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US Farm Bill Subsidies and World Commodity Markets

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The second in a series of IPC “Farm Bill Briefs,” the following presents an overview of agricultural policies created or continued by the Farm Security and Rural Investment Act of 2002, their potential influence on the global economy, and the market implications of alternative policies under consideration in 2007.

The United States has dozens of farm programs that potentially affect markets for dozens of different commodities. The policies include (a) the main commodity payment programs for grains, oilseeds, and cotton, (b) crop insurance subsidies and disaster assistance that apply more broadly to crops and to a lesser degree livestock, (c) conservation subsidies that lower costs of crop and to a lesser degree livestock production, (d) dairy price supports, price discrimination schemes, and a deficiency payment program, and (e) significant trade barriers for a handful of commodities, including sugar, dairy products, orange juice, and ethanol. It is important to note that subsidy and protection policies provide significant support to only about half of US agriculture, and major industries, such as meat products, hay, and most fruits and vegetables are outside the farm subsidies and protection regime.¹

The complexity of this array of programs defies comprehensive treatment in a policy brief. Nonetheless, it is possible to provide an overview of policies that were created or continued by the Farm Security and Rural Investment Act of 2002² and of their potential influence on markets. After providing this overview, the policy brief will consider some likely specific commodity market impacts. This paper will then consider market implications of alternative policies under consideration in 2007.

Major US Programs and Commodity Production Incentives

The first step is to provide an overview of US farm policies that have significant potential market impacts.³ We will leave aside agricultural policies for domestic food assistance, food safety, R&D, non-farm rural development, and a few other minor policies.

We begin with the three main farm payment programs for grains, oilseeds, and cotton because they are the most commonly discussed and are central to the 2007 farm bill debate. The **marketing loan program** pays the producer the difference between the loan rate, which is established in the farm bill for each program crop (and in some case varies by location) and the loan repayment rate, which varies along with the crop’s market price each week according to rules established in the farm bill. These marketing loan benefits (which may be in the form of payments or may be in the form of gains from actually taking a loan at the loan rate and repaying the loan at the lower loan repayment rate) are available on all production and add to the returns per unit of production. Expected marketing loan benefits clearly provide an incentive to produce eligible crops.

The **counter cyclical program payments** are made on a farm’s historical production of the program

crop with the payment rate equal to the difference between the farm bill established target price and the national average market price for that crop. Producers are not required to plant the program crop on the eligible base land. However, payments are not allowed and loss of base may apply to farms planting fruits, tree nuts, vegetables, melons, or wild rice on base land. Farmers may leave base land fallow, but it may not be shifted to nonagricultural uses. Expected counter-cyclical program payments provide incentives to grow program crops by smoothing revenue, by providing additional capital to eligible farms, and by restricting what can be grown on the program base. In addition, if farmers anticipate that base yields or base acreage may be updated, as happened in 2002, they have a payment incentive to maintain or build production base in the program crops.

The **direct payments** are made on historical base production with the payment rate set in the farm bill. As with counter-cyclical payments, the direct payments allow the land to be shifted to other uses, including leaving it idle. This program provides incentives to plant the program crop through planting restrictions, which are relevant in some regions, and because of the financing benefits similar to those for counter-cyclical program payments. The United States has not notified the WTO about classification of any farm programs since before the 2002 Farm Bill, but it placed a similar program in the 1996 Farm Bill into the so-called green box of non- or minimally trade-distorting domestic support. Since that time, the WTO dispute settlement body has ruled in the upland cotton case that direct payments did provide support to cotton; this suggests that direct payments may be considered more than minimally trade-distorting.⁴

From 2002 to 2006, the direct payments were set by law to be approximately \$5 billion per year, the counter-cyclical program payments have ranged from about \$1 billion to \$4.4 billion, and marketing loan outlays have been about \$2 billion to \$11 billion. Corn receives the highest subsidies in relative terms

– some \$9 billion in 2006. Cotton and rice receive the highest subsidies as a share of value of production. For example, cotton subsidies were \$4.2 billion in fiscal year 2005, while the comparable market revenue was about \$5 billion.

Crop insurance subsidies, comprised of premium subsidies to farmers and government subsidy for indemnities over premiums, have been about \$5 billion in recent years; ad hoc disaster program payments add a few billion dollars in many years. Crop insurance is available for many crops and represented about 4 percent of total US crop revenue. **Disaster payments** typically require special legislation that authorizes and appropriates funds for a specific set of natural or price “disasters.” Given the uncertainty and delays inherent in this process, some have advocated creating permanent disaster authority and funding in the farm bill to allow disasters to be declared and disaster funding to flow without ad hoc legislation.

Conservation subsidies include the Conservation Reserve Program, which pays landowners roughly \$2 billion per year to idle about 35 million acres of cropland. Other land idling programs are much smaller. Working lands programs include cost-share incentives to make environmentally friendly investments and payments per acre to adopt environmentally friendly practices. These programs have had recent budgets around \$1 billion. The working lands programs can stimulate additional production if they cover costs that farmers would have otherwise incurred, or if they pay on a per acre basis for practices that farmers would have used anyway. But, so far, the production incentives in these programs are small relative to commodity subsidies or crop insurance, and, on net production, the incentive may be negative if they encourage farmers to use less intensive production practices that reduce yields.

Dairy subsidies include government purchases of products at a farm bill set support price, a program to pay farmers for the difference between a govern-

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ment set price and the market price (the Milk Income Loss Contract or MILC program), a price discrimination scheme that sets a higher price for milk used for beverage and soft products (milk marketing orders), a small export subsidy (the dairy export incentive program, DEIP), and a set of tariff-rate import quotas. The price support and MILC programs are important issues in terms of the budget for the 2007 farm bill. The other programs are not farm bill items, but could be raised in the context of the farm bill. The consensus estimate is that the net effect of all these programs is a modest increase in dairy production in the United States and slightly smaller imports than

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Finally, while import barriers are not traditionally a part of the farm bill and most of US agriculture, they are important for key products. In addition to dairy, import barriers for sugar are significant (an over-quota tariff allows the US price of sugar to be double or triple the world price). A number of fruits also have substantial tariffs. Ethanol for fuel use, classified by the Harmonized Tariff Schedule as an agricultural product, has a tariff of 54 cents per gallon.

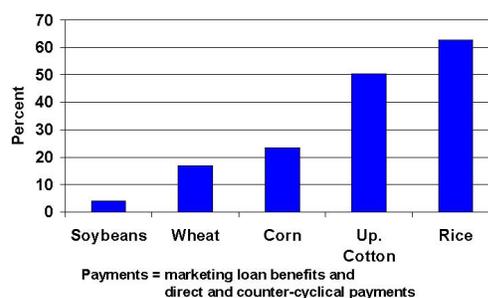
would occur otherwise.⁵ The price support and payment programs keep many higher-cost farms in operation and actually penalize low-cost operations. The MILC payments have an upper limit set annually such that smaller farms have an incentive to stay in business. This added production lowers national milk prices; for larger low-cost dairies the net effect of the program is negative.

Effects of US Farm Programs on World Markets

Commodity support policies depress world market prices if a) they stimulate US production and b) US production represents a significant share of the relevant market. In addition, price depression is more acute if the demand response of consumers and the supply response of foreign suppliers are inelastic. If buyers are flexible in their purchases, then they will increase purchases as the price declines, thus limiting the price fall; if the price were to rise, say because US subsidies were reduced, flexