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WTO Domestic Support Measures: How Accounting Rules and Market Circumstances Matter

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This report was prepared as part of a cooperative agreement with the USDA Office of the Chief Economist to look at issues related to World Trade Organization domestic support measures.

All results and conclusions are the responsibility of the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri (MU).

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Table of contents

Summary	1
Overview of WTO rules for reporting domestic support.....	2
Reporting of selected U.S. farm support programs	4
U.S. WTO commitments for 2008 and under a hypothetical Doha agreement.....	6
Average estimated U.S. domestic support under a hypothetical agreement.....	8
Proportion of outcomes exceeding WTO commitments under a hypothetical agreement	10
Average reduction in support required under a hypothetical agreement.....	12
Crop insurance net indemnities and current AMS estimates.....	14
Sensitivity of estimates to the indicator used to measure crop insurance support	16
Crop insurance premium subsidies and current AMS estimates.....	18
Sensitivity of estimates to ACRE program participation assumptions.....	20
Concluding comments and related reports.....	22

Summary

The United States and other members of the World Trade Organization (WTO) have made commitments to limit various types of support they provide their domestic agricultural sectors. The Food and Agricultural Policy Research at the University of Missouri (FAPRI-MU) has developed a framework to evaluate how a future WTO agreement on domestic support policies might affect U.S. farm programs.

The Doha Round of WTO negotiations continues, and it is unclear what form any final agreement might take. This report identifies two additional sources of uncertainty in evaluating the impacts of a domestic support agreement: accounting practices and market circumstances.

While the analysis focuses on one hypothetical WTO agreement (based on a “draft modalities” paper submitted in December 2008) and market projections developed in early 2010, some of the lessons learned could apply more broadly.

- Several U.S. programs provide support that depends on market prices or production levels. Depending on market circumstances, the amount of support that the U.S. must report to the WTO can vary greatly from one year to the next, even if there is no change in farm policies.
- U.S. farm programs may be consistent with an agreement that places fixed limits on government support under some market circumstances and not under others. Looking at results only under average market conditions may miss very real risks that policies could prove inconsistent with WTO commitments.
- Crop insurance can be an important source of uncertainty. Under current accounting practices, the U.S. reports net indemnities (indemnities paid to producers for losses minus the premiums paid by producers) as the indicator of crop insurance support. Because net indemnities depend on uncertain crop yields and prices, they can vary a lot from year to year. Premium subsidies are one alternative measure of crop insurance support that would tend to be less volatile, potentially reducing the likelihood that reported support would exceed commitments.
- The Doha negotiations have proposed to limit several different measures of domestic support. The specific rules agreed upon, market circumstances and accounting practices will all play a role in determining which of these measures might actually prove to be the most critical. While public discussion has focused on headline indicators such as the level of “overall trade-distorting support,” for example, it is possible that limits on product-specific support could prove more important in practice.

This report was prepared as part of a cooperative agreement with the USDA Office of the Chief Economist. FAPRI-MU is responsible for all results and conclusions.

Overview of WTO rules for reporting domestic support

The current WTO agreement provides disciplines concerning market access (such as tariffs and other restrictions on imports), export competition (such as export subsidies), and domestic support measures. Various “boxes” of permitted domestic support are defined (Table 1).

- 1) Green box subsidies are judged to have only minimal trade-distorting effects. The current WTO agreement places no limits on expenditures on green box subsidies, and the Doha negotiations also appear unlikely to result in any such limits. Controversy has centered on defining which policies should qualify for green box treatment.
- 2) Amber box subsidies are judged to have larger trade-distorting effects, and are limited by the current WTO agreement. Amber box support includes payments to producers that are tied to current production levels, price support programs, and other policies. These subsidies are converted into an “Aggregate Measure of Support” by following a set of prescribed accounting rules. Under the current WTO agreement, each country commits to maintain its “total current AMS” below an agreed level. A 2008 proposal for a Doha Round agreement would sharply reduce the level of allowed amber box subsidies in aggregate, and for the first time would place commodity-specific limits on amber box subsidies.
- 3) The blue box of support represents a political compromise to capture policies that are judged to be too distortive to qualify as green box subsidies, but less distortive than amber box subsidies. The United States does not report any of its current support policies as being blue box subsidies. Under a 2008 proposal, countercyclical payments would be classified as blue box subsidies, and would be limited in aggregate and by commodity.
- 4) *De minimis* subsidies are small relative to the value of production, and are excluded from calculations of the total current AMS. Under the 2008 proposal, the threshold for *de minimis* subsidies would be reduced.
- 5) Doha Round negotiations have proposed the creation of a measure of “overall trade-distorting support” (OTDS) that would also be disciplined. The OTDS would represent the sum of the total current AMS, blue box support, and *de minimis* support.

In summary, under the current WTO agreement the main limitation on domestic support is the commitment countries make to limit their total current AMS, a measure of trade-distortive amber box support policies. Under proposals tabled in 2008, a prospective WTO agreement could limit not only the total current AMS, but amber box subsidies for particular commodities, blue box subsidies in aggregate and by commodity, and the OTDS. Countries would need to ensure their policies are consistent with all of these measures of producer support to meet their WTO commitments.

Table 1. Overview of WTO rules for reporting producer support

	Under current WTO rules (Based on 2008 U.S. reporting)	Under a hypothetical Doha deal (Based on Dec. 2008 proposal)*
Green box support	Support with minimal trade-distorting effects (no limits)	Support with minimal trade-distorting effects (no limits)
Amber box support	Support that more clearly distorts trade (limits on total current Aggregate Measure of Support, no product-specific limits)	Support that more clearly distorts trade (reduced limits on total current Aggregate Measure of Support, with new product-specific limits)
Blue box support	Category between green and amber (no limits in total or by product, includes no current U.S. programs)	Redefined category between green and amber (limited in total and by product, would include U.S. counter-cyclical payment program)
De minimis support	Amber support not included in the total current AMS (must be small relative to value of production)	Amber support not included in the total current AMS (must be small relative to value of production, with reduced thresholds)
Overall trade-distorting support	No such measure	Sum of total current AMS, blue box and de minimis support (limited)

* Based on the December 2008 "Revised Draft Modalities," WTO paper TN/AG/W/4/Rev.4.

Reporting of selected U.S. farm support programs

The rules governing the reporting of domestic support to the WTO are complicated and controversial. Table 2 indicates how the United States chose to report six different types of policies in its 2008 notification to the WTO, and assumptions about how various policies might be classified under a hypothetical future WTO agreement. Other countries may disagree with U.S. reporting practices, and the shape of any future WTO agreement remains uncertain.

- 1) The United States reported direct payments as green box subsidies in its 2008 submission. Direct payments are based on fixed base acreage, program yields, and payment rates. Green box subsidies are not limited by the current WTO agreement or by the hypothetical future agreement considered in this report. Brazil and other countries have challenged the U.S. reporting of direct payments, arguing that direct payments do not meet all the criteria required of green box subsidies.
- 2) Marketing loan benefits are available on current production when prices are low relative to a loan rate. The United States has reported marketing loan benefits as amber box subsidies based on budgetary expenditures. No change in this practice is assumed.
- 3) Like direct payments, countercyclical payments are tied to fixed base acreage and program yields, but the payment rate depends on market prices. For the 2008 crop year, the United States reported countercyclical payments as nonproduct-specific amber box support. Because the total value of such support was less than the established *de minimis* levels, countercyclical payments did not count toward the limited total current AMS. Under the hypothetical agreement, they would be considered blue box subsidies.
- 4) The United States also has reported crop insurance benefits as nonproduct-specific amber box support. In 2008, the U.S. submission to the WTO used net indemnities (the indemnities paid to producers for losses minus the share of premiums paid by producers) as the indicator of crop insurance subsidies. It is assumed that crop insurance support would still be classified as nonproduct-specific amber support under the hypothetical agreement, but alternative measures could be used to report the subsidy.
- 5) The average crop revenue election (ACRE) program did not exist in 2008. Because it is tied to planted acreage, prices and yields, it is assumed that it will be classified as product-specific amber box support in the future, and thus subject to limitation.
- 6) Price support programs, such as those for sugar and dairy products, are also reported as product-specific amber box support. The value of such policies is calculated using a formula. The quantity of supported production is multiplied by the difference between the support price and an adjusted world market price from the 1980s. This formula means that the calculated AMS for sugar and dairy products routinely is far greater than budgetary expenditures on the price support programs for those commodities.

Table 2. Reporting of selected U.S. farm support programs to the World Trade Organization, based on "boxes" of support

	As reported in 2008 by U.S. under current rules	Under a hypothetical Doha deal*
Direct payments	Green (not limited)	Green (not limited)
Marketing loan benefits	Product-specific amber (limited, part of total current AMS**)	Product-specific amber (limited, part of total current AMS**)
Countercyclical payments	Nonproduct-specific amber (limited as part of total current AMS if total nonproduct-specific support exceeds de minimis levels)	Blue (limited)
Crop insurance	Nonproduct-specific amber (limited as part of total current AMS if total nonproduct-specific support exceeds de minimis levels, calculated based on net indemnities)	Nonproduct-specific amber (limited as part of total current AMS if total nonproduct-specific support exceeds de minimis levels, could be calculated using various measures)***
Average crop revenue election (ACRE) payments	Not reported (program did not exist)	Product-specific amber (limited, part of total current AMS)
Dairy and sugar price support	Product-specific amber (limited, part of total current AMS, calculated as (support price minus historical world price) times quantity supported)	Product-specific amber (limited, part of total current AMS, calculated as (support price minus historical world price) times quantity supported)

* Based on the December 2008 "Revised Draft Modalities," WTO paper TN/AG/W/4/Rev.4.

** Aggregate Measure of Support. The total current AMS is used to monitor compliance with amber box commitments.

***Under the December 2008 modalities paper, some portion of crop insurance benefits might qualify for green box treatment, but this is not considered here.

U.S. WTO commitments for 2008 and under a hypothetical Doha agreement

Under the current WTO agreement, the U.S. is committed to keeping its total current AMS below \$19.1 billion (Table 3). Subsidies for particular commodities do not have to be counted toward the total current AMS if their value is less than 5 percent of the value of the commodity under *de minimis* rules. Likewise, if the sum of all nonproduct-specific support is less than 5 percent of the value of production of all commodities, then such support is not included in the total current AMS.

The limits in the hypothetical agreement described in Table 3 are based on a “draft modalities” paper submitted in December 2008 (WTO Committee on Agriculture, Document TN/AG/W/4/Rev.4). For purposes of this report, it is assumed that an agreement would take effect in 2012 and be fully implemented before 2018. Again, it should be stressed that it is unclear whether there will even be a Doha agreement, let alone what the terms might be.

- 1) The hypothetical agreement would reduce the U.S. permitted total current AMS to \$7.6 billion when the agreement is fully implemented, a 60 percent reduction from the existing commitment.
- 2) Both the product-specific and nonproduct-specific *de minimis* triggers would be reduced to 2.5 percent of the value of production from the current 5 percent. Thus, some small subsidies that are currently excluded from the total current AMS would be included.
- 3) The limit on total blue box subsidies would be set at \$4.9 billion. This would limit total countercyclical payments.
- 4) The level of overall trade distorting support (OTDS) would eventually be reduced to \$14.5 billion. This places a cap on the sum of the total current AMS, blue box subsidies, and *de minimis* support. Alternative caps on the OTDS have been proposed.
- 5) Product-specific AMS caps would limit amber box support for particular commodities. These caps are tied to historical levels of reported amber box support.
- 6) Likewise, product-specific blue box caps would limit blue box support for particular commodities. The caps are calculated based on historical total countercyclical payments and a commodity allocation tied to shares of possible countercyclical payments under the 2002 farm bill. The optional 110 percent rule from the modalities paper is applied.

The remainder of this report examines how projected levels of support compare to these assumed WTO commitments. The analytical tool created for this analysis can be modified to examine alternative rules. The figures reported should not be interpreted as a prediction of what an agreement will look like, nor of what it will imply for policy choices. Examining a hypothetical agreement does help identify and illustrate a number of important issues.

Table 3. U.S. WTO commitments for 2008 and under a hypothetical Doha agreement

	2008 (Actual)	2013 (Hypothetical)	2018 (Hypothetical)
		(million dollars)	
Total current AMS commitment	19,103	12,990	7,641
De minimis levels			
(share of value of production)			
Product-specific support	5.0%	2.5%	2.5%
Nonproduct-specific support	5.0%	2.5%	2.5%
		(million dollars)	
Blue box commitment	n.a.	4,853	4,853
Overall trade distorting support comm.	n.a.	28,614	14,467
Product-specific AMS caps			
Barley	n.a.	29	29
Corn	n.a.	1,142	1,142
Cotton (upland)	n.a.	1,113	1,113
Dairy	n.a.	4,671	4,671
Minor oilseeds	n.a.	59	59
Oats	n.a.	10	10
Peanuts	n.a.	249	249
Rice	n.a.	311	311
Sorghum	n.a.	44	44
Soybeans	n.a.	1,162	1,162
Sugar	n.a.	1,100	1,100
Wheat	n.a.	271	271
All other	n.a.	344	344
Product-specific blue box caps			
Barley	n.a.	32	32
Corn	n.a.	2,360	2,360
Cotton (upland)	n.a.	1,009	1,009
Oats	n.a.	5	5
Peanuts	n.a.	150	150
Rice	n.a.	235	235
Sorghum	n.a.	107	107
Soybeans	n.a.	400	400
Wheat	n.a.	1,041	1,041

Note: The assumptions are based on the December 2008 "Revised Draft Modalities" and assume a Doha agreement would take effect in 2012. Product-specific blue box caps assume the "110% rule" is applied.

Average estimated U.S. domestic support under a hypothetical agreement

For 2008, the United States reported a total current AMS of \$6.3 billion, far less than the U.S. commitment of \$19.1 billion (Table 4). Dairy, sugar and cotton accounted for almost the entire reported support. Given WTO accounting rules, the price support programs for sugar and dairy products contribute approximately \$4 billion to the AMS even if no price support purchases occur. Most of the remainder of the total current AMS in 2008 is attributed to dairy payment programs and the cotton marketing loan program.

Crop insurance net indemnities, countercyclical payments, and marketing loan benefits for commodities other than cotton are not included in the total current AMS for 2008 because of *de minimis* rules. The calculated nonproduct-specific support of \$6.0 billion is far less than 5 percent of the \$317 billion value of U.S. agricultural production in 2008, so it is not included in the total current AMS.

The reported projections for 2013 and 2018 represent the average of 500 possible outcomes in the FAPRI-MU stochastic baseline prepared in early 2010. Dairy products and sugar continue to account for most of the total current AMS, given calculations associated with the price support program. On average, the current AMS for all other products is only about \$1 billion per year. Here and elsewhere, new market projections would yield different estimates.

In the case of nonproduct-specific support, crop insurance net indemnities average about \$6 billion per year. This estimate assumes the average loss ratio (indemnities paid divided by the sum of producer paid premiums and premium subsidies) is 1.0. Other nonproduct-specific support is minimal. Across the 500 outcomes, less than \$2 billion in nonproduct-specific support is included in the total current AMS of a little over \$7 billion in both 2013 and 2018.

Future blue box support (countercyclical payments) averages less than \$1 billion per year, and the OTDS averages approximately \$13 billion in both years.

All of these averages are below the relevant hypothetical commitments. The average total current AMS is less than the hypothetical amber box commitment, and the same is true for blue box support and the OTDS. However, it is important to recognize that these are averages across 500 outcomes, some with much higher and some with much lower levels of support. In some of the outcomes, calculated support levels exceed trigger or commitment levels.

This explains, for example, how nonproduct-specific support can contribute almost \$2 billion to the total current AMS, even though the average level of such support across 500 outcomes is less than the assumed *de minimis* level. In some outcomes, large crop insurance net indemnities result in nonproduct-specific support that exceeds *de minimis* levels.

Table 4. Average of 2010 FAPRI stochastic baseline outcomes, assuming a hypothetical WTO agreement and current reporting of crop insurance benefits

	2008 (Actual)	2013 (Baseline avg.)	2018 (Baseline avg.)
	(million dollars)		
Product-specific current AMS	6,255	5,394	5,489
Barley	0	4	3
Corn	0	199	204
Cotton	1,130	487	336
Dairy	3,973	2,994	3,192
Minor oilseeds	0	4	3
Oats	0	1	0
Peanuts	0	4	4
Rice	0	133	134
Sorghum	0	1	0
Soybeans	0	130	98
Sugar	1,146	1,384	1,474
Wheat	0	42	31
All other	6	10	10
Nonproduct-specific amber support			
CCPs	1,220	n.a.	n.a.
Crop insurance	4,509	6,001	6,311
All other	260	260	260
Calculated total	5,989	6,261	6,572
Included in current AMS	0	1,837	1,611
Total current AMS	6,255	7,231	7,100
(WTO commitment)	19,103	12,990	7,641
Product-specific de minimis	708	270	299
Nonproduct-specific de minimis	5,989	4,425	4,961
(maximum de minimis level, avg.)	15,826	7,972	8,888
Blue box support	n.a.	644	377
(WTO commitment)	n.a.	4,853	4,853
Overall trade distorting support	n.a.	12,569	12,737
(WTO commitment)	n.a.	28,614	14,467

Note: WTO commitments based on assumed agreement described in Table 3. Projections assume 2008 approach to reporting crop insurance support and all of the assumptions and results of the FAPRI 2010 U.S. stochastic baseline.

Proportion of outcomes exceeding WTO commitments under a hypothetical agreement

On average, projected levels of U.S. producer support are below the assumed commitments in a hypothetical Doha Round agreement. However, much of U.S. support is tied to the levels of market prices or production, both of which are inherently volatile. In any given year, calculated U.S. support may be significantly greater or less than the projected averages.

As a result, it is very likely that one or more of the hypothetical commitments would be exceeded at some point over the next several years if there are no changes in U.S. policies. In 2018, for example, the projected total current AMS exceeds the hypothetical amber box commitment in 21 percent of the 500 stochastic outcomes (Table 5). Furthermore, the assumed commitment is exceeded at least once between 2012 and 2019 in fully 80 percent of the stochastic outcomes.

In most of the outcomes where the amber box commitment is exceeded, the main reason is that nonproduct-specific support exceeds the *de minimis* level of 2.5 percent of the value of U.S. agricultural production. When this occurs, nonproduct-specific support is considered part of the total current AMS, which generally causes it to exceed the assumed commitment level. Given the assumptions of this analysis, crop insurance net indemnities account for most future nonproduct-specific support, and net indemnities can change sharply from one year to the next.

In a smaller number of stochastic outcomes, the assumed amber box commitment is exceeded because of large spending on marketing loans or the ACRE program because of low prices or producer revenues.

In none of the stochastic outcomes is the hypothetical blue box limit exceeded. The assumed limit on overall trade-distorting support is exceeded in 23 percent of the stochastic outcomes for 2018 and in 62 percent of the outcomes for at least one year between 2012 and 2019.

The hypothetical agreement also includes limits on amber and blue box support for particular commodities. Under current policies, these product-specific commitments are exceeded in at least some of the stochastic outcomes. In the case of sugar, the legislated increase in the sugar loan rate in the 2008 farm bill and projected increases in sugar production mean that the proposed product-specific amber box limit for sugar is exceeded in all outcomes in the 2010 FAPRI stochastic baseline (the outcome could be different if production fell sharply below the levels projected in the 2010 baseline).

For grains, oilseeds and cotton, the assumed product-specific limits are exceeded when low prices cause large expenditures on marketing loans and countercyclical payments, or when a drop in revenues per acre results in increased spending on the ACRE program.

Table 5. Proportion of 2010 FAPRI stochastic baseline outcomes exceeding WTO commitments under a hypothetical agreement

	2013	2018	At least once, 2012-2019
Nonproduct-specific calculated			
AMS exceeds de minimis level	19%	15%	79%
Total current AMS exceeds			
AMS commitment	17%	21%	80%
CCPs exceed blue box commitment	0%	0%	0%
Overall trade-distorting support			
exceeds commitment	0%	23%	62%
Product-specific AMS exceeds commitment			
Barley	5%	4%	31%
Corn	10%	10%	53%
Cotton (upland)	14%	8%	60%
Dairy	0%	0%	0%
Minor oilseeds	1%	1%	10%
Oats	2%	1%	10%
Peanuts	0%	0%	3%
Rice	18%	17%	80%
Sorghum	1%	0%	2%
Soybeans	2%	2%	14%
Sugar	100%	100%	100%
Wheat	8%	7%	48%
At least one commodity	100%	100%	100%
Product-specific blue box exceeds commitment			
Barley	11%	7%	51%
Corn	0%	0%	0%
Cotton (upland)	25%	12%	77%
Oats	13%	6%	47%
Peanuts	4%	4%	32%
Rice	14%	15%	73%
Sorghum	1%	0%	3%
Soybeans	2%	0%	5%
Wheat	1%	0%	3%
At least one commodity	42%	31%	98%

Note: WTO commitments based on assumed agreement described in Table 3.

Projections assume 2008 approach to reporting crop insurance support and all of the assumptions and results of the FAPRI 2010 U.S. stochastic baseline.

Average reduction in support required under a hypothetical agreement

Current policies could sometimes result in U.S. producer support exceeding the assumed WTO commitments. The implication is that there might need to be changes in U.S. policies if the country wishes to meet its commitments.

One test of how “binding” various commitments are would be to measure how much support must be reduced to stay within the various assumed limits. Table 6 reports the reduction in support that would result by capping actual support levels at the assumed commitment levels.

As in other tables, these reported averages mask great variability. In most of the 500 stochastic outcomes, no reductions would be required to satisfy many of the assumed limits. However, in some outcomes, current policies would result in high support levels, so restricting actual support to the hypothetical commitment levels would require very large support reductions.

To satisfy the assumed caps on product-specific amber support would require an average reduction in support of about \$600 million in 2013 and 2018. Sugar alone accounts for most of that total, as projected support under the sugar program consistently exceeds the assumed limits. Under the assumptions of the FAPRI-MU 2010 stochastic baseline, the product-specific amber and blue box caps for other commodities are not binding under most circumstances.

Assuming the product-specific caps are already imposed, the assumed \$7.6 billion limit on the total current AMS would require an average reduction in support of \$1.2 billion. In most of the stochastic outcomes, no reduction would be required, but when nonproduct-specific support exceeds *de minimis* levels (primarily when crop insurance net indemnities are large), the total current AMS can be quite large.

When both the product-specific caps and the limit on the total current AMS are imposed, there are very few stochastic outcomes where the level of overall trade-distorting support still exceeds the hypothetical limit. Thus, the calculated average reduction in support required to meet the assumed limit on the OTDS is quite small, just \$33 million in 2018. In spite of all the attention given the OTDS in the Doha negotiations, it may not have a large impact on actual U.S. support policies, at least under all of the assumptions of this analysis.

As is shown beginning on page 16, these results are very sensitive to the accounting practices used to report crop insurance support and to assumptions about future participation in the ACRE program. Assumptions about other U.S. policy choices are also very important. For example, all of the estimates reported here exclude any effects of the supplemental revenue assistance payments (SURE) program. That program is currently set to expire after the 2011 crop year, but if it were continued, it could significantly affect calculated support levels.

Table 6. Average reduction in support required to satisfy commitments under a hypothetical agreement

	2013	2018
	(million dollars)	
Due to product-specific AMS caps	560	620
Barley	2	1
Corn	71	86
Cotton (upland)	112	85
Dairy	0	0
Minor oilseeds	0	0
Oats	0	0
Peanuts	0	0
Rice	63	66
Sorghum	0	0
Soybeans	12	1
Sugar	284	374
Wheat	14	8
Due to product-specific blue box caps	53	29
Barley	5	2
Corn	0	0
Cotton (upland)	30	15
Oats	2	1
Peanuts	1	1
Rice	10	10
Sorghum	0	0
Soybeans	3	0
Wheat	1	0
Due to current AMS commitment		
(Assuming product-specific caps)	289	1,205
Due to OTDS commitment		
(Assuming product-specific and AMS caps)	0	33
Total reductions due to commitments	901	1,887

Note: WTO commitments based on assumed agreement described in Table 3. Projections assume 2008 approach to reporting crop insurance support and all of the assumptions and results of the FAPRI 2010 U.S. stochastic baseline.

Crop insurance net indemnities and current AMS estimates

Crop insurance net indemnities can vary a lot from one year to the next depending on changes in crop yields and prices. In its 2008 notification, the United States reported crop insurance net indemnities to be nonproduct-specific amber box support. Since the sum of nonproduct-specific support was less than the *de minimis* level of support, crop insurance net indemnities were not included in the total current AMS. In other words, crop insurance support did not count towards the amber box limit, even though the net indemnities totaled \$4.5 billion.

Given the assumption that *de minimis* levels will be reduced, it is more likely that crop insurance net indemnities and other nonproduct-specific support will exceed the *de minimis* levels at some point in the future. If this occurs under current accounting practices, the result will be a very large total current AMS, likely in excess of the commitments assumed in this report.

The average total current AMS is about \$7 billion each year between 2012 and 2019 under the assumptions of the FAPRI-MU 2010 stochastic baseline (Figure 1). The distribution of outcomes around this average is skewed, however. In 10 percent of the outcomes for each year, the total current AMS is less than \$5 billion (corresponding to outcomes where sugar and dairy price support programs account for almost all of the total current AMS). At the other extreme, in 10 percent of the outcomes for each year, the total current AMS exceeds \$14 billion.

High levels of crop insurance net indemnities are highly correlated with high levels of total current AMS (Figure 2). In the 60 percent of 2013 outcomes with the lowest levels of crop insurance net indemnities, the total current AMS averages about \$5 billion. However, in the 20 percent of outcomes with the highest levels of crop insurance net indemnities, the total current AMS averages more than \$13 billion.

The assumed final limit on the total current AMS is just \$7.6 billion. This implies that under some stochastic outcomes, large crop insurance net indemnities would require very large reductions in amber box support to satisfy WTO commitments.

All of the estimates of crop insurance net indemnities assume a continuation of current programs. While the average loss ratio (indemnities divided by total premiums) has been less than 1.0 for several straight years, the projections assume that the average future loss ratio will be 1.0 (more in some stochastic outcomes, less in others). Changes in policies or a different average loss ratio could significantly change these estimates. Also, as described on page 16, using a different indicator of crop insurance support could significantly change the likelihood that support will exceed particular levels.

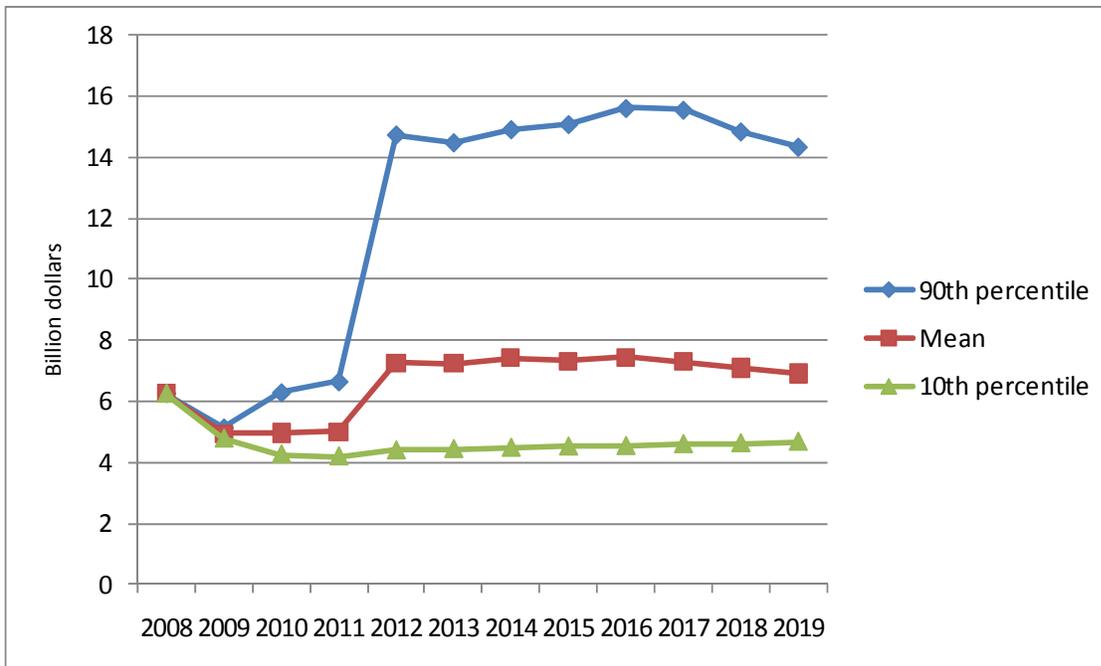


Figure 1. Total current AMS under a hypothetical Doha deal in the FAPRI 2010 stochastic baseline, using net indemnities as the measure of crop insurance support

