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THE CHANGING STRUCTURE OF DOMESTIC SUPPORT AND ITS IMPLICATIONS FOR TRADE

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Abstract

Movement toward the objective of undistorted world agricultural markets has been set back by the lapse since 2008 of the WTO Doha Round negotiations. In the absence of a new agreement, constraints on distortionary agricultural domestic support remain lax. One might have expected policies of subsidizing farmers to have faded in the high-price environment since 2008. But that is not the case. In both the US and EU, agricultural support policy is under review and new options are being devised. Likewise, support for agriculture has increased in key emerging economies. In the US, in particular, the next farm bill likely will contain support measures that would have been harder to enact if a Doha Round agreement were coming into effect. This paper reviews these developments and their implications for trade and future trade negotiations. The WTO commitments of the BRIC countries (Brazil, Russia, India and China) and their levels of agricultural support are examined, including the domestic support commitments of Russia under its accession to the WTO in 2012.

Acknowledgment

An earlier version of this paper was presented at the conference *Growing Canada's Agricultural Economy: The Role of Trade*, Ottawa, Canada, January 23-25, 2013. I thank Carl Zulauf and participants in the conference for helpful discussion incorporated into the paper and Karl Meilke for additional editing. The paper draws on recent analysis of domestic support from the perspective of WTO discipline under the Agreement on Agriculture that I have undertaken with Lars Brink and a number of other co-authors and other contributors. Their contributions are also acknowledged.

1.0 Introduction

World agricultural production experienced another tumultuous year in 2012. After a promising spring planting season, the United States suffered a severe drought, pushing nominal prices of corn and soybeans in world markets to record levels. Production increased from some other large suppliers (China, Argentina, Brazil), but the US is a major producer and there was continued growth in demand. As a consequence, instead of crop prices settling down from their peaks reached in 2008 and again in 2010/11, a new plateau with high feedgrain and oilseed prices was sustained for a fifth consecutive year. Climatic and market dynamics in the aftermath of the drought suggest prices will remain high in 2013. Those who have argued that agriculture has entered a new era in which elevated real prices will supplant the long secular decline of the second half of the twentieth century have won the argument at least for the medium term.

This paper addresses several questions about agricultural support programs in this new market context. First, in an era of strong demand should we be concerned with support to agricultural production? My short answer is yes, both about the form and levels of that support. Investments in productivity-enhancing public goods from research to roads merit new attention. There have been new expenditures by the US and other developed countries to strengthen agricultural production and food security among poor countries, but less so in the domestic budgets for research and productivity enhancement for their own agricultural sectors.

Support measures that distort production and trade also merits continued scrutiny and discipline. Just because prices are relatively high does not give *carte blanche* for distorting measures by individual countries as desirable policies. Assessing the effects of various countries' trade-distorting support and protection measures is complex. Impacts are diverse among different groups of countries (exporters and importers), among different segments of their populations (net food producers and consumers), across commodities, and under changing market conditions. In this intricate context, undistorted world markets, complemented with appropriate investments in a growing food supply and availability of social safety nets for those at nutritional risk, should be the centerpiece of the global food system. By excessively protecting their own farmers from the risks of agricultural production, however, the support policies in some countries reduce the incentives for the world to cope with country-specific risk through a fair, efficient, and undistorted trade regime. They favor unilateral and noncooperative strategies instead of a multilateral, rule-based approach. These support policies matter too in national policy debates in which taxes, government budget deficits and entitlement reform are core matters of state policy, raising questions in 2012 even over the future of the European Union.

In the environment of high agricultural prices since 2008, one might expect that old policies to subsidize farmers through price and income support would fade from the policy debate. But that is not the case. Both the United States and the EU are reviewing agricultural support policies and devising new options for supporting and protecting farmers. This has occurred in light of uncertainty about whether prices will remain high and, even if so, how much year-to-year volatility will occur. Some of the US and EU policy developments do not bode well for achieving the long-run policy goal of using undistorted markets to provide global food security at the least cost. A second set of questions addressed in this paper is what is forthcoming for the EU and US policies and what are their effects on production and prices?

Movement toward the objective of undistorted markets has suffered a blow with the lapse since 2008 of the World Trade Organization (WTO) Doha Round negotiations. These negotiations were intended to build on the earlier 1994 WTO Agreement on Agriculture. They were to reduce trade distortions by progressively constraining distortionary agricultural support and protection while giving countries latitude to support agriculture in non-distorting ways. The third question addressed herein is whether it matters that the Doha negotiations have faltered? Again, the short answer is yes, this is an outcome with consequences. In the absence of a new WTO agreement, constraints on distortionary agricultural support remain lax. The next US farm bill, debated in 2012 and to be under debate again in 2013, may well be a casualty of the failure of the Doha Round. Its programs could make it harder in the future for the United States to agree to support reductions such as those envisioned but not locked in by the Doha negotiations. Likewise, the EU is planning to continue high subsidies and is considering some new distortionary support options.

The center of global economic activity is shifting toward Asia and the emerging market economies. The agricultural support policies of these countries, and their effects on domestic agriculture and food security and on world markets, thus have increased importance (Haq and Meilke, 2010; Cairns and Meilke, 2012). The fourth question addressed in this paper is whether key emerging market economies represented by the BRIC countries (Brazil, Russia, India and China) are providing more support to agriculture? Brazil and India were founding members of the WTO, China acceded to WTO membership in 2001 and Russia recently became a member in August 2012.

The paper is organized as follows. First, the existing WTO disciplines on domestic agricultural support and those proposed but not locked in during the Doha negotiations are reviewed. The WTO framework is used to examine agricultural support because it provides the legal terms under which international discussion of limits on that support occurs. The notifications by WTO members of support related to these disciplines has emerged as one data series (going back to 1995) on countries' policies and levels of expenditures. It has advantages and disadvantages compared to the well-known measures produced regularly by the OECD (since 1987) or evaluated in many other studies.

With the framework of WTO disciplines elaborated, the notifications of domestic support by the EU and US over 1995-2008 are presented. This provides background to examination of recent developments in their support measures and their current policy proposals. The agricultural support among the BRIC countries is then assessed, again within the framework of the WTO disciplines. The conclusion to the paper draws a few key points together from this examination of the policies of these six major economies about the changing structure of domestic support across developed and developing countries.

At the outset, I want to acknowledge the basis on which this paper builds. Evaluating domestic support through the WTO disciplines draws on a multi-year research project undertaken earlier to examine legal and economic aspects of the WTO rules and commitments (Orden, Blandford and Josling (editors), 2011; Orden, Blandford, Josling and Brink, 2011). In-depth analyses were completed for eight countries by 14 authors under this project. This paper also draws on extensions of this analysis, including several subsequent papers I have co-authored

(Zulauf and Orden, 2012; Brink, Orden and Datz, 2013; Bureau, Laborde and Orden, 2013) as well as assessments by other analysts.

2.0 The WTO Disciplines on Domestic Agricultural Support

The WTO rules for domestic support under the Agreement on Agriculture are complicated (WTO, 1995a; Brink, 2009, 2011). The rules are shown schematically in Figure 1. Those countries that provided significant levels of support in the 1986-88 base period established a ceiling commitment (Bound Total AMS) on certain production-related support, such as budgetary outlays and support through administered prices, summed across all basic agricultural products and a non-product-specific category. This applied primarily to developed countries, as most developing countries had no or only low levels of support in 1986-88 and consequently they have a nil Bound Total AMS.¹ Applied support counting toward the limit is measured in an annual Current Total AMS (CTAMS). There are *de minimis* thresholds below which product-specific and non-product-specific AMS support can be exempted from counting in the CTAMS. These thresholds are 5 percent of the value of production for developed countries and 10 percent of value of production for most developing countries. An AMS that exceeds the threshold is counted in its entirety in CTAMS. Thus, for countries with a nil Bound Total AMS, the *de minimis* thresholds are the effective limits on AMS support. However, three categories of support measures are exempt from being included in AMS support. Support through measures considered to “have no, or at most minimal, trade-distorting effects or effects on production” and that meet certain specific criteria is exempt as what is usually called “green box” support. Certain payments associated with production-limiting programs are exempt as “blue box” support. A third exempt category excludes, for developing countries only, general investment support for agriculture and input subsidies to low-income or resource-poor producers. It is sometimes called “development box” support.

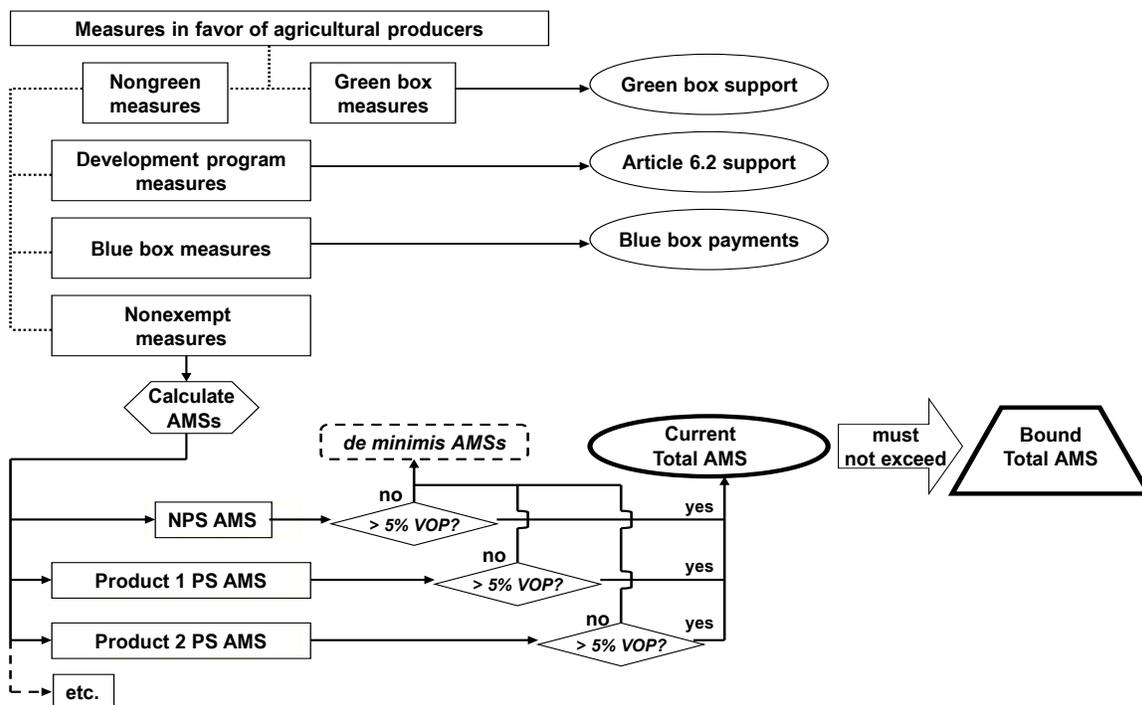
The product-specific AMS includes price-related payments to producers, certain other product support and levies, and an indicator of market price support (MPS). The MPS is calculated “using the gap between a fixed external reference price [from the 1986-88 base period] and the applied administered price multiplied by the quantity of production eligible to receive the applied administered price” (WTO, 1995a). The WTO indicator of MPS differs from an economic measurement that uses the gap between contemporaneous domestic and world market prices and the total quantity of production to gauge the size of the transfer to producers resulting from policies that maintain that gap.² The method for calculating WTO MPS is

¹ Anderson (2009, 2012) shows that developing countries as a group from the 1950s onwards effectively taxed agriculture: the nominal rate of assistance was negative albeit rising. By the late 1990s the nominal rate of assistance for agriculture in developing countries as a group had turned positive and it remained positive in 2000-04 and 2005-10.

² The use of administered prices in the WTO MPS results from designing it to account only for domestic measures, to the exclusion of border measures, such as tariffs. It was also designed as an indicator whose size could be entirely controlled through policy decisions, meeting some governments’ concern about taking commitments on a variable outside their control. This led to the use of fixed reference prices and eligible production, as distinct from current reference prices and total production, which are beyond government control. Recognizing that the WTO MPS does not, despite its name, measure market price support in an economic sense, economic analysts exercise caution when introducing the WTO MPS in their work. The OECD, in contrast to the WTO, uses an economic measurement of market price support in the Producer Support Estimate (PSE); see, for example, OECD (2011). The World Bank also uses an economic approach to examine agricultural protection and support since the mid-1950s (Anderson, 2009).

enshrined in the text of the Agreement on Agriculture and has not been considered for change in the Doha negotiations. Following this method, and having made policy changes concerning applied administrative prices or eligible quantities of production, some countries have notified significantly reduced amounts of WTO MPS even when economic MPS has changed less noticeably.

Figure 1. WTO Disciplines on Agricultural Domestic Support



Source: Brink, 2011.

One of the aims of the Doha agricultural negotiations is a substantial reduction in trade-distorting support. Strengthened and improved rules and commitments for domestic support were part of the framework agreed upon in 2004, but the negotiations stalled in December 2008. The Doha draft modalities (WTO, 2008) remain indicative of both the tightening of the provisions governing trade-distorting domestic support that could (and perhaps eventually will) result from Doha or subsequent negotiations and the space for future policies that countries sought to maintain.

The bound ceiling levels on domestic support would be tightened and extended for certain countries under the Doha proposals. Doha would sharply reduce the Bound Total AMS and lower the *de minimis* percentages for a number of countries and introduce a limit on overall blue box support. Doha would place a ceiling on a new indicator of Overall Trade-Distorting Support (OTDS), calculated as the sum of the CTAMS, *de minimis* AMS support and blue box support. The Doha proposals would also impose product-specific limits on AMS support and blue box payments. The *de minimis* percentages for developed countries would be reduced from

percent to 2.5 percent. Total blue box support would be limited to 2.5 percent of the 1995-2000 value of production.

The Doha domestic support provisions would have a major impact on the levels allowed for some developed countries. The implications for the eight countries examined in the study organized by Orden, Blandford and Josling (2011) are shown in Table 1. The Doha proposals encompass a harmonizing approach, in which the countries that provided the largest support in the past would make the largest percentage cuts to their commitments. Thus, the tighter disciplines apply primarily to the developed countries. For the US, the OTDS limit would decline from a base level of \$48.5 billion to a Final Bound OTDS commitment of \$14.5 billion, which corresponds to 7.4 percent of its base-period total production value. The existing US Bound Total AMS of \$19.1 billion would drop to \$7.6 billion. For the EU, the Final Bound OTDS would be 23.8 billion euro and the Bound Total AMS would be reduced from 72.2 billion euro to 21.7 billion euro. Brazil is a developing country with a small positive Bound Total AMS. The proposed Doha commitments for Brazil follow a pattern similar to those of the US and EU but the reductions reflect the more lenient treatment for developing countries. Brazil's OTDS limit would decline by 37 percent from its base to a final bound level of \$8.3 billion. Its Bound Total AMS would be reduced by 30 percent and its *de minimis* thresholds by one third. No reductions are required from Base OTDS or in the *de minimis* thresholds for India or China. Total blue box support would be capped at 5 percent of base-period production value for these countries, with looser rules applying to product-specific limits for developing countries than for the developed countries.

Table 1. WTO Disciplines and Proposed Disciplines, Selected Countries

Member	Currency of Notification	Agreement→Doha Commitments		Additional Proposed Constraints		
		Ceiling	<i>De minimis</i>	OTDS	Blue Box	Product-specific Limits
		<i>Nominal Limit</i>	% of Production Value	<i>Nominal Limit</i>	<i>Nominal Limit</i>	Rules
United States	US\$ billion	19.1→7.6	5→2.5%	14.5	4.9	Yes
European Union	€ billion	72.2→21.7	5→2.5%	23.8	6.5	Yes
Japan	¥ billion	3,973→1,192	5→2.5%	1,363	246	Yes
Norway	NOK billion	11.4→5.4	5→2.5%	9.5	3.6	Yes
Brazil	US\$ billion	0.9→0.6	10→6.7%	8.3	2.4	Looser
China	RMB billion	—	8.5%	584.4	116.9	Looser
India	US\$ billion	—	10%	25.6	5.1	Looser
Philippines	PHP billion	—	10%	117.2	23.4	Looser

Source: Orden, Blandford and Josling (editors), 2011.

3.0 Notified Domestic Support of the EU and US, 1995-2008

Agricultural domestic support notified by the EU from the founding of the WTO through 2008 is shown in Figure 2. Support in all categories disciplined under the proposed Doha OTDS is shown (CTAMS, *de minimis* and blue box), although only the CTAMS is subject to a ceiling under the Agreement on Agriculture. As a point of reference, the Bound Total AMS under the

Agreement and proposed in the Doha negotiations are shown. Support notified in the green box is not shown.

Figure 2. EU Notifications of Domestic Support (OTDS Categories), 1995-2008



Source: Orden, Blandford, Josling and Brink, 2011

For the EU, AMS support has been primarily MPS, with little dependence on support payments. The notified CTAMS has been comfortably within the EU commitment.³ As reform of the Common Agricultural Policy (CAP) progressed with declining price support levels, the EU shifted toward blue box payments to compensate farmers for the lower prices. Subsequently, the blue box payments also decline. The measures on which payments were based were modified to fall within the green box as exempt decoupled income support.⁴ Payments in this category (not shown in Figure 2 displaying support in OTDS) exceeded 33 billion euro by 2008/09. As the EU has shifted notified support from MPS to direct payments, its CTAMS, and later its OTDS, fall over time. The change in the domestic support regime in the EU has been associated with a decline in economic market price support to farmers, but that decline has been smaller since 1995 than the reduction in the notified WTO MPS (Josling and Swinbank, 2011). The price support notified by the EU for 2007/08 dropped, for example, when it reported that fresh fruits and vegetables no longer had administered prices, though there was little change in the effects of the EU's domestic and border policy measures on internal market prices for these products. With the policy changes by the EU cumulated, its CTAMS in 2008/09 and its OTDS already met the

³ For the EU, CTAMS has included price support and nonexempt payments provided under a related Equivalent Measurement of Support (EMS) used in place of AMS primarily for fruits and vegetables.

⁴ To qualify as decoupled income support production cannot be required and the payments in any given year must not be related to, or based on, the type or value of production in any year after a base period, prices applying to production or the factors of production employed (WTO, 1995a).

ceilings proposed in the Doha negotiations to be phased in over five years if an agreement was reached.

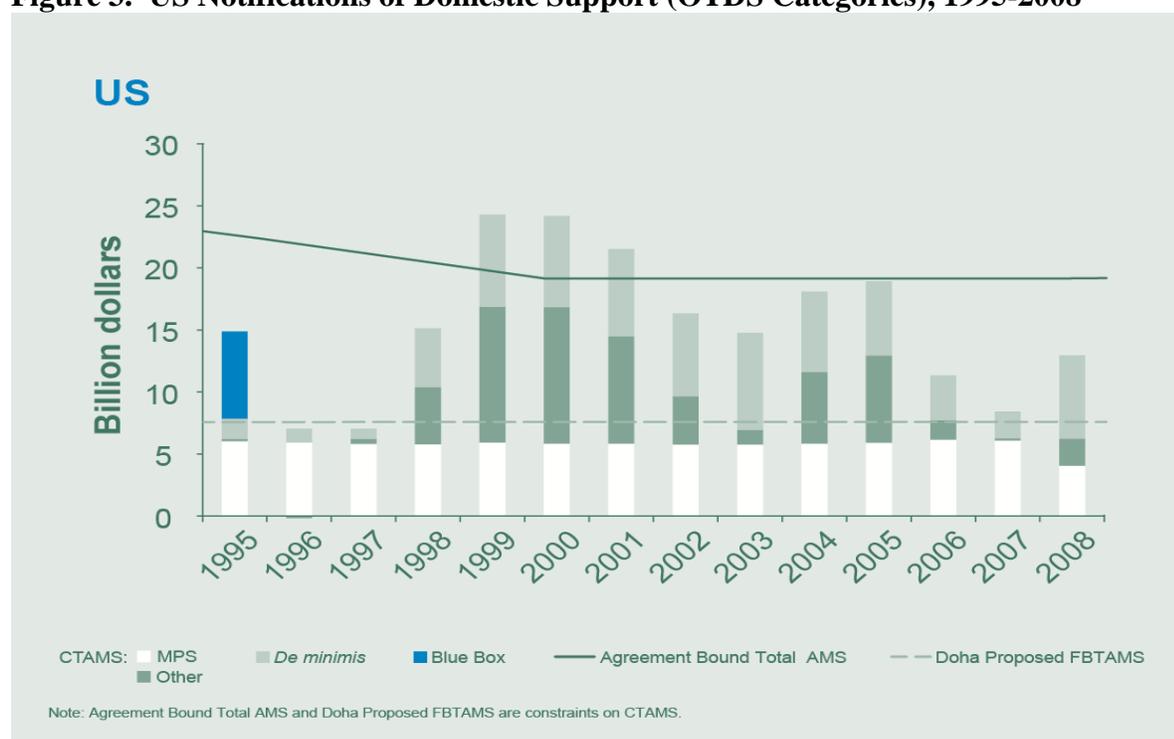
The notified OTDS support of the US is shown in Figure 3. The US has notified levels of CTAMS well below its limit in most years. However, the level of support in the US, of which government payments are a major part, is tied to world prices. In several low-price years, CTAMS has exceeded 85 percent of the US ceiling commitment. The US also stands out as having notified substantial non-product-specific AMS support as *de minimis*. Price-dependent countercyclical US payments in years of relatively low world prices for important crops (primarily corn, soybeans, wheat, rice, and cotton) are notified as non-product-specific AMS support. This has allowed these payments to be excluded from CTAMS. The countercyclical payments included in the US non-product-specific AMS reflect policy reform through a shift to payments less tied to specific products or supply controls than earlier blue-box payments, which the US abandoned after 1995, well in advance of the decline in blue box usage in the EU. However, the classification of these price-linked US payments as non-product-specific AMS support has been controversial. If they were included in CTAMS, the United States would have exceeded its ceiling in three years.⁵ The United States has notified a relatively stable WTO MPS, mainly for dairy and sugar, with a reduction of WTO MPS in the notification for 2008 based on redefining the coverage of its dairy price support program in the 2008 farm bill. With this modification to its notifications, and with higher prices eliminating both product-specific AMS payments (associated with the US price-support loan rates) and most of the countercyclical payments notified as non-product-specific *de minimis* AMS support, the US, like the EU, notified support in 2008 below the Final Bound Total AMS and Final Bound OTDS ceilings proposed in the Doha negotiations. Not shown in Figure 3 are the direct payments notified to the WTO by the US as green box decoupled income support, which have remained around \$5 billion per year since they were introduced in 1996.

4.0 EU and US Policy Directions in the Post-2008 Period

In the era of relatively high agricultural prices that has prevailed since 2008 there has been a divergence of direction of EU and US policy developments that is foreshadowed in the notifications up to this transition year. For the EU, the decoupled income support on the order of 35 billion euro per year has remained the cornerstone of its domestic support measures. Several modifications of these payments are under discussion for the post-2013 CAP. For the US, support policy has moved in a different direction. Higher prices have increased the cost and relative importance of crop insurance as a support measure. In addition, new programs of revenue guarantees, first introduced on an optional basis in the 2008 farm bill, were proposed for expansion in a 2012 farm bill. While a new US farm bill is still under debate in 2013, in sharp contrast to the EU, the US is likely to eliminate the direct payments it has notified to the WTO as decoupled income support.

⁵ See Blandford and Orden (2011) for discussion of the alternative ways US countercyclical support might have been notified and its effects on US compliance with its WTO commitment.

Figure 3. US Notifications of Domestic Support (OTDS Categories), 1995-2008



Source: Orden, Blandford, Josling and Brink, 2011.

4.1. European Union: CAP Continuity and Modifications⁶

Europe's Common Agricultural Policy (CAP) is subject to the renewal of the seven-year Multi-annual Financial Framework for the 2013-20 period. This renewal process also provides an opportunity to revise the CAP. The Council of the European Union, incorporating agriculture ministers of each member state, and the European Parliament, which share responsibility for determining the CAP, are currently discussing the proposal tabled by the European Commission on October 11, 2011.

From the early 1960s to the early 1990s, the CAP was characterized by market intervention. Most of the EU agricultural sectors were subject to administratively set prices, and authorities had to purchase excess production when market prices were lower than these fixed levels. High levels of price support kept EU production growing, while technical change raised yields and lowered costs. As a result, in the 1980s managing government-held surpluses became a substantial problem. Since then, continual reforms (in 1992, 1999, 2003, and 2008) have led to the progressive dismantling of the intervention system, as reflected in the EU's notifications of domestic support to the WTO in Figure 2, and the *de facto* end of export subsidies.

As described above, farmers have been compensated for lower EU price supports by direct payments. In the 2000s these payments were decoupled from production to the extent that farmers are no longer required to produce crops or animals to receive support. These payments

⁶ This section is condensed from Bureau, Laborde and Orden (2013).

are considered to fall into the WTO's green box and thus are exempt from a nominal cap. However, the 40 billion euro handed out each year necessarily indirectly raise output by keeping some farmers in production (even though they do not need to produce to get support), easing credit constraints, and lowering risk aversion. The EU farm support policy is now based almost entirely on the direct payments, which have been made conditional on requirements regarding the environment, animal welfare, workers' safety, and other social regulations (Butault *et al.*, 2012).

The European Commission's proposal does not depart significantly from the CAP reform movement initiated 20 years ago. The EU budget for direct payments will remain high under the CAP, since the Commission proposed to maintain this expenditure in nominal terms. National allocations ("envelopes") for direct payments would be adjusted so that those receiving less than 90 percent of the EU average payment per hectare would receive more, moving all EU member states toward more uniform payments per hectare by 2019. The largest gap would be reduced by one-third.

Within each country's national allocation, the Commission proposes some new guidelines and requirements on the criteria for and distribution of payments. The most controversial issue from the outset and continuing into 2013 is the Commission's proposal to reorient the direct payments, with an increased requirement for environmental measures (Matthews, 2012; Swinbank, 2012). A basic payment scheme would replace the current single farm payment scheme. Under the new design, the basic direct payment would continue to be subject to relatively minimal requirements. An additional payment of 30 percent of the total would be an environmental "greening" component conditional on farmers complying with three measures: (1) crop diversification (farmers would have to cultivate at least three crops a year on the land they do not set aside); (2) an "ecological focus" requiring that farmers devote 7 percent of their land to a conservation area where biodiversity is protected; and (3) maintenance of permanent pastures. The new environmental requirements are opposed by many farm producers.

The Commission's proposal would remove most of what is left of market management. Because of the new institutional power of the European Parliament, which gained full joint decisionmaking power with the Council in 2010, the proposal also reflects the concerns of elected representatives and their farm constituents. These concerns are reflected in the Commission's proposal for coping with potential "crisis" periods of exceptionally low prices. The proposed crisis package includes a tendering process for some products (barley, maize, rice, and beef stocks) and private storage aid for others (sugar, olive oil, flax, beef, butter, skimmed milk powder, pig meat, and sheep meat). These measures would be funded from a small 3.5 billion euro reserve separate from the CAP budget. The Commission's proposal also authorizes member states to develop national-level insurance and income stabilization tools with some cofinancing from the EU budget, but with ceilings that ensure that these new programs will remain limited.⁷

There are many reasons for dissatisfaction with the Commission's proposal. Some fundamental inconsistencies of the current CAP persist. For example, maintaining basic direct

⁷ The EU notified insurance subsidies from national sources of 526 million euro to the WTO as non-product-specific *de minimis* AMS support for 2008/09.

payments means also maintaining the undesirable effects of the current system, in particular the capitalization of payments into land prices and the push toward specialization of farms. The Commission introduces new payments to promote crop rotation and to help young farmers overcome barriers to entry, while the problems these measures address are actually caused or at least worsened by the system of direct payments itself. There is little left of the idea of reallocating support toward public goods, which was extensively discussed during the preparation of the proposal, although a new initiative to improve competitiveness would increase budgets for research, innovation partnerships and farm advisory services. And making 30 percent of the direct payments conditional on specified farm management requirements (for example, crop rotation with an ecological focus) is a high-cost policy compared with targeting payments directly to the provision of public goods, such as water management, carbon storage, or biodiversity preservation (Mahé, 2012). Still, the Commission's proposal does not change the basic direction of the CAP reform since 1992. Overall, it should not result in further market distortions.

Although 20 years of reforms have not lowered EU farm support, they have shifted the support to payment categories that have so far been exempted from WTO-imposed reductions. While a new crisis package may, in a period of market collapse, call for export subsidies to support prices, it is clearly a policy of last resort in the proposed configuration. Even if a WTO Doha agreement is eventually completed, there is no reason for the EU to withdraw from its 2004 commitment to end export subsidies (which it currently does not use). The EU's main concern about a Doha agreement is the prospect of increasing access to the European market and the need to lower tariffs, which is largely independent from the CAP reform. A sharp reduction in EU agricultural tariffs, in particular in the dairy, beef, and sheep sectors, would likely lead to large imports and hurt EU cow-calf producers and the extensive farming sectors that are still central to the rural economy of some European regions. Incomes are low in these economically fragile sectors. It is unlikely that the EU will be willing to endanger so many farmers without substantial concessions from other countries.

4.2 United States: Providing New Assurances to Farmers

While US payments under its commodity support programs have remained low since 2008 because of the relatively high market prices, this is not the case for support provided to farmers through crop insurance. The crop insurance programs were overshadowed in the past by the commodity support programs but have steadily grown in scope since the early 1990s. Under several legislative acts, insured crop acreage doubled from less than 100 million acres in 1994 to over 200 million acres in 1995 and recently to over 250 million acres. The portion of crop insurance premiums paid by farmers has fallen from around 75 percent in the early 1990s to less than 40 percent since 2000. Revenue insurance, which was introduced in 1996 and protects farmers from price risk as well as production (yield) risk, now accounts for two-thirds of the covered acreage. Driven by the higher per-unit subsidy rates and expanded eligibility incorporated in the legislated changes, crop insurance has emerged as a major, broad-based US support program. The value of premium subsidies provided by the government has exceeded the value of direct payments in four of the five years since 2008 (see Table 2). With higher nominal insurance liability coverage and higher indemnity payments correlated with higher crop prices since 2008, crop insurance has become the main US farm support program. Insurance payments

to farmers, measured as total indemnities less farmer-paid insurance premiums (sometimes called the “net indemnities”), exceeded the US fixed direct payments for the first time in 2011. With the drought-related losses in 2012, insurance net indemnity payments will be even higher.

4.2.1 *Crop Insurance Costs and WTO Notifications*

Several issues arise in measuring the cost of the US crop insurance programs and how these costs are notified and disciplined in the WTO. In any particular year, benefits received by farmers can be measured either by net indemnities they received or by the premium subsidies. In years where the loss ratio of indemnities paid to total premiums (paid by farmers plus the premium subsidies) is less than one, premium subsidies exceed the net indemnities. In years such as 2012, where the loss ratio may exceed one, premium subsidies would be less than the net indemnities. The US crop insurance program is administered by private companies, so the program is a form of public-private partnership. In addition to the premium subsidies, the government shares underwriting gains (in years when total premiums exceed indemnities paid) and losses (in years when total premiums are less than indemnities paid) with the private companies. The government also pays administrative costs to cover insurance delivery, which lowers the premiums compared to having these costs included. These various costs are shown in Table 2.

The US crop insurance program will prove quite costly in the drought year 2012. Based on cost accounting by the USDA Risk Management Agency (RMA), as posted on its web site on December 4, 2012, the estimated total indemnities for crop year 2012 will be \$20.7 billion, while premiums paid by farmers were \$4.1 billion.⁸ This results in net indemnities of \$16.5 billion, while premium subsidies were \$7.0 billion. Total cost to the government is estimated at \$15.8 billion, comprised of net indemnities, plus administrative costs for insurance delivery, less the underwriting losses covered by the private companies not the government (estimated at \$2.2 billion).⁹

Before 2008, the US notified only one expenditure to the WTO for its crop insurance programs. The net indemnities received by farmers each year were notified as non-product-specific AMS support. Thus, the crop insurance payments were included in the *de minimis* support shown in Figure 3 under the non-product-specific allowance. Starting in 2008, the US altered its reporting of crop insurance support to the WTO and revised its 2008 notification. Premium subsidies replaced net indemnities as the notified non-product-specific AMS support and for the first time administrative costs for delivery and underwriting gains going to the insurance companies were reported as expenditures in the green box. For years such as 2008, with a loss ratio less than one, the premium subsidy exceeds the net indemnities, so a larger

⁸ While these estimates were posted in RMA’s “FCIC Financial Statements” in December 2012, they were made earlier in the year and overstate final indemnity payments later anticipated, which correspondingly will reduce the net indemnities and final cost of the crop insurance programs for 2012 (Joseph Glauber, USDA Chief Economist, personal correspondence, December 7, 2012). As of mid-January 2013, indemnities paid for the 2012 crop year were \$11.4 billion. For the 2011 crop year, the estimated indemnities (“loss claims”) posted by RMA were reported in the FCIC Financial Statements as \$13,103 million as late as December 3, 2012; whereas the final 2011 crop year indemnities posted December 4, 2012 were only \$10,854 million.

⁹ Equivalently, the total government cost can be computed as premium subsidies, plus administrative costs for insurance delivery, plus claims in excess of income; see Table 2, footnote j.

Table 2. Cost Accounting for US Crop Insurance Programs by Crop Year, 2008-2012 estimate

(with FY numbers as notified to the WTO for Underwriting (Gains)/Losses shown for comparison)

Crop Year	Premiums		Indemnities		Loss Ratio ^f	Admin. Cost ^g	Claims in Excess of Income ^h	Underwriting (Gains)/Losses ⁱ	Total Govt Cost ^j	
	Farmer ^a	Subsidy ^b	Total ^c	Total ^d						Net ^e
2008 FY 08	4,170	5,696	9,866	8,689	4,519	0.88	2,150	(129)	(1,098)	7,717
2009 FY 09	3,530	5,430	8,960	5,234	1,704	0.58	1,750	(1,516)	(2,277)	5,664
2010 FY 10	2,891	4,714	7,605	4,255	1,364	0.56	1,514	(1,485)	(1,929)	4,743
2011 FY 11	4,532	7,474	12,006	10,854	6,322	0.90	1,527	434	(1,666)	9,435
2012 est ^k FY 12	4,149	7,038	11,187	20,666	16,517	1.85	1,552	7,255	2,186	15,845

- Notes:**
- ^a Farmer Premium in RMA table “Crop Year Premium and Other Income,” FCIC Financial Statements
 - ^b Premium subsidy & Additional Subsidy in RMA table “Crop Year Premium and Other Income,” FCIC Financial Statements
 - ^c Sum of (a + b)
 - ^d Loss Claims in RMA table “Crop year government cost of federal crop insurance”
 - ^e Total indemnities – Farmer Premiums (d – a)
 - ^f Total Indemnities/Total Premiums (d/c)
 - ^g Administrative expense reimbursements + Other program fund costs + Other administrative and operating fund costs in RMA table “Crop year government cost of federal crop insurance”
 - ^h Claims paid in excess of premiums and other income in RMA table “Crop year government cost of federal crop insurance;” [(...) implies counted as a gain to RMA]
 - ⁱ Underwriting (gain)/loss in RMA table “Crop Year Premium and Other Income;” [(...) implies counted as a cost to RMA]
 - ^j Premium Subsidy + Claims in Excess of Income [(...) implies negative] + Administrative Cost. Equivalently, Net Indemnities + Underwriting Gains/Loses [(...) implies positive] + Administrative Cost less a small adjustment (not shown in this table) for Interest and other income in RMA table “Crop Year Premium and Other Income” (adjustments are 49, 67, 64, 80 and 38 for years 2008 to 2012 est, respectively)
 - ^k Early estimate of indemnities likely to exceed final indemnities paid; see text footnote 8.

WTO Notifications:

Prior to 2008: Net indemnities notified as non-product-specific AMS support

Revised 2008 and subsequently:

Premium subsidies notified on Crop Year basis as non-product-specific AMS support

Administrative expense reimbursements notified on Fiscal Year basis in green box, General Services

Agency administrative and operating expenses notified on Fiscal Year basis in green box, General Services

Underwriting gains to insurers notified on Fiscal Year basis in green box, General Services

Source: Author’s calculations from USDA RMA “FCIC Financial Statement” (accessed December 4, 2012).

amount of support was notified as non-product-specific AMS support in the revised 2008 US notification, although not enough more to bring non-product-specific-support above the US *de minimis* allowance.

In years such as 2012 (estimate) in Table 2, in contrast, net indemnities exceed the premium subsidies. The 2008 farm bill mandated that the crop insurance program be operated with an average loss ratio of one and, if so, on average the premium subsidy will reflect the support received by farmers. The US justified its revised notification on this basis, but premium subsidies will vary less year-to-year than net indemnities, as 2012 (estimate) demonstrates.¹⁰ Thus, the US crop insurance notifications are likely to remain controversial.

Unfortunately, the expenditures notified to the WTO for US crop insurance do not sum up to the government costs as computed by RMA, which would make the notifications more transparent. As shown in Table 2, one technical discrepancy is that administrative costs and underwriting gains/losses are notified on a fiscal year basis, while premium subsidies are notified on a crop year basis. Administrative costs don't differ by much for these different annual reporting periods, but underwriting gains/losses are often quite different. A second and more structural discrepancy between the notifications and government cost accounting is that government costs are the sum of administrative costs, underwriting gains/losses (with gains retained by the insurance companies reported as a positive government expense) plus net indemnities, not premium subsidies. The change in measurement from net indemnities to premium subsidies could be especially important if the US limit on Bound Total AMS support is tightened or new WTO commitments such as a limit on OTDS are reached through negotiations.

4.2.2 *Proposals for the 2012 Farm Bill*¹¹

The 2008 US farm bill expired on September 30, 2012, and Congress recessed until after the November elections without completing a new bill and sending it to the president to be signed into law. Subsequently, the post-election "lame duck" Congress extended the 2008 farm bill through September 30, 2013 as part of broader legislation addressing tax rates and US fiscal deficits that also left many other spending issue unresolved.

With the extension of the 2008 farm bill and the end of a two-year session of Congress, the process of drafting a new US farm bill has to be re-initiated by the new Congress in 2013. Still, the likely direction of US policy was discernible in separate bills passed in July 2012 by the full Senate (S. 3240) and the House of Representatives Agriculture Committee (H.R. 6083). Under both of these bills the US would eliminate annual fixed direct payments made to farmers since 1996. In their place it would enact enhanced price or revenue protection that is more closely tied to production of specific crops than the countercyclical payments under the 2002 and 2008 farm bills. While there is substantial uncertainty about the eventual costs of the new programs the debate in 2012 proceeded under estimates by the Congressional Budget Office (CBO) that the total farm subsidy costs (for commodity programs and crop insurance together) were anticipated to decline by about 10 percent over the coming decade under either the Senate

¹⁰ A report by FAPRI (2011) elaborated on the greater volatility of net indemnities versus premium subsidies and how this effected possible notifications to the WTO in years of high insured losses.

¹¹ This section draws on Zulauf and Orden (2012).

or House Agriculture Committee bill. The new programs could make large payments in years of low yields or market downturns, as 2012 demonstrates for the existing crop insurance programs. Anticipated total expenditures over 10 years under the new law compared with continuation of past farm programs are shown in Table 3.

Table 3. Estimated Effects of 2012 US Farm Bill Proposals on FY2013-22 Expenditures

Farm Bill Title	Billions Dollars (10-year totals)	
	Estimated Spending under 2008 Farm Bill	Range of Anticipated Increase or Decrease
Farm support programs	152.8	-14.1 to -14.4
Commodity programs	62.9	-19.4 to -23.6
Crop insurance	90.9	5.0 to 9.5
Conservation	64.1	-6.1 to -6.4
Nutrition	772.1	-4.0 to -16.1
All other titles	3.8	1.0 to 1.7
Total	992.8	-23.1 to -35.1

Sources: Shields and Schnepf, 2012; Monke, 2012

The 2008 farm bill introduced two new revenue insurance programs that are antecedents to proposals made for the 2012 farm bill. First, the Supplemental Revenue Assistance (SURE) program provided a form of disaster assistance. It required the purchase of insurance and essentially increased a farm’s insured coverage level by 15 percentage points. SURE addressed losses smaller than the insurance deductible elected by the farm. Such losses have come to be referred to as “shallow losses.”

Second, the 2008 farm bill included the Average Crop Revenue Election (ACRE) program. This program makes payments if state revenue per planted acre is below 90 percent of a state’s benchmark revenue and a farm’s revenue per planted acre is also below its individual revenue benchmark. Benchmarks are based on a two-year moving average of past prices and a five-year Olympic moving average (removes the highest and lowest values) of past yields. ACRE was the first such program of revenue insurance based on a moving average of past revenue authorized by a farm bill (Zulauf and Orden, 2010). Proponents of this approach such as Carl Zulauf at Ohio State University argue that it has a built-in policy design benefit. Because the revenue support trigger moves with the market, if prices decline and stay at lower levels for several years, the level of revenue support will also move down. Farmers, while protected against too sharp an initial year-to-year revenue decline, would have to adjust over time to the lower revenue levels, in contrast to the traditional commodity support programs with trigger prices at fixed nominal levels set in legislation. Sign up for ACRE was optional and farmer’s had to forgo 20 percent of their direct payment to obtain ACRE coverage. Under these provisions, sign up rates were relatively low.

The 2012 Senate and House Committee farm bills contain new programs to address shallow losses that build on existing programs including ACRE and SURE. Each bill contains two alternative programs from which farmers would be able to choose under certain specified restrictions. A schematic of the antecedents and dimensions of these programs is shown in Figure 4. Summaries of their details are given in Zulauf and Orden (2012).

The first approach to shallow losses is to cover across all participating farms a specific range of revenue loss that is specified in the bill. This approach is embodied in the Agriculture Risk Coverage (ARC) option in the Senate Bill and the Revenue Loss Coverage (RLC) option in the House Committee Bill. The Senate ARC option has a version of the program based on an individual farm loss and a version of the program based on county level loss. Farmers would choose one of these two ARC options. RLC is a county loss program; it has no farm loss version. County shallow loss is more likely to be a systemic as opposed to idiosyncratic loss, with systemic losses providing one rationale for government intervention in the provision of insurance (Zulauf and Orden, 2012).

Figure 4. Schematic of US 2012 Farm Bill Proposals

Antecedents	Shallow Losses	Multi-Year Losses
Countercyclical Payments	----	PLC
Crop Insurance, SURE	SCO, STAX	STAX (with minimum prices)
ACRE	ARC, RLC	ARC, RLC

Source: Author’s interpretation. See Appendix Table A and B for details on each proposed program.

The proposed ARC and RLC programs require no premium payment by the farm, but coverage is limited to a specified, fixed range of losses: 79 percent to 89 percent for ARC and 75 percent to 85 percent for RLC.¹² For both ARC and RLC, loss is defined relative to a revenue target calculated using five-year Olympic averages of past prices and yields. Payments are made on a fixed percent of planted acres and acres prevented from being planted by weather conditions. For the farm ARC, county ARC, and RLC programs, respectively, payments are made on 65%, 80%, and 85% of planted acres and 45%, 45%, and 30% of prevent planted acres. Total payments that a farm can receive from these programs are subject to payment limits.

The second shallow loss approach is to provide county-based yield or revenue coverage linked to the insurance coverage levels selected by individual farmers. The principal new program in both bills is the Supplemental Coverage Option (SCO). It allows farms to buy a modified county insurance product to cover losses between the deductible loss selected for their individual coverage and 10 percent, or any level in between.¹³ This also is the approach taken by the Stacked Income Protection Plan (STAX), which is specific to upland cotton and would replace the existing cotton support programs. The premium subsidy is 70 percent for SCO and 80 percent for STAX, which means the farm pays 30 percent or 20 percent of the premium. SCO

¹² These two loss ranges exceed the typical deductible on individual farm insurance. According to data from the USDA Risk Management Agency (RMA) for the 2011 crop year, only about 25 percent of insured acres had a coverage level greater than 75 percent.

¹³ SCO and STAX can be purchased with either farm or county traditional coverage. The existing county insurance products are designed to serve as an alternative to individual farm insurance but few farms utilize these county instruments. The existing county insurance covers all losses for the county greater than a level elected by the farm. The highest coverage level that can be elected is 90 percent, in which case all county losses greater than 10 percent would generate an insurance indemnity payment. Premium subsidy for county insurance ranges between 44 percent and 59 percent. In addition, a multiplier of 1.5 is used to calculate indemnities. In comparison, SCO county insurance would cover county losses up to between 10 percent and the farm’s insurance deductible. Thus, it does not cover all losses at the county level. It is a truncated county insurance product and there is no multiplier.

and STAX can be purchased for all acreage, can cover deeper losses than ARC or RLC, and are not subject to payment limitations.

The two approaches to coverage of shallow losses represented by ARC and RLC versus SCO and STAX overlap in their risk coverage and are competitive in their design. The Senate and House Committee bills each include both. Thus, each bill allows farmers to choose which approach they prefer, but subject to some restrictions. Under the Senate Bill, farmers can choose to enroll in ARC or not. Either way, they can purchase SCO for some or all of their acreage but the SCO loss coverage maximum is limited to 80 percent if the farm is enrolled in ARC. Under the House Committee Bill, farmers who enroll in RLC are not eligible to purchase any coverage under SCO.

A second key issue for the pending US farm bill is how to address multiple-year declines in national farm revenue for one or more crops. Substantially different approaches are taken in the Senate and House Committee bills. The Senate Bill provides assistance against multiple year declines in revenue through its ARC program. Its moving average revenue targets adjust more slowly than market prices because they use historic data. Hence, when prices decline over multiple years, ARC's revenue target will decline but the decline will be slower than the decline in market revenue. Thus, ARC provides farms with a period of adjustment longer than the period provided by the market. However, the extent of coverage is limited to the specified range of 79-89 percent of targeted revenue and the adjustment period will eventually end as ARC's revenue targets will decline to reflect the continued existence of persistently lower prices.

In contrast, the House Committee Farm Bill sets fixed minimum price targets through its Price Loss Coverage (PLC) program. As with the existing countercyclical payments program, PLC payments are made when prices fall below the fixed minimum price targets. In other words, payments counter or offset low prices and disappear when prices are higher than the price targets. This is the default option, with farmers able to choose to enroll instead in the RLC as their support alternative for shallow and multiple-year losses. A minimum price is also included in the STAX upland cotton program of the House Committee Bill. The minimum prices in PLC and the House Committee STAX establish a fixed price floor for producers. Unless Congress intervened with new legislation, these price floors would remain in place over the length of the farm bill. The target prices are raised compared to their current values, although they remain lower (except for peanuts) than an Olympic moving average of recent prices. The House Committee Bill also ties the countercyclical payments more closely to future production than under the 2008 farm bill by allowing farms to update yields to the 2008-2012 period and in general basing payments on annual planted acres not fixed base acreages. In addition, under the House Committee Bill farms enrolled in PLC are eligible to sign up for the shallow loss SCO, while those enrolled in RLC are not.

There are several policy concerns that arise with the US 2012 farm bill proposals. Although the drought of 2012 demonstrates the systemic weather-related risks associated with farming, and systemic risk provides one rationale for government intervention to address a

market failure, existing within-year US crop insurance subsidies are already high.¹⁴ Adding new insurance against shallow losses adds to this imbalance.

Second, the new US farm bill will strengthen protection of farmers against multi-year losses for supported crops (feedgrains, soybeans, wheat, rice, cotton, and peanuts) such as when prices decline for several consecutive years. The target prices set in the 2008 farm bill have been so far below market prices that they have offered essentially no farm support. The new higher levels in the PLC program would create a fixed price floor much more likely to generate payments in downturns from recent price levels. Such fixed price floors have a long tradition in US farm policy that is not being reformed under PLC.

In the competing approach, the triggering mechanism for payments to farmers is not a fixed price level but a moving average of past revenue. As noted above, because the revenue support trigger moves with the market, if prices decline and stay at lower levels for several years, the level of revenue support will also move down. However, initiating a moving average revenue program after a period of high prices, and particularly the very high prices of 2012, means that farmers would receive protection against the first revenue decline that might occur. Extending the moving average on which the revenue guarantee is based from two years in ACRE to five years in the proposed new revenue insurance programs means lagged high prices will influence the guarantees for a longer adjustment period.

Eliminating the fixed direct payments and strengthening price or revenue support based on current production of specific crops runs counter to efforts to reduce trade-distorting subsidies around the world through the WTO. The US fixed direct payments arguably fall within the WTO green box. In contrast, US crop insurance subsidies and the new shallow loss and multi-year loss protection programs will provide AMS support that is subject to US commitments and the WTO rules about *de minimis* allowances. Under current US notification practices, it can be anticipated that payments under an insurance-based SCO program will be notified as non-product-specific AMS support. STAX would presumably be product-specific even though it is based on insurance principals. Payments from ARC and RLC revenue insurance programs and the PLC program will be notified as product-specific AMS support. The US is unlikely to exceed its commitment under the relatively lax Bound Total AMS and *de minimis* allowances of the Agreement on Agriculture, particularly with the modification to how the US notifies crop insurance subsidies since 2008. However, US expenditures under the 2012 farm bill are likely to exceed some of the draft limits considered in the Doha Round negotiations.¹⁵ It is in this sense that the new US farm bill under debate in 2012 can be considered a casualty of the failure of the Doha Round. The farm bills passed in July 2012 by the Senate and House Agriculture Committee would have been less likely to have become the draft legislation in either case if the Doha Round constraints were

¹⁴ Zulauf and Orden (2012) argue that US crop insurance subsidies exceed levels justified on systemic risk grounds by comparing subsidy rates to the degree of correlation of individual farm revenue risk to revenue risks at the county, state, and national levels. Other critical analysts (e.g., Smith, 2012) question any public rationale for crop insurance subsidies.

¹⁵ For one illustration, the premium subsidy in 2012 of \$7 billion represents 1.9 percent of the value of agricultural production (\$378 billion). Premium subsidies for SCO would be added to the crop insurance premiums. If this total exceeded the proposed Doha *de minimis* allowance of 2.5 percent of production value, then this non-product-specific support would be counted in CTAMS. But the final Doha Total Bound AMS for the US would be only \$7.6 billion, so the US would then also exceed its commitment.

coming into effect. Their provisions will make it harder in the future for the United States to agree to support reductions such as those envisioned but not locked in by the Doha negotiations. Other countries may feel little motivation to limit their own distortionary support or protection if the United States adopts a new farm bill along the lines proposed in 2012.

Beyond the WTO notification considerations already described, the new US revenue and insurance programs will fuel debate over how their various costs are accounted for. Net insurance payments have historically varied by crop both on a dollar per insured acre basis and as a share of gross income per acre. The observed variations reflect in part the agro-climate of a crop. Thus, the variation by crop is not likely to be explained by in-common random weather events but is inherently related to the riskiness of the climate in which the crop is grown. Hence, payments by the crop insurance program appear to be more consistent with a product-specific program than a non-product-specific program. In addition, as noted above, the history of crop insurance programs suggests that most US crop insurance contracts would not exist without government subsidies. This observation raises the question of whether government reinsurance provided to the private insurance companies is part of the farm subsidy. It is reasonable to hypothesize that government provided reinsurance likely results in lower premiums than if an equivalent amount of reinsurance had to be purchased in the private reinsurance market. While it is harder to argue that administrative costs of the insurance programs are crop specific because the administrative structure applies to all crops, the administrative subsidies lower premium costs, and hence premium subsidies, so inclusion of these costs in the green box might be questioned. Classifying subsidies to the private sector for delivery of crop insurance and reinsurance as general service expenditures stretches the WTO definition.¹⁶ In short, the current US classification of subsidies to its insurance program seems at least partially out of line with the payment outcomes of the program. Reconsideration of whether various costs should be included as AMS support, and of whether certain payments should be considered product-specific support or non-product-specific support may not prove critical to US compliance with its WTO commitments under the Agreement on Agriculture, but could prove critical were tighter disciplines such as proposed in Doha ever to come into play.

4.3 *Estimated Economic Impacts of the EU and US Policies*

So far the discussion has focused on accounting for the government costs and payments received by farmers from various farm support programs. The deeper issue, and more difficult question to assess, is what effects these programs have on economic variables such as production levels and market prices. The legal provisions of the Agreement on Agriculture divide domestic support measures at a fundamental level into two types: those that have at most minimal trade-distorting effects in the green box and all others that are included in OTDS categories. Many of the green box measures have desirable social objectives and many have less of an effect than other support on a country's competitors, while most of the trade-distorting measures stimulate production and drive down world prices to the detriment of non-subsidized farmers. The WTO rules are designed to maintain the separation between these types of policies, and to guard

¹⁶ In addition to meeting the general green box requirements, the WTO criteria for general services preclude "direct payments to producers or processors." Were that description to also preclude payments to input suppliers it would be more evident that payments to insurance providers were excluded.

against the possibility that trade-distorting measures slip into the green box for which expenditures are not capped.

The need for enhanced scrutiny of green box measures received considerable attention in a book edited by Melendez-Ortiz, Bellmann and Hepburn (2009). Their overall policy orientation, as I would also argue, is that green box policies appropriately disciplined and administered provide the foundation for permanent agricultural support policy.

Quite a bit of attention has focused on the category in the green box of decoupled income support payments to farmers. This is particularly relevant to the continued high levels of such payments by the EU. Greater discipline on these payments may be necessary if an international consensus on long-term policy for reduced support for agriculture is to emerge.

The reasoning underlying the inclusion of measures that meet the decoupled income support criteria in the green box is that in principle these payments neither depend on nor affect current prices or production. There has been an economic presumption to this effect, in part based on a longstanding literature suggesting that quota rents from supply control programs are captured in the price of quotas or land (Orden, Paarlberg and Roe, 1999; Barichello, Cranfield and Meilke, 2009). The decision on the level of decoupled income transfers to agricultural producers is therefore left as a sovereign issue. But there is a clear division between the few countries that make such payments and all others that do not.

The problem that arises, given these differences in use and levels of decoupled income support, is whether high levels of such payments have more than a minimal trade-distorting or production effect. A number of mechanisms through which decoupled income support might stimulate production have been identified (Elbehri and Sarris, 2009; Abler and Blandford, 2005; De Gorter, Just and Kropp, 2008). Among these mechanisms are a wealth effect, making producers less risk averse; easing of credit constraints, so additional purchased inputs are utilized; impacts on labor allocation decisions, such that more labor is devoted to farm production; coverage of fixed costs, so that the number of farms or levels of profit-maximizing output are increased; and anticipation of future rebasing of payment eligibility criteria, that rewards the expansion of current production. Kirwan (2009) concludes that less of the value of US fixed direct and countercyclical payments is passed through to landowners than earlier studies have implied. He finds that 75 percent of the value of payments is retained by operators of rented land, with only 25 percent reflected in rental rates. Kirwan does not address the effects of the payments on production, but their retention by farm operators could enhance production along several lines.

One recent empirical study sheds light on the effects of the EU decoupled income support. Mittenzwei, Britz and Wieck (2012) use the CAPRI model of European agriculture to assess the effects of entirely eliminating the decoupled payments. The representation of EU supply in CAPRI is comprised of a non-linear programming model covering 50 crop and animal activities. This is brought together with a multi-commodity market model covering 77 countries, with market equilibrium prices determined endogenously based on sequential calibration. The EU supply model allows detailed representation of farm programs. The key relationship for

decoupled income support payments rests on the interaction of land supply with subsidies to land.

Table 4 summarizes from Mittenzwei, Britz and Wieck the estimated effects in 2020 from elimination of decoupled payments on EU production and producer prices for key crop and animal product categories. The payments have some effect on relative production, as output declines from 0.3 percent (sugar) to 3.1 percent (oilseeds). Producer prices increase from 0.5 percent (sugar) to 5.9 percent (all dairy products). Percentage effects on EU exports and imports (not shown in Table 4) are larger but the adjustments are from small base values. Mittenzwei, Britz and Wieck point out that the effects they estimate are from the elimination of the direct payments while border protection is maintained at benchmark levels, which limits the amount of global adjustment that occurs.

For the US, the effects of crop insurance have been evaluated in a limited number of empirical studies. Sumner and Zulauf (2012) summarize the results and note that the generally small impacts measured mostly date to a time when crop insurance was a smaller program than it has recently become. For example, Lubowski *et al.* (2006) concluded that in the mid-1990s increased crop insurance subsidies motivated farmers to expand cultivated cropland area by an estimated 2.5 million acres (0.8 percent). Effects of crop insurance on input usage and its environmental impacts have also been evaluated.

Table 4. Estimated Effects of Decoupled Payments on EU Production and Producer Prices

	Production		Prices	
	Baseline (mill. tons)	Eliminated (% change)	Baseline (Euro per ton)	Eliminated (% change)
Cereals	306.6	-1.7	135	3.7
Oilseeds	32.4	-3.1	290	5.2
Meat	44.9	-1.7	1,758	3.6
Beef	7.8	-0.8	3,029	2.5
Pork	23.4	-1.7	1,418	3.8
Eggs	7.2	-1.6	672	5.7
Dairy products	71.0	-0.6	270	5.9
Skim milk powder	0.9	-1.4	1,974	12.3
Cheese	10.3	-0.9	3,354	2.4
Oils	18.5	-1.1	1,237	2.1
Sugar	15.5	-0.3	449	0.5

Source: Mittenzwei, Britz and Wieck, 2012.

A recent study by Babcock and Paulson (2012) sheds light on the possible effects of the new revenue guarantee and countercyclical price support programs being considered for the next US farm bill. Babcock and Paulson note the limited response of total planted acres in the US to higher prices since 2008 and use an aggregate land-use response coefficient estimated from this data. Shifts in relative incentives to produce specific crops also arise from the revenue guarantees and countercyclical payments. Babcock and Paulson calculate these incentive effects for two assumed levels of average national prices during 2013-2017 using stochastic models of county-level yield variability and, within each county, representative farm-level yield variability for the major crops. The two assumed price paths are the baseline projected prices the CBO used in its evaluation of the expected costs of the programs, and a lower-price path under which prices fall each year by 15 percent relative to the CBO projections for the first three years then stabilize at the lower level. Results are generated for 100 farms for each county under 25,000 stochastic price outcomes each year. This complex stochastic evaluation exercise differs from Mittenzwei, Britz and Wieck in two respects: the price level around which the stochastic simulations occur is taken as exogenous and only the effects of the various new proposed programs are evaluated, not the effects of the existing US crop insurance and other farm support programs.

Effects from Babcock and Paulson in each of the years 2013-2017 of the ARC, STAX and PLC in terms of average payments per acre for corn, rice, soybeans, wheat and cotton are shown in Table 5 under the CBO and low price assumptions. At CBO prices, ARC provides higher payments per acre than PLC for corn and soybeans, but PLC provides higher average payment for rice and (marginally) wheat. The average of ARC payments per acre more than doubles for corn, rice and soybeans and almost doubles for wheat under the low price assumption. For cotton, STAX payments differ only slightly with the Senate version, which does not include a minimum price, but nearly double under low prices with the House Agriculture Committee version that includes a minimum price. Average payments from the PLC program rise even more for each crop under the low price assumption.

Table 6 shows the average effects on planted crop acreages that Babcock and Paulson derive from the new farm program payments. Under the assumption of CBO prices, the effects on acreage are less than 1 percent except in the case of cotton. The effects arise from a combination of incentives to expand overall acreage and incentives to shift acreage among crops. Effects are positive for all crops except soybeans. With the assumption of lower prices, corn acreage also falls slightly, while acreage of cotton and wheat increase nearly 13 percent and 6 percent, respectively. The effects of the new programs on increasing cotton acreage under either CBO or lower prices are noteworthy, since the new farm bill is intended to resolve the longstanding WTO cotton case of Brazil against the US by implementing a new cotton program that Brazil accepts as eliminating the price suppressing effects of past US cotton support programs.

Table 5. Estimated Average Payments per Acre under Proposed 2012 US Farm Bill Programs

Average Expected ARC and STAX Payments per Acre													
CBO Baseline Prices							Lower Prices						
	2013	2014	2015	2016	2017	Ave		2013	2014	2015	2016	2017	Ave
Corn	13.83	15.25	16.22	16.35	13.96	15.12	Corn	21.82	34.76	40.51	40.76	29.84	33.54
Rice	24.74	22.71	16.65	16.64	16.30	19.41	Rice	37.49	50.78	53.23	44.88	35.86	44.45
Soybeans	9.75	10.00	9.85	9.85	9.17	9.72	Soybeans	14.90	22.19	26.21	25.05	18.73	21.41
Wheat	8.09	7.20	4.92	4.81	4.85	5.97	Wheat	9.38	11.27	10.63	10.51	8.38	10.03
Cotton (STAX)	25.87	27.60	29.51	31.34	33.03	29.47	Cotton						
							No min price	23.51	25.07	26.79	28.44	29.94	26.75
							Min price	31.01	48.34	65.11	67.17	69.17	56.16
Average Expected PLC Payments per Acre													
CBO Baseline Prices							Lower Prices						
	2013	2014	2015	2016	2017	Ave		2013	2014	2015	2016	2017	Ave
Corn	5.60	4.35	3.96	3.82	3.58	4.26	Corn	22.33	56.30	100.49	100.49	100.49	76.02
Rice	73.55	61.29	62.10	60.88	58.30	63.22	Rice	161.52	248.21	322.35	322.35	322.35	275.36
Soybeans	1.48	1.10	0.93	0.89	0.81	1.04	Soybeans	10.08	32.40	63.56	63.56	63.56	46.63
Wheat	8.56	7.87	6.82	6.06	5.37	6.94	Wheat	23.27	41.83	59.31	59.31	59.31	48.61

Source: Babcock and Paulson, 2012

Table 6. Estimated Effects of Proposed 2012 US Farm Bill Programs on Crop Acreage

CBO Baseline Prices			
Acreage (million)			
	Baseline	2012 Farm Bill	Percent Change
Corn	89.77	89.77	0.01%
Cotton	10.85	11.32	4.36%
Rice	3.02	3.03	0.29%
Soybeans	76.43	76.21	-0.29%
Wheat	52.50	52.56	0.11%
Total	232.57	232.89	0.14%

Lower Prices			
Acreage (million)			
	Baseline	2012 Farm Bill	Percent Change
Corn	88.48	87.62	-0.97%
Cotton	7.52	8.49	12.93%
Rice	2.97	2.99	0.81%
Soybeans	78.75	76.96	-2.26%
Wheat	49.91	52.90	5.99%
Total	227.62	228.96	0.59%

Source: Babcock and Paulson, 2012.

5.0 Support for Agriculture of the BRIC Countries

As continuation of the CAP and renewal of the US farm bill demonstrate, the support programs of the developed countries are deeply entrenched, heavily defended politically, make significant transfers to domestic farmers, and have some impacts on production incentives, production levels and market prices. But these are not the only support policies that need to be taken into account. This section turns to examination of the agricultural policies of the BRIC countries (Brazil, Russia, India, China), again through the prism of the WTO disciplines on domestic support.¹⁷ The effects of agricultural policies of the BRIC on production and trade have implications for their own domestic and also global food security and for world agricultural markets. As the BRIC have emerged as global economic powers, and their per-capita incomes rise, questions intensify in an historical context about their governments' current and future policies toward agriculture. The inclusion of Russia under the WTO disciplines in 2012 demonstrates their relevance even in the absence of a new agreement, and the disciplines on agricultural support established for Russia in its accession are evaluated.

¹⁷ Russia is used here for the Russian Federation; China as used in the WTO refers to the People's Republic of China.

5.1 *Agriculture in the BRIC Economies*

Agricultural policies depend in part on the situation of agriculture within a nation's economy. The contribution of agriculture to the economy differs substantially among the BRIC countries. The levels of real GDP (Gross Domestic Product) of the BRIC are shown for 1995-2010 in Figure 5a (constant 2000 US dollars). The rapid growth of China's economy relative to the others is evident as it more than tripled in size over 15 years. India also shows substantial growth, essentially doubling in size from a lower initial level. By comparison, Brazil and Russia show much slower growth. The different rates of growth go a long way toward explaining changing levels of agricultural income (value added) relative to total GDP among the BRIC. The percentage of GDP accounted for by agriculture was initially far higher in India and China than in Russia and Brazil (Figure 5b). The share of GDP accounted for by agriculture dropped sharply in China (by half) as its economy grew; likewise, agriculture's share of the Indian economy dropped by 30 percent as the economy doubled.

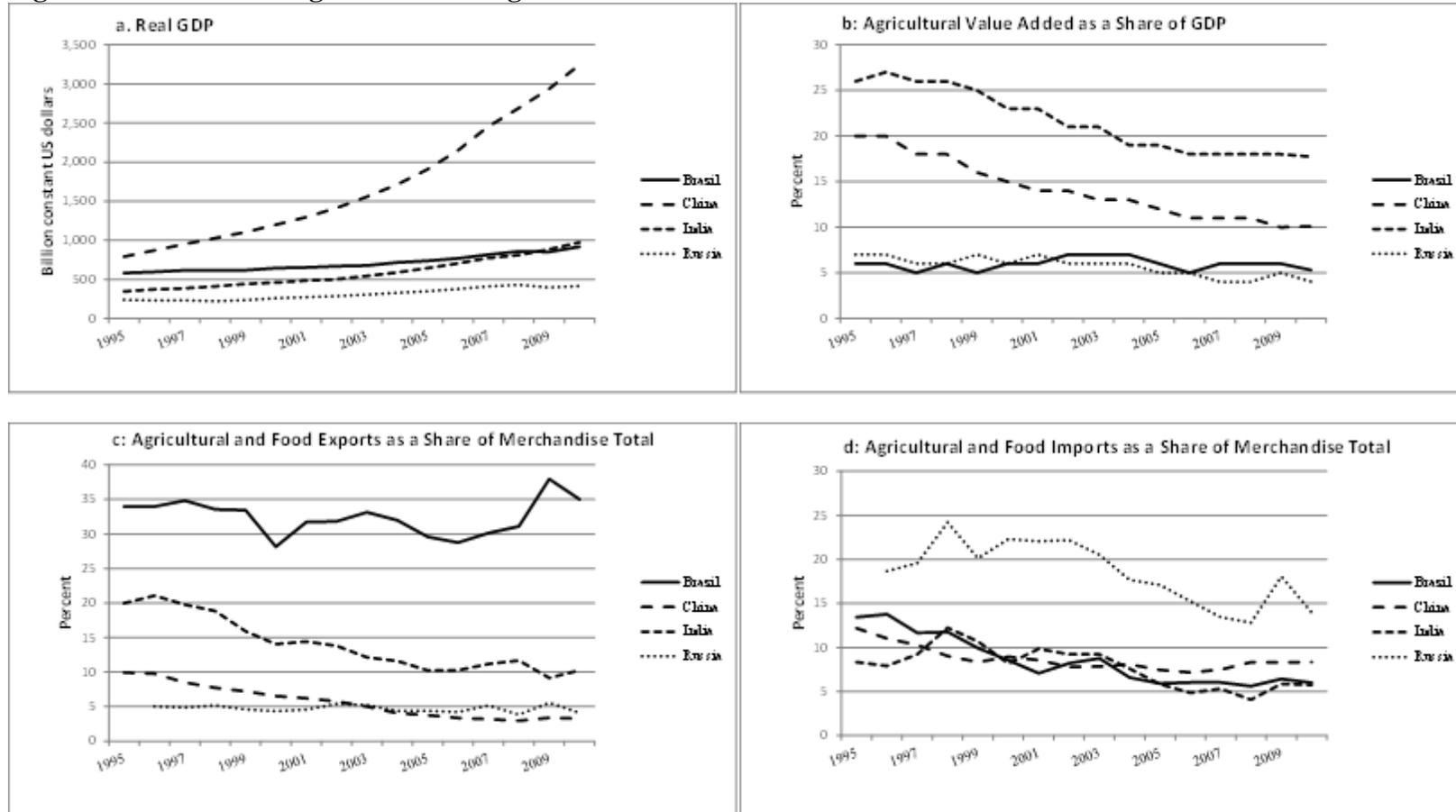
The economic importance of agriculture in Brazil is more evident in its international trade. Agriculture and food accounted for one third of Brazil's merchandise exports throughout the 15 years, fluctuating with highs and lows of world prices and other factors (Figure 5c). In contrast, Russia's agriculture and food exports were only 5 percent of merchandise exports. Agriculture and food exports declined as a share of the total exports of China and India and by 2010 were closer to the share in Russia than in Brazil. The share of agriculture and food in merchandise imports is higher for Russia than the other BRICs (Figure 5d). There is a downward trend in the share of merchandise imports accounted for by agriculture and food in all four countries, not just for China and India where GDP growth has been highest.

