis (employment, GDP, and tax effects) assumes the economy is at less than full employment, which is a valid assumption for the period 2010-2014.

Impact On U.S. GDP

Direct impact on U.S. grains sector was an increase in export revenue of $1.71 billion per year.

Indirect impact of this was an increase U.S. GDP by $5 billion.

That is, without MAP+FMD, U.S. GDP would have been $5 billion lower than it actually was.

Impact On U.S. Tax Revenue

U.S. GRAINS COUNCIL

MAP and FMD export promotion of U.S. grains added a total of $431.2 million per year in total tax revenue

- $284 million in federal tax revenue

- $147.2 million in state tax revenue

<u>Each $1 spent by tax payers returned $19.76 in federal and state tax revenue.</u>

Conclusions And Closing Thoughts

U.S. GRAINS COUNCIL

- Each dollar invested in U.S. grains export promotion since 2002 returned almost $6 back in net farm revenue.

- The benefit to the overall economy was estimated to be $204 million, representing a 60.7:1 ratio of total economic welfare to government expenditure and 51:1 ratio of total economic welfare to aggregate promotion spending expenditure.

- The ROW benefited through providing real income gains ($304 million) for ROW purchasers of U.S. grain.

Conclusions And Closing Thoughts

U.S. GRAINS COUNCIL

- Compared to status quo funding, eliminating FAS funding and reducing USGC funding by 50% would negatively impact U.S. market share, exports, the U.S. grain sector, U.S. economy, and ROW economy.

- USGC+USDA export promotion had sizable impacts on general economy, including increasing employment by 23,599 jobs, adding $5 billion to GDP, and creating $19.76 in tax revenue for each dollar invested by the federal government.