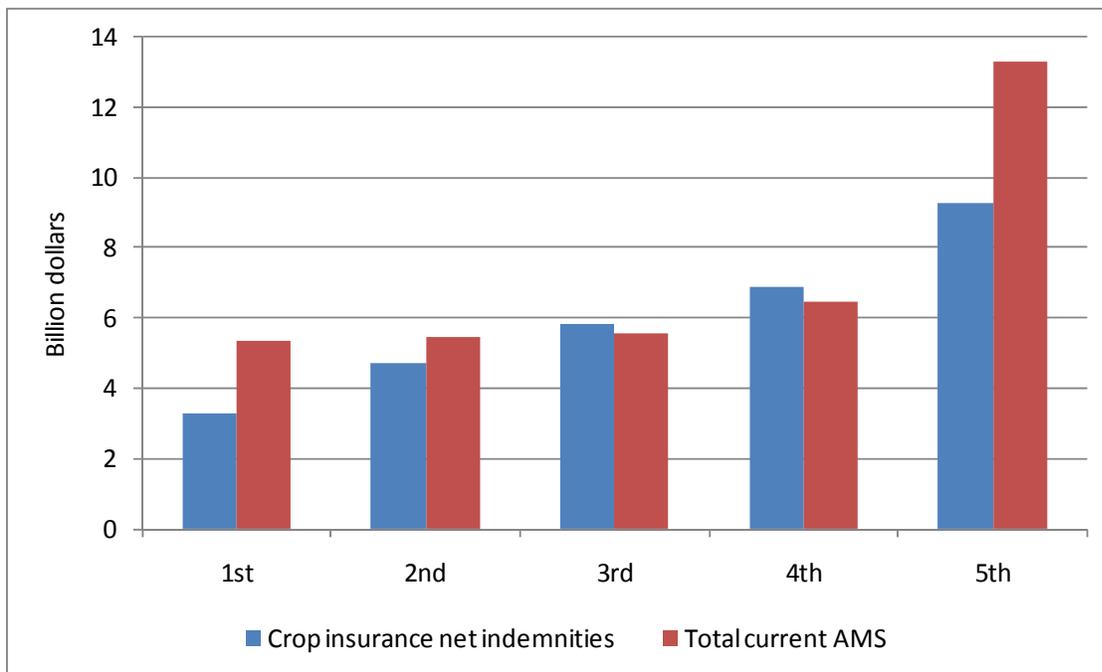


Figure 2. Total current AMS under a hypothetical Doha deal, sorted by quintiles of crop insurance net indemnities in the FAPRI 2010 stochastic baseline

Sensitivity of estimates to the indicator used to measure crop insurance support

Using 2008 accounting practices, crop insurance net indemnities play a critical role in determining future levels of calculated U.S. producer support. Alternative indicators of crop insurance support may have different implications.

For example, suppose that premium subsidies were used as the indicator of crop insurance support instead of net indemnities (Table 7). The average level of projected premium subsidies is a little over \$6 billion in 2018, essentially the same as the projected level of net indemnities (the small difference is because the baseline average loss ratio in 2018 is slightly less than 1.0).

The implications for the total current AMS of the two measures are very different. Net indemnities can change dramatically from one year to the next depending on weather-induced crop yields and changes in market prices. Premium subsidies also change from year to year based on the expected value of insured crops and the mix of policies sold, but the projected annual variability is far less than for net indemnities.

While there are many projected outcomes where net indemnities are large enough to cause nonproduct-specific support to exceed *de minimis* levels, there are no outcomes where premium subsidies are large enough to cause this to occur. As a result, the average total current AMS is reduced by \$1.6 billion in 2018 if premium subsidies are used instead of net indemnities as the measure of crop insurance support.

When net indemnities are used as the measure of crop insurance support, 21 percent of the stochastic outcomes for 2018 have a total current AMS in excess of the assumed commitment level. When premium subsidies are used as the indicator of crop insurance support, the share of outcomes drops to just 8 percent.

Switching to premium subsidies as the indicator of crop insurance support would mean smaller average reductions would be required to keep measured support below assumed commitment levels. Using net indemnities as the indicator, the average reduction in support to satisfy all commitments is \$1.9 billion in 2018. That declines to just \$0.7 billion when premium subsidies are used. Satisfying product-specific amber box caps is sufficient to ensure that the total current AMS will remain below the assumed commitment when premium subsidies are the indicator of crop insurance support.

Other indicators could also be used to measure crop insurance support. For example, the WTO agreement allows disaster and insurance programs to qualify for green box treatment if they meet certain criteria. If some portion of crop insurance coverage meets those criteria, it might be possible to exclude it from calculations of amber box support.

Table 7. Sensitivity of stochastic outcomes for 2018 to indicator used to report crop insurance support

	Net indemnities	Premium subsidies	Difference
	(million dollars)		
Product-specific current AMS	5,489	5,489	0
Nonproduct specific amber support			
Crop insurance	6,311	6,442	131
All other	260	260	0
Calculated total	6,572	6,702	131
Included in current AMS	1,611	0	-1,611
Total current AMS	7,100	5,489	-1,611
Blue box support	377	377	0
Overall trade distorting support	12,737	12,868	131
Share of outcomes where:			
Nonproduct-specific calculated AMS exceeds de minimis level	15%	0%	-15%
Total current AMS exceeds AMS commitment	21%	8%	-13%
Overall trade distorting support exceeds commitment	23%	17%	-7%
Reductions in support to meet commitments	(million dollars)		
Due to product-specific AMS caps	620	620	0
Due to product-specific blue box caps	29	29	0
Due to current AMS commitment	1,205	0	-1,205
Due to OTDS commitment	33	42	10
Total reductions due to commitments	1,887	692	-1,195

Note: WTO commitments based on assumed agreement described in Table 3. Projections assume all of the assumptions and results of the FAPRI 2010 U.S. stochastic baseline. The only difference is whether net indemnities or premium subsidies are used to report support provided by the crop insurance program.

Crop insurance premium subsidies and current AMS estimates

Figures 3 and 4 illustrate the degree to which using premium subsidies instead of net indemnities as the indicator of crop insurance support could affect the calculated levels of producer support.

The total current average AMS averages less than \$6 billion per year using premium subsidies as the indicator of crop insurance support (Figure 3). The distribution is not nearly as skewed as when net indemnities are used; the total current AMS exceeds \$8 billion each year in less than 10 percent of outcomes for any given year. When net indemnities are used as the indicator of crop insurance support, the total current AMS exceeds \$14 billion in 10 percent of outcomes (Figure 1).

While there was a strong correlation between net indemnities and the total current AMS (Figure 2), the correlation between premium subsidies and the total current AMS is much weaker (Figure 4). Future variability in premium subsidies may be understated in the 2010 FAPRI-MU stochastic baseline, but it is almost certain to be less than the variability of net indemnities.

The story could be different if the future average loss ratio is significantly less than 1.0. In that case, the average level of net indemnities would be less than the reported level of premium subsidies. This would tend to reduce the difference in the estimated average total current AMS between the two measures.

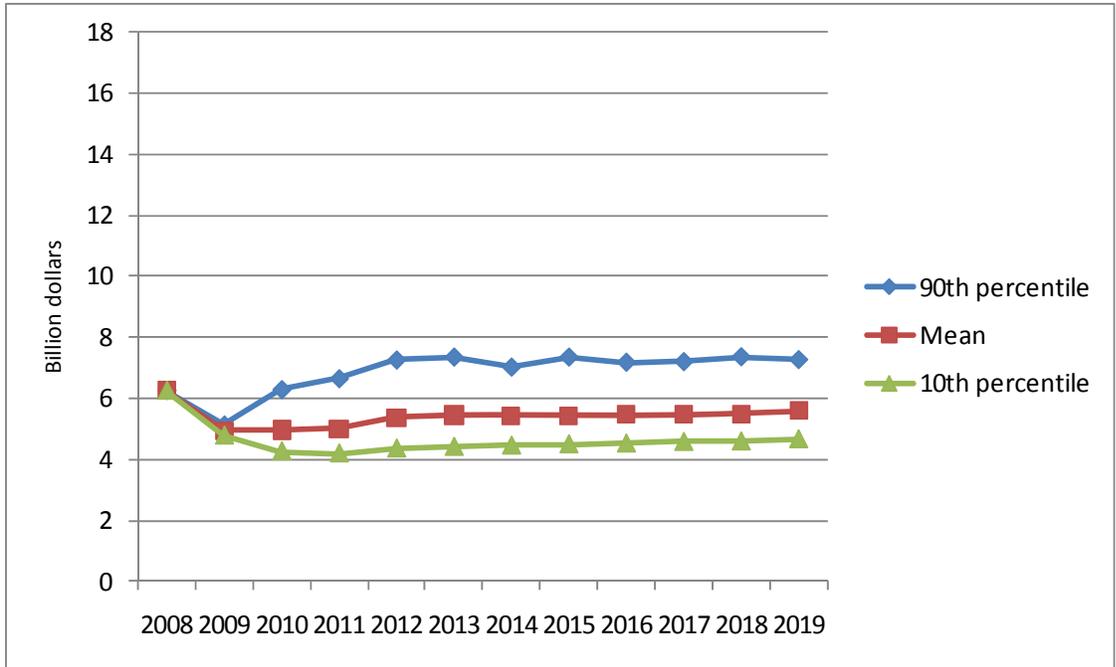


Figure 3. Total current AMS under a hypothetical Doha deal in the FAPRI 2010 stochastic baseline, using premium subsidies as the measure of crop insurance support

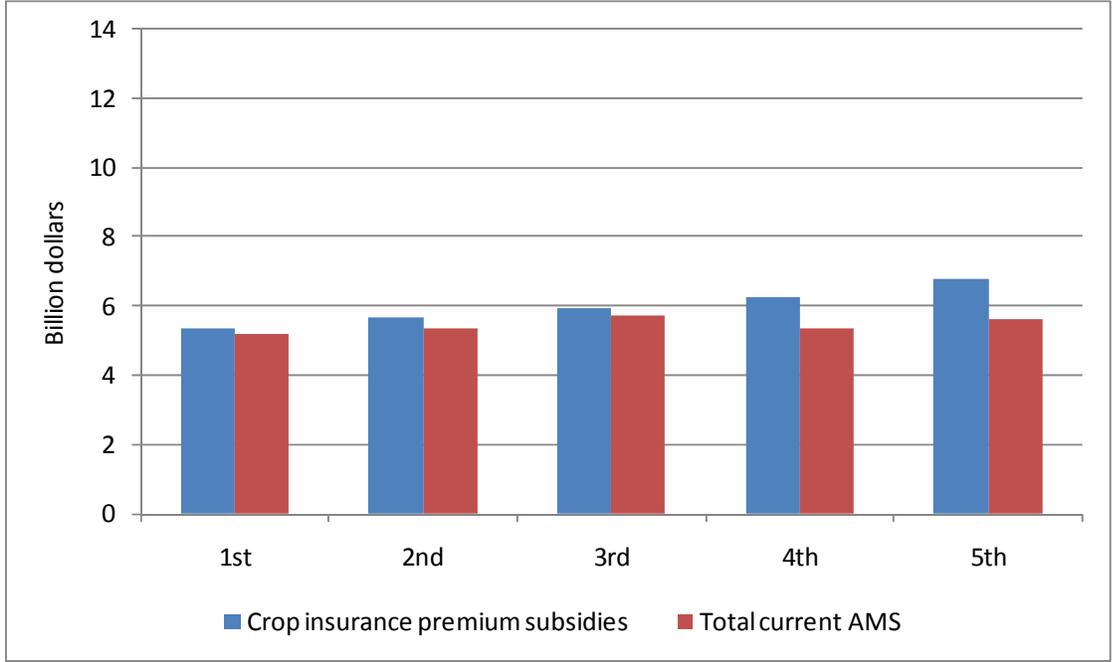


Figure 4. Total current AMS under a hypothetical Doha deal, sorted by quintiles of crop insurance premium subsidies in the FAPRI 2010 stochastic baseline

Sensitivity of estimates to ACRE program participation assumptions

The 2010 FAPRI-MU stochastic baseline assumes that the ACRE program will continue indefinitely, but that participation rates will remain fairly low (e.g., 23 percent for corn and soybeans and less for most other major crops for 2012 and later years).