5.2 *WTO Disciplines on BRIC Agricultural Support*¹⁸

In considering domestic support of the BRIC countries in the WTO framework, four distinctions under the WTO rules are germane. One is the difference in the rules for developing and developed countries. Special and differential treatment for developing countries is a principle in the WTO framework. However, developing country status essentially results from self-declaration and has over time become less associated with economic criteria. As developing countries in the WTO, Brazil, India and China enjoy certain flexibilities on the level and type of agricultural support that is subject to WTO limits. Russia, as a developed country, does not enjoy the same flexibilities. A second difference relates to the level and type of support the BRIC provided in earlier years, which form the base for their WTO ceiling commitments on support. Brazil and Russia have a Bound Total AMS greater than nil, which gives them latitude for a certain amount of subsidies within their ceiling commitments. India and China do not have that latitude – their Bound Total AMS is nil. A third difference results from the processes used to establish the rules and commitments of the BRIC: negotiations in the Uruguay Round for Brazil and India, negotiations on WTO accession for China and Russia. For example, under a rule negotiated in its accession, which deviated from earlier practice in developing country accessions, China cannot exempt certain input subsidies from commitment under the development box. Fourth, under the 2008 Doha draft disciplines, the BRIC would enjoy large but

¹⁸ This section draws from and updates the chapters by Nassar, Cheng and Gopinath and the conclusion chapter by the editors in Orden, Blandford and Josling (2011), as reported and updated in Brink, Orden and Datz (2013).

Figure 5. Growth and Agriculture among the BRIC Countries



Source: Brink, Orden and Datz, 2013.

different degrees of flexibility to provide distorting support. The flexibilities would result from the Doha rules applying to developing countries (Brazil, India, and China) and to members that have acceded to the WTO after 1995 (Russia and China).

Thus, for the BRIC as a group, there is diversity of their circumstance under the WTO disciplines on agricultural domestic support. However, for all of the BRIC countries the existing or possible future constraints allow considerable flexibility. Nevertheless, the WTO rules and their commitments will play some role in determining the extent and form of any distortionary policies the BRIC pursue as their incomes rise and they transform over the coming decades toward agriculture as a smaller share of national incomes.

5.3 *Agricultural Policies and Notified Support by Brazil, India and China*

Agricultural policies among Brazil, India and China have differed in the type and level of support provided. In Brazil, a distinction is drawn between commercial farmers and family farmers. Support is delivered primarily through credit programs (including debt rescheduling), directed to both commercial and family farmers. Price and income support programs for certain commodities, including edible beans, maize, wheat, rice, and soybeans, are oriented to commercial farmers.

For India, self-sufficiency in production has been a goal of agricultural policy since independence. This has largely been achieved for staple grains, but less so for pulses and vegetable oils. India maintains programs of administered prices (minimum support prices) for cereals, pulses, oilseeds, sugar and cotton and makes extensive use of tariffs and tariff rate quotas to protect its domestic agriculture. Its output price policies are administered countercyclically (at times of high world prices, India has lowered tariffs and imposed export restrictions to put downward pressure on domestic prices). India has provided substantial subsidies for inputs such as fertilizer, electricity and irrigation.

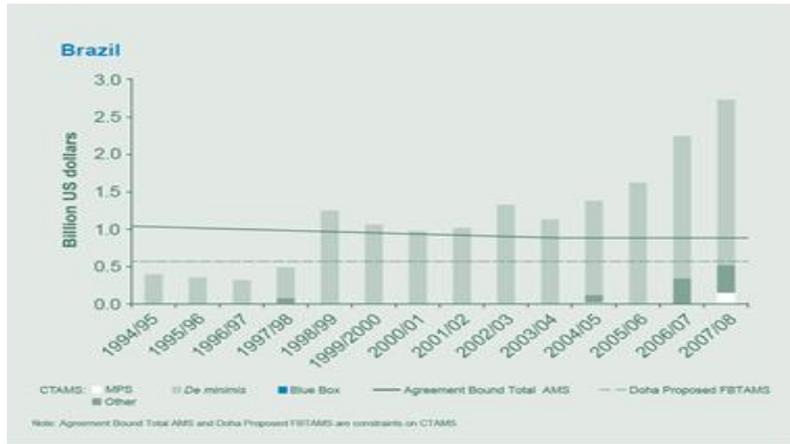
In China, various policies have discriminated against agriculture historically, for example through agriculture-specific taxes or by maintaining commodity prices below market-determined levels. The discrimination against agriculture has been reversed and farmers are now supported through input subsidies, direct payments, and price support. Investment in agriculture-related infrastructure projects is a large component of government budgetary support for agriculture.

Summaries of the domestic support notifications of Brazil, India and China are given in Figure 6 for 1995-2008. Brazil and India notify their support in US dollars, and China (from 1996) notifies in its own currency (the average 1996-2008 exchange rate was around 8 Chinese renminbi per US dollar). Since India's notifications were only available through 2003/04 by December 2012, Gopinath's (2011) estimated (shadow) notifications are utilized for the years 2004/05-2008/09.

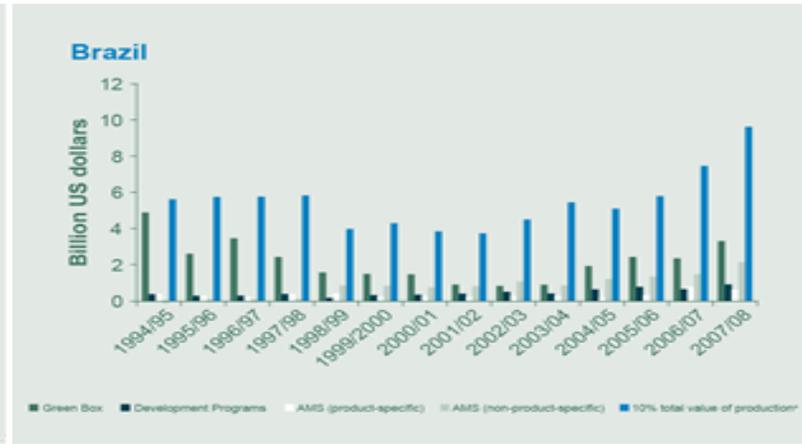
Brazil is the only one of these three countries that has a positive, though small, Bound Total AMS. Brazil notifies MPS and some other support (primarily certain credit subsidies and price support payments) as product-specific AMS. The AMS for one or more products (cotton or wheat) has exceeded the *de minimis* threshold in four years in Brazil as shown in Figure 6a. Thus

Figure 6. Notified Agricultural Support of Brazil, India and China, 1995-2008

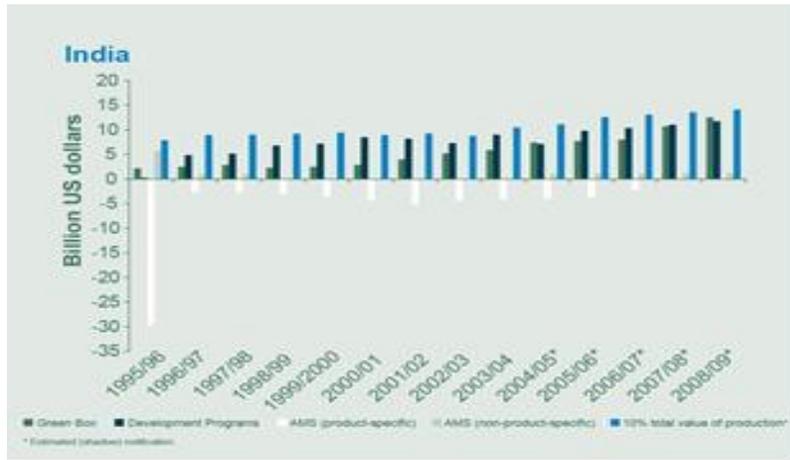
Panel a



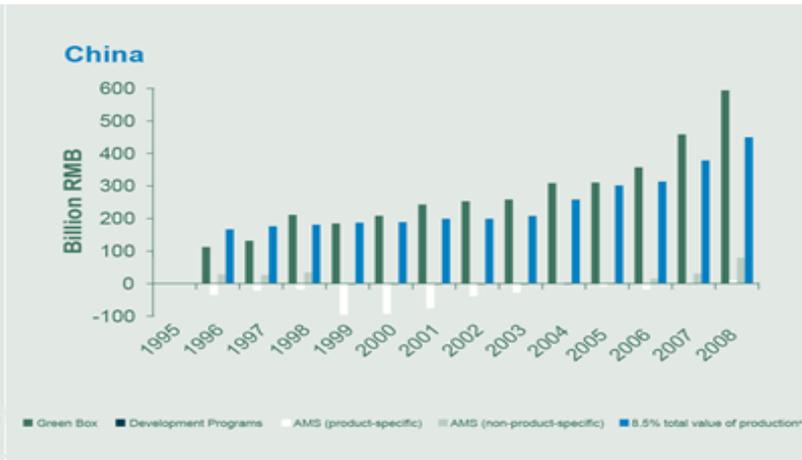
Panel b



Panel c



Panel d



Source: Brink, Orden and Datz, 2013.

Brazil has utilized the policy space for specific crops that results from having a positive Bound Total AMS. The resulting sum of AMS support counted in Brazil's CTAMS has always been well below its ceiling commitment. The small magnitude of Brazil's product-specific AMS support is given perspective in Figure 6b. The rightmost bar for each year shows 10 percent of the value of total agricultural production. Brazil's product-specific AMS support summed across all commodities is always less than 1 percent of total production value.

India's and China's product-specific AMS support has completely (India) or primarily (China) consisted of WTO MPS. The *de minimis* thresholds are the effective constraints on such support for these countries. The WTO MPS for India (calculated using reference prices and administered prices converted to US dollars) and China has been or is estimated to have been negative or zero for many years (Figure 6c and 6d). This occurs when administered prices were below external reference prices for key food staples (rice and wheat) or no quantity was indicated as production eligible for the price support.¹⁹ Because of the methodological issues relating to prices and eligible production, the notified WTO MPS does not correspond to the economic MPS provided in either country. Farmers growing rice or wheat in India and China have been "disprotected" (effectively taxed) by output pricing policies in certain years since 1995, but mostly they received positive economic MPS after 2000. Disprotection occurred again in India and China when world prices rose sharply in 2008 and policy interventions were used to insulate domestic markets from the increase.

Support under the other notified categories is also shown in Figure 6b-d. None of the countries has notified blue box support. Green box support has increased quite regularly in nominal value and as a percentage of the total value of agricultural production in India and China, but it has fluctuated in Brazil. The level of green box support as a percentage of total production value, the explanation for growth in support, and the composition of the green box support (not broken down in Figure 6) differ among the three countries.²⁰ Green box support is nearly 10 percent of the total value of production in India and China, but falls to its lowest value in 2002/03 for Brazil and is only about 2-4 percent in the latter years. India's green box support is primarily composed of expenditures directed toward subsidizing low-income food consumers. Without this public stockholding for food security, India's green box support is only about 2 percent of the total value of production in 2008/09, less than in Brazil. China notified green box support was 593 billion renminbi in 2008 (US\$ 87 billion), a large component of which consists of infrastructure investments. Such investments are not included to the same extent in the notifications of the other countries. China's green box support also includes direct payments to

¹⁹ The increases in administered prices in India since the last notified year (2003/04) have raised them to significantly higher levels than the external reference prices in rupees. Gopinath's (2011, 2012) estimates of MPS closely match India's notifications for the years 1998/99–2003/04 and indicate a positive price gap in US dollars for rice and wheat from around 2008/09. A US industry report (DTB Associates, 2011) takes issue with the use of only actual procurement by the government as the eligible quantity rather than total production. As a commodity's administered price is being raised, using total production would make its AMS exceed the *de minimis* threshold at an earlier point in time than if only procurement were used.

²⁰ Caution is appropriate in making cross-country comparisons of levels of support in the notifications. Each country exercises substantial discretion in the measures it notifies to the WTO and in the measurement of levels of support. Although scrutiny of the notifications occurs through the WTO Committee on Agriculture and through dispute proceedings, no systematic corroboration is undertaken to ensure comparability of the notified support across countries.

grain producers notified as decoupled income support since 2004; these have been less than 1 percent of total agricultural production value.²¹

Brazil, India and China have notified various types of input and investment subsidies. India has notified this support primarily under the exemption for development programs. The development program support of India averages a relatively high level of about 8 percent of the total value of production, in part because it notifies significant subsidies for electricity and irrigation. Brazil has notified smaller amounts of support under the development program exemption (averaging less than 1 percent of production value) and as non-product-specific AMS support: these values increase in later years due to investment credit subsidies and debt rescheduling. The level of China's non-product-specific AMS support, comprising mainly of input subsidies, increased rapidly from 2006 but remained less than 1.5 percent of the value of production in 2008. China has not notified subsidies for irrigation or electricity, a potentially important omission.

In addition to their WTO notifications, Brazil and China (and Russia) participate in annual monitoring of their agricultural support by the OECD, which sometimes provides more up-to-date information. While not exactly comparable to the notified WTO non-product-specific support, support based on input usage is reported by OECD to increase in China in 2009 and 2010 (preliminary) compared to 2008 (OECD, 2011). There is little increase in payments-based support in Brazil, but its economic MPS as measured by OECD increases, particularly for 2009.

India does not participate in the monitoring of support by the OECD and has lagged in notifying its support to the WTO. In its notifications for 1996/97 and 1997/98, 80 percent of India's notified subsidies for fertilizer, electricity and irrigation were included in the development program category, based apparently on the share of small farms in the total number of farms (Gopinath, 2011). Subsequently, in its notification made in 2011, India notified all such input subsidies from 1998/99 through 2003/04 under the development program exemption, noting that close to 100 percent of farm holdings are those of low-income, resource-poor farmers (WTO, 2011b). Gopinath's shadow notification estimates in Figure 6c, completed in 2010, follow India's earlier notification practice and thus continue to divide the non-product-specific support between development programs and non-product-specific AMS using the 80 percent calculation. For the years 1998/99-2003/04, the sum of non-product-specific support Gopinath estimates under development programs and as AMS averages about \$1.4 billion less than notified by India.

In updating his analysis, Gopinath (2012) presents some evidence of increased input subsidies by India, as shown in Table 7. Although not subject to WTO limits under the development box, Gopinath notes that total input subsidies increased in 2007-2009, reaching 17.9 percent of the value of production in 2008 when fertilizer prices peaked before apparently declining the next year. Gopinath also notes that the reported subsidies, while consistent with past WTO notifications by India, includes budgetary expenditures to support domestic fertilizer producers as well as fertilizer subsidies benefitting farmers. India's notified support also includes electricity subsidies for all sectors not just agriculture. Thus, the reported subsidies, while reflecting an increase, may overstate the support received by farmers in India. Gopinath notes

²¹ Huang *et al.* (2011) argue that China's support policies have caused few distortions to grain acreages or input use.

that unfortunately data on the subsidies was deleted from a readily-accessible source in 2009 and he was not able to obtain corresponding values other than for fertilizer subsidies.

Table 7. Input Subsidies of India, 2004-2009

Input Subsidy	2004	2005	2006	2007	2008	2009
	billion US dollars					
Fertilizer	3.53	4.17	5.79	8.07	16.68	11.17
Electricity	4.00	4.39	4.36	5.13	5.99	NA
Irrigation	2.74	3.23	3.75	4.84	5.15	NA
Other	0.81	1.28	1.05	3.75	7.22	NA
Total	11.08	13.06	14.95	21.80	35.04	11.17
Value of production	124.7	144.6	157.7	202.6	195.6	211.9
Subsidy as a share of value of production (%)	8.9	9.0	9.5	10.8	17.9	NA

Source: Gopinath, 2012 (author's calculations from Table 2.6 (b) for value of agricultural production and Table 12.1 for input subsidies, *Agricultural Statistics at a Glance*, Ministry of Agriculture, Government of India, various years).

Overall, Brazil, India and China have notified less support than the developed countries, but the levels of support in India and China have increased over time both nominally and relative to total agricultural production value. Because of its fluctuating green box support, Brazil's notified support is seen to have increased only in the more recent years. The estimated total of all notified support for agriculture (including non-exempt and exempt support under the WTO rules) was of a similar order of magnitude relative to the total value of agricultural production in China and India (using Gopinath's initial estimates) as in the United States in 2008.²² This was a year of low US price-linked subsidies because world market prices for agricultural products were relatively high. With a porous international Agreement on Agriculture, domestic support policies remain heterogeneous across Brazil, India and China.

5.4 WTO Accession of Russia²³

Russia became a developed country member of the WTO in August 2012 after the conclusion of a long accession process that had been underway from before the formation of the WTO. In the final stages of the accession negotiations, the size of Russia's Bound Total AMS became one of the contentious issues. One reason for this was the rising levels of agricultural support in Russia since around the year 2000, which made agricultural exporting countries concerned about potentially having to compete with heavily supported Russian producers both in Russia and in third-country markets. The increasing levels of support in Russia were documented in the policy monitoring carried out by the OECD (2007, 2009, 2011), and they were also apparent in the base data provided by Russia over the years in line with the requirements of the WTO accession process. According to those requirements, Russia provided data for a rolling

²² In this calculation of total support, public stockholding for food security programs in India and domestic food aid in the US are deducted from the notified green box support (see Orden, Blandford and Josling, 2011, chapter 11).

²³ This analysis of Russia's terms of WTO accession for domestic support was developed by Brink and is condensed from Brink, Orden and Datz (2013).

series of three-year periods in formats similar to those members use to notify their yearly support levels to the WTO Committee on Agriculture (WTO, 1995b).²⁴ Moreover, senior Russian officials, including the minister of agriculture, repeatedly expressed the view that Russia's room to provide farm support should be of a certain size, even stating the desired large levels.

Russia's Bound Total AMS as agreed in its accession and reported in US dollars is \$9.0 billion in 2012 and 2013, declining in equal steps to reach \$4.4 billion in 2018 and then staying at that level.²⁵ The data underlying the final value of the commitment refer to the 2006-08 period. As shown in Table 8, Russia's AMS support increased significantly in 2008 over the 2006 and 2007 levels. It can be conjectured, based on OECD (2011) data, that a larger Bound Total AMS would have resulted if support data for 2007-09 had been used to determine its level, since budgetary support in the OECD data was larger in 2009 than in 2006. As a developed country Russia's *de minimis* percentage is 5 percent and it does not have access to the developing country exemption for certain development programs. Expressing its commitment and notifications in US dollars gives Russia some protection against a drop in the value of its currency relative to the dollar: having a nominal Bound Total AMS in a depreciating domestic currency reduces the amount of distorting support the country can provide without violating its WTO obligation.

Russia's accession commitments in domestic support are unusual in starting at a negotiated level higher than in its base period and then declining in five steps to the final bound level. Some other acceding members have taken reductions over a transition period, but the starting point has been an amount calculated from the data for the base period, not an amount that is unsupported by past support in that period. In Russia's case, the \$4.4 billion support level in the 2006-08 period corresponds to the end point of the reductions, not the starting point.

According to the OECD, market price support makes up a large share of policy support to agricultural producers in Russia; some 65 percent of the PSE consists of MPS. The main instruments of price support are border measures, such as tariffs and non-tariff measures, which do not enter the calculation of the WTO MPS. In the WTO base data for 2006-08, Russia does not report any administered price larger than the fixed external reference price and hence reports no WTO MPS. Apart from other differences in policy coverage between PSE and AMS support, the 2006-08 amounts calculated with the WTO methodology, and which correspond to Russia's final Bound Total AMS of \$4.4 billion, are therefore significantly smaller than the support measured by the OECD PSEs for Russia in 2006-08.

Russia's budgetary agricultural support is provided mainly through measures within multi-year frameworks. The support reported by Russia for 2006 and 2007 included support provided through programs under the 2006-07 National Priority Project for Development of the

²⁴ For acceding countries, a more recent base period than 1986-88 is conventionally utilized for domestic support. For example, China's base period is 1996-98.

²⁵ In agriculture, Russia also has market access commitments and a nil export subsidy commitment. The final bound tariff in agriculture averages 10.8 percent, compared to an average applied tariff ranging between 13.2 and 14.6 percent in the years 2007-11, and tariff rate quotas apply to beef, pork and pork trimmings (until 2020), some poultry products and some whey products (Kiselev and Romashkin, 2012; WTO, 2011c).

Table 8. Russia's Current Total AMS in Base Years 2006-2008

	2006		2007		2008	
	AMS	% of VOP	AMS	% of VOP	AMS	% of VOP
AMS in thousand US dollars						
Product-specific AMSs						
Hemp and flax	5.5	45.3%	7.3	41.3%	14.5	60.8%
Sheep	8.8	5.1%	15.1	2.5%	<i>dm</i> 27.0	3.4% <i>dm</i>
Reindeer	17.0	70.0%	30.0	117.4%	35.0	65.7%
Horse	-	-	1.2	0.7%	<i>dm</i> 8.3	5.3%
Milk	155.6	1.9% <i>dm</i>	231.6	2.0% <i>dm</i>	362.2	2.4% <i>dm</i>
Meat	33.9	0.4% <i>dm</i>	67.3	0.3% <i>dm</i>	69.2	0.5% <i>dm</i>
Eggs	11.3	0.5% <i>dm</i>	13.8	0.5% <i>dm</i>	18.8	0.5% <i>dm</i>
Wool	0.4	1.0% <i>dm</i>	1.2	2.4% <i>dm</i>	0.3	0.4% <i>dm</i>
Non-product-specific AMS	3,744.9	6.3%	3,827.2	5.1%	5,596.1	5.6%
Subsidies for operating inputs	1,455.5		756.6		1,969.3	
Subsidies for capital inputs	482.3		560.3		647.8	
Credit concessions	1,318.9		1,618.8		1,858.6	
Subsidies for crop insurance	245.4		143.1		174.7	
Rail freight rates	94.2		101.5		63.0	
Production subsidies	148.7		196.0		338.6	
Other subsidies	-		450.8		544.2	
Current Total AMS	3,776.2		3,864.4		5,653.9	

2006-08 average Current Total AMS = 4,389.4

Notes:

VOP: value of production

dm = *de minimis* (no more than 5% of the product's or agriculture sector's value of production).

Current Total AMS is the sum of all non-*de minimis* AMSs.

Non-product-specific AMS subcategories are based on interpretation by Brink of 23 programs reported in the source document.

Source: Derived by Brink from WT/ACC/SPEC/RUS/39 (23 August 2012) and reported in Brink, Orden and Datz, 2013.

Agro-Industrial Complex (OECD, 2007). The 2008 support was delivered mainly through instruments under the State Program for Development of Agriculture 2008-12. The support programs were very similar under the two frameworks. A large part of support, whether green box or AMS support, is provided by regional authorities. This is particularly the case for recent initiatives to modernize livestock production. Russia claimed significant amounts of support (average of \$2.1 billion in 2006-08) as eligible for the green box exemption. Most of this support was in the form of general services such as research, training, inspection, pest and disease

control, and enhancement of soil fertility. Only very small amounts were claimed under the direct payment clauses of the green box.

As shown in Table 8, during the base years 2006-08 product-specific AMS support, mainly for livestock products, was generally small enough to fall below the *de minimis* threshold, except in the very small production sectors of flax, hemp, reindeer, and horses. The non-product-specific AMS accounted for almost all of Russia's AMS support. It included subsidies for fertilizer, chemicals, fuel, feed, seed, machinery leasing, breeding animals, and crop insurance, as well as credit and other concessions. The dominance of non-product-specific AMS support in determining a Bound Total AMS is unusual, although non-product-specific support does make up a large share of non-green-box support in Brazil, India and China, as discussed above. As a developed country Russia cannot exempt any of its non-product-specific support as development program support. If Russia had reported only slightly less support as non-product-specific AMS, it would not have exceeded the *de minimis* threshold (especially in 2007), and the resulting base-period CTAMS would have amounted to almost nothing, leading to a much smaller Bound Total AMS.

A unique and possibly significant element of the provisions that apply to Russia is a rule regarding product-specific AMS support. Although applying only through 2017, it requires the sum of all product-specific AMS support to be no more than 30 percent of the non-product-specific AMS (WTO, 2011d, paragraph 1187). This constraint on product-specific AMS support echoes the initiatives in the Doha negotiations to set product-specific limits. For Russia, the rule prevents an early large shift from non-product-specific to product-specific AMS support.

The relative size of Russia's final Bound Total AMS in 2018 would appear to be more constraining than is the case for the EU and the US. The contrast will become sharper if the value of production in Russian agriculture continues to increase rapidly in the future.²⁶ Russia could ease the constraint of its Bound Total AMS to some extent by introducing product-specific AMS support within the *de minimis* thresholds for each product, at least after the expiration in 2017 of its unique transition rule on such support. In the longer term it may also be possible for Russia to change the specifics of some of its non-product-specific AMS programs in order to make the revised programs qualify for the green box exemption. Bringing non-product-specific AMS support below the *de minimis* threshold would free up room for additional product-specific AMS support above *de minimis* levels within Russia's Bound Total AMS.

These considerations begin to arise with the 2008-12 State Program coming to an end. Russia's cabinet approved in July 2012 a new long-term plan to support agriculture in 2013-20. Media reports indicate that subsidies for fuel and fertilizers would be terminated, while other subsidies would be introduced. The new subsidies would be paid per hectare of farm land and per litre of milk (Medetsky, 2012). Details are scarce and it is not clear when legislation will pass. Without details it is not possible to judge in which category Russia might be able to place any future hectare-based support – AMS, blue box or green box. However, if Russia were to report significantly less support as non-product-specific AMS, it would more easily stay below

²⁶ Liefert and Liefert (2012) discuss the potential for such a development to materialize. The value of production has been increasing rapidly: \$59, \$76, and \$99 billion in 2006, 2007 and 2008, respectively. Even in the very poor harvest year of 2010 the value of production remained around \$84 billion (Federal State Statistics Service, 2011).

the Bound Total AMS as this limit declines from 2013 to 2018. The Russian authorities have long emphasized a need to increase the production of livestock. If more support were put in place towards this goal, such as MPS relying on administered prices, some of it could be reported within the larger flexibility for product-specific AMS available after the expiration of the special rule in 2017. The presence of the Bound Total AMS means, however, that Russia's AMS support will be limited by international commitments, which was not the case before its WTO accession.

6.0 Conclusion

This paper has addressed several questions about agricultural domestic support among developed and developing countries. I began by asserting the view that agricultural support still merits our attention in the era of relatively high prices that has prevailed since 2008. In particular, while these higher prices signal the case for renewed public and private investments in expanding agricultural output, they do not give *carte blanche* for production-distorting or trade-distorting subsidies by individual countries. One might have thought that old policies of providing price and income support to farmers would have faded from the policy debate in light of the higher prices but that is not the case. The next US farm bill is likely to enact increased protection of farmers against possible adverse events, moving it further from the spirit of multilateral negotiations which have aimed to reduce distortions in world markets. Meanwhile, EU policies will continue to rely largely on payments decoupled from direct links to production of specific crops and livestock. But its transfers to farmers will remain very high compared with the US. Despite the divergent policies being pursued, the events and political momentum of 2012-13 in both cases perpetuate a global regime of support to farmers in the major developed countries.

Continuation of these support policies has detrimental direct and indirect effects on global food security. To the extent that these policies induce higher US or EU production and lower world prices and increase uncertainties for overseas producers, they reduce incentives for agricultural development elsewhere. They contribute to a concentration of world production in a limited number of countries, increasing the risk exposure of the global food system. For the US, these distortionary effects will be larger if prices decline from recent high levels; that is, the distortions will be greater just as other producers face more adverse conditions. For the EU, distortions arise from the sheer amount of income transfers. In reaction to the continued agricultural subsidies in the US and the EU, other countries will maintain protection and develop unilateral support programs for their own farmers, lessening hopes for achieving a well-integrated world food system.

The framework in which this paper has examined domestic support is the disciplines articulated in the WTO Agreement on Agriculture and in the uncompleted Doha Round negotiations. This is the legal framework under which international discussion of limits on support occurs. As described herein, under the Agreement on Agriculture the disciplines on trade-distorting support remain quite lax. Tighter disciplines would be imposed on some countries under the Doha Round proposals but it has not proven feasible to reach a multilateral agreement that incorporates those terms. I have argued that the 2012 US farm bill proposals are one casualty of the failure of the Doha negotiations to be completed. In turn, enactment of a new

US farm bill along the lines being considered in Congress in 2012 will make it harder for the US to agree to tighter disciplines on domestic support in the future.

The support provided to agriculture by developing countries also matters both to their own production and food security and to world markets. Herein, the focus has been on the BRIC countries, which are particularly important as a growth nexus within the world economy. Their support measures are illustrative of the diverse circumstances of agriculture and sets of support policies among the developing countries. China has notified to the WTO in the green box the most infrastructure investment in agriculture as a percentage of value of its agricultural output, driven apparently by population pressure on its domestically-produced food supply and rapid overall growth. Brazil, even with its strong export interests, has reported less such investment. India has notified a relatively high level of domestic support through input subsidies, sometimes in conjunction with output market policies that protect Indian farmers relative to world prices and sometimes in the face of output market policies that disprotect its farmers. Russia, in its new accession terms, has secured the most flexibility among the BRIC for domestic support through its agreed Bound Total AMS. Agricultural support appears to have increased in recent years among the BRIC. Income transfers to farmers remain relatively low in China, Brazil and even Russia compared to levels of the EU or US. With relatively high prices the non-product-specific support provided by Russia, China or India may rival that of the US, although our level of knowledge about these subsidies remains less than desirable. There is certainly room for contestation over support among the BRIC for specific commodities in the future. Moreover, aside for the *de minimis* threshold limits on product-specific AMS support, the proposed Doha disciplines while tightening constraints on the US and EU would leave substantial flexibility for increased support among developed countries. All of this suggests careful monitoring is warranted to measure the levels of support these countries are providing in order to increase transparency of the policy regime for agriculture worldwide.

References

- Anderson, K. (ed.) (2009). *Distortions to Agricultural Incentives: A Global Perspective 1955–2007*. London: Palgrave Macmillan and Washington, DC: World Bank.
- Anderson, K. 2012. “Agricultural price distortions: Trends and volatility, past and prospective.” Plenary paper, International Conference of Agricultural Economists, Foz do Iguaçu, Brazil, August 18-24, 2012.
- Babcock, B. and N. Paulson. 2012. “Potential Impact of Proposed 2012 Farm Bill Commodity Programs on Developing Countries.” Issue Paper No. 45. Geneva: International Centre for Trade and Sustainable Development, October. <http://ictsd.org/i/publications/149058/>.
- Barichello, R, J. Cranfield and K. Meilke. 2009. “Options for the Reform of Supply Management in Canada under Trade Liberalization.” *Canadian Public Policy* 35: 203-217.
- Blandford, D. and D. Orden. 2011. “United States” in *WTO Disciplines on Agricultural Support* (D. Orden, D. Blandford and T. Josling, editors). Cambridge UK: Cambridge University Press.
- Brink, L. 2009. “WTO constraints on domestic support in agriculture: Past and future.” *Canadian Journal of Agricultural Economics* 57: 1-21.
- Brink, L. 2011. “The WTO disciplines on domestic support” in *WTO Disciplines on Agricultural Support* (D. Orden, D. Blandford and T. Josling, editors). Cambridge UK: Cambridge University Press.
- Brink, L., D. Orden and G. Datz. 2013. “BRIC Agricultural Policies through a WTO Lens.” *Journal of Agricultural Economics* 64:1 (forthcoming, February 2013).
- Bureau, J. C., D. Laborde and D. Orden. 2013. “Developed Country Agricultural Policies: Continued US and EU Support in Absence of a New World Trade Agreement” in *Global Food Policy Report*. Washington DC: International Food Policy Research Institute (forthcoming, February).
- Butault, J. P., J. C. Bureau, H. P. Witzke, and T. Heckeley. 2012. “Comparative Analysis of Agricultural Support within the Major Agricultural Trading Nations.” Brussels: European Parliament. <http://www.europarl.europa.eu/committees/fr/studiesdownload.html?languageDocument=EN&file=74651>.
- Cairns, A. P. and K. D. Meilke. 2012. “Canadian Agrifood Export Performance and the Growth Potential of the BRICs and Next-11.” Canadian Agricultural Trade Policy and Competitiveness Research Network Working Paper 2012-05. Guelph. http://www.uoguelph.ca/catprn/PDF-WP/CATPRN-WP_2012-05_Cairns-Meilke.pdf

- Cheng, F. 2011. "China" in *WTO Disciplines on Agricultural Support* (D. Orden, D. Blandford and T. Josling, editors). Cambridge UK: Cambridge University Press.
- De Gorter, H., D. R. Just and J. D. Kroop. 2008. "Cross-subsidization due to Inframarginal Support in Agriculture: A general Theory and Empirical Evidence." *American Journal of Agricultural Economics* 99:1: 42-54.
- DTB Associates. 2011. "Domestic Support and WTO Obligations in Key Developing Countries." Washington DC, September.
- Elbehri, A. and A. Sarris. 2009. *Non-distorting Farm Support to Enhance Global Food Production*. Rome: FAO.
- FAPRI. 2012. "WTO Domestic Support Measures: How Accounting Rules and Market Circumstances Matter." University of Missouri, FAPRI-MU Report #1-11, January.
- Federal State Statistics Service (Russia). 2011. "Agricultural production output by type of agricultural farms." www.gks.ru/bgd/regl/b11_12/IssWWW.exe/stg/d01/15-01.htm
- Gopinath, M. 2011. "India" in *WTO Disciplines on Agricultural Support* (D. Orden, D. Blandford and T. Josling, editors). Cambridge UK: Cambridge University Press.
- Gopinath, M. 2012. WTO Disciplines on Agricultural Support Update: A Comparison of India's WTO Domestic Support Notifications with Shadow Measurements. April. <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll5/id/3566>
- Haq, Z. and K. D. Meilke. 2010. "Do the BRICs and Emerging Markets Differ in their Agrifood Imports?" *Journal of Agricultural Economics* 61: 1-14.
- Huang, J., X. Wang, H. Zhi, Z. Huang and S. Rozelle. 2011. "Subsidies and distortions in China's agriculture: Evidence from producer-level data." *Australian Journal of Agricultural and Resource Economics* 55: 53-71.
- Josling, T. and A. Swinbank. 2011. "European Union" in *WTO Disciplines on Agricultural Support* (D. Orden, D. Blandford and T. Josling, editors). Cambridge UK: Cambridge University Press.
- Kiran, B. E. 2009. "The Incidence of US Agricultural Subsidies on Farmland Rental Rates." *Journal of Political Economy* 117: 138-164.
- Kiselev, S. and R. Romashkin. 2012. "Possible Effects of Russia's WTO Accession on Agricultural Trade and Production." Issue Paper No. 40, International Centre for Trade and Sustainable Development, Geneva.
- Liefert, W. M. and O. Liefert. 2012. "Russian agriculture during transition: Performance, global impact, and outlook." *Applied Economic Perspectives and Policy* 34: 37-75.

- Lubowski, R.N. S. Bucholtz , R.Claassen, M.Roberts, J.Cooper, A.Gueorguieva and R. Johansson. 2006. “Environmental Effects of Agricultural Land-Use Change: The Role of Economics and Policy.” USDA Economic Research Service. Economic Research Report No. ERR-25, August. <http://www.ers.usda.gov/publications/err-economic-research-report/err25.aspx>.
- Mahé, L.P. 2012, “Do the Proposals for the CAP after 2013 Herald a “Major” Reform?” Policy Paper 53. Paris: Notre Europe.
- Matthews, A. 2012. “Environmental Public Goods in the New CAP: Impact of Greening Proposals and Possible Alternatives.” Brussels: European Parliament. <http://www.europarl.europa.eu/committees/fr/studiesdownload.html?languageDocument=EN&file=74995>.
- Medetsky, A. 2012. “Cabinet tweaking agricultural subsidies under WTO.” *The Moscow Times*, July 15. <http://www.themoscowtimes.com/business/article/cabinet-tweaking-agricultural-subsidies-under-wto/462109.html>
- Melendez-Ortiz, R., C. Bellmann and J. Hepburn (editors) 2009. *Agricultural Subsidies in the WTO Green Box: Ensuring Coherence with Sustainable Development Goals*. Cambridge: Cambridge University Press.
- Ministry of Economic Development. 2008. “On the Current State of Russia’s WTO Accession Negotiations.” December. www.wto.ru/russia.asp?f=dele&t=11
- Mittenzwei, K., W. Britz and C. Wieck. 2012. “Does the EU Green Box Distort Markets? An Empirical Analysis using the CAPRI Model.” Presented at the annual meeting of the International Agricultural Trade Research Consortium, San Diego, CA, December 9-11.
- Monke, J. 2012. “Budget Issues Shaping a 2012 Farm Bill.” Congressional Budget Service. Report R42484, Washington DC, November 2.
- Nassar, A. 2011. “Brazil” in *WTO Disciplines on Agricultural Support* D. Orden, D. Blandford and T. Josling, editors). Cambridge UK: Cambridge University Press.
- OECD. 2007. *Agricultural Policies in Non-OECD Countries – Monitoring and Evaluation 2007*. Paris.
- OECD. 2009. *Agricultural Policies in Emerging Economies 2009 – Monitoring and Evaluation*. Paris.
- OECD. 2011. *Agricultural Policy Monitoring and Evaluation 2011: OECD Countries and Emerging Economies*. Paris.

- Orden, D., D. Blandford and T. Josling (editors). 2011. *WTO Disciplines on Agricultural Support: Seeking a Fair Basis for Trade*. Cambridge UK: Cambridge University Press.
- Orden, D., D. Blandford, T. Josling and L. Brink. 2011. "WTO Disciplines on Agricultural Support: Experience to Date and Assessment of Doha Proposals." Research Brief 16, International Food Policy Research Institute, May.
- Orden, D., R. Paarlberg and T. Roe. 1999. *Policy Reform in American Agriculture: Analysis and Prognosis*. Chicago: University of Chicago Press.
- Shields, D.A. and R. Schnepf. 2012. "Farm Safety Net Provisions in a 2012 Farm Bill: S. 3240 and H.R. 6083." Congressional Budget Service. Report R42759, Washington DC, September 28.
- Smith, V. H. 2011. "Premium Payments: Why Crop Insurance Costs Too Much." Washington, DC: American Enterprise Institute. http://www.aei.org/files/2011/11/04/-premium-payments-why-crop-insurance-costs-toomuch_152221377467.pdf.
- Sumner, D. A. and C. Zulauf. 2012. "Economic & Environmental Effects of Agricultural Insurance Programs." Unnumbered report, C-FARE, July.
- Swinbank, A. 2012. "New Direct Payments Scheme: targeting and redistribution in the future CAP." Brussels: European Parliament. <http://www.europarl.europa.eu/studies>.
- WTO. 1995a. *Results of the Uruguay Round of Multilateral Trade Negotiations—The Legal Texts*. Geneva.
- WTO. 1995b. "Accession to the World Trade Organization – Information to Be Provided on Domestic Support and Subsidies in Agriculture." WT/ACC/4, 18 March.
- WTO. 2008. "Revised draft modalities for agriculture." TN/AG/W/4/Rev.4, 6 December.
- WTO. 2011a. "Groups in the Agriculture Negotiations." www.wto.org/english/tratop_e/agric_e/negoti_groups_e.htm
- WTO. 2011b. "Notification of Domestic Support, India." G/AG/N/IND/7. 9 June.
- WTO. 2011c. WTO. "Working Party seals the deal on Russia's membership negotiations." News Item, 10 November. http://www.wto.org/english/news_e/news11_e/acc_rus_10nov11_e.htm
- WTO. 2011d. "Report of the Working Party on the Accession of the Russian Federation to the World Trade Organization." WT/ACC/RUS/70; WT/MIN(11)/2. 17 November.
- Zulauf, C. and D. Orden. 2010. "The Revenue Program Option in the 2008 US Farm Bill: Evaluating Performance Characteristics of the ACRE Program." *Agricultural and Resource Economics Review* 39 (3): 517-533.

Zulauf, C. and D. Orden. 2012. "US Farm Policy and Risk Assistance: The Competing Senate and House Agriculture Committee Bills of July 2012." Issue Paper No. 44. Geneva: International Centre for Trade and Sustainable Development, September.
<http://ictsd.org/i/publications/144525/>