It is assumed that ACRE payments will be classified as product-specific amber support. When ACRE payments and other forms of product-specific support are large enough to exceed proposed *de minimis* levels (2.5 percent of the value of the crop in question), they would therefore be part of the total current AMS. In the baseline, many of the outcomes where the grain and oilseed total current AMS is greater than zero are because of ACRE payments.

The future of the ACRE program is uncertain, so two alternatives are examined to illustrate the sensitivity of results to assumptions about the ACRE program. In the first alternative scenario, there is no participation in the program after 2012. In the second, all producers are required to participate in ACRE after 2012.

Without ACRE program participation, ACRE payments go to zero, but potential marketing loan and countercyclical payments increase (under current law, ACRE participants must forgo countercyclical payments and receive a lower loan rate). The net effect of these changes is a lower total current AMS, as ACRE payments decline more than marketing loan benefits increase.

Without ACRE payments, product-specific amber box limits for corn, soybeans and wheat are never exceeded in the stochastic baseline for 2018. In fewer outcomes are the limits on total current AMS or on OTDS exceeded.

In contrast, making the ACRE program mandatory would increase ACRE payments more than it would reduce other types of amber and blue box support. The average total current AMS would exceed baseline levels by \$1.5 billion in 2018, and would actually exceed the assumed amber box commitment level. Blue box support would, of course, go to zero without countercyclical payments, but the average OTDS would still exceed baseline levels by \$1.2 billion.

With a mandatory ACRE program, product-specific AMS caps would be exceeded whenever large ACRE payments occur (e.g., in roughly 22 percent of 2018 outcomes for corn). The amber box commitment to limit the total current AMS would be exceeded in 35 percent of 2018 outcomes, and the OTDS would be exceeded in 34 percent.

Table 8. Sensitivity of stochastic outcomes for 2018 to ACRE program participation rates

	Baseline participation	No ACRE program	Mandatory ACRE
	(million dollars)		
Product-specific current AMS	5,489	5,156	7,049
Product-specific de minimis support	299	112	272
Nonproduct specific amber support			
Calculated total	6,572	6,573	6,572
Included in current AMS	1,611	1,628	1,594
Total current AMS	7,100	6,784	8,643
Blue box support	377	385	0
Overall trade distorting support	12,737	12,226	13,894
Share of outcomes where:			
Product-specific AMS exceeds commitment			
For corn	10%	0%	22%
For soybeans	2%	0%	18%
For wheat	7%	0%	27%
For cotton	8%	8%	0%
Total current AMS exceeds AMS commitment	21%	18%	35%
Overall trade distorting support exceeds commitment	23%	17%	34%
Reductions in support to meet commitments	(million dollars)		
Due to product-specific AMS caps	620	527	1,954
Due to product-specific blue box caps	29	32	0
Due to current AMS commitment	1,205	1,152	1,247
Due to OTDS commitment	33	12	9
Total reductions due to commitments	1,887	1,723	3,210

Note: WTO commitments based on assumed agreement described in Table 3. Projections assume all of the assumptions and results of the FAPRI 2010 U.S. stochastic baseline, except different assumptions about participation in the ACRE program after 2012.

Concluding comments

The current WTO agreement places some limits on producer support policies. Given current accounting practice and projected market conditions, those limits are unlikely to require significant changes in U.S. policies.

If the United States commits to new and lower limits on domestic support as part of a future WTO agreement, it is more likely that policy changes would be implied. This report has shown potential impacts of one hypothetical WTO agreement and of a few key accounting, policy and market assumptions.

The shape of any final WTO agreement is uncertain at this time; there is not even assurance that there will ever be a new agreement. U.S. policies will change and market conditions will prove to be different than assumed in this analysis. As a result, all of the specific estimates reported here should be treated with caution. Furthermore, an agreement would likely include disciplines related to market access and export competition that could have significant market effects not considered here.

The tool created for this analysis, however, should be useful in looking at a wide range of possible agreements and at the effects of possible changes in U.S. policies and market conditions.

Related reports

Food and Agricultural Policy Research Institute at the University of Missouri. "U.S. Baseline Briefing Book." FAPRI-MU Report #1-10. Food and Agricultural Policy Research Institute, University of Missouri, Columbia, Missouri, March 2010.

Food and Agricultural Policy Research Institute at the University of Missouri. "Crop Insurance: Background Statistics on Participation and Results." FAPRI-MU Report #10-10. Food and Agricultural Policy Research Institute, University of Missouri, Columbia, Missouri, September 2010.

Westhoff, Patrick, Scott Brown, and Chad Hart. "When Point Estimates Miss the Point: Stochastic Modeling of WTO Restrictions." *Journal of International Agricultural Trade and Development* 2 (Number 1, 2006): 87-107.

World Trade Organization Committee on Agriculture. Notification of domestic support levels for the marketing year 2008, Document G/AG/N/USA/77, October 12, 2010.

World Trade Organization Committee on Agriculture. "Revised Draft Modalities for Agriculture." Document NT/AG/W/4/Rev.4, December 6, 2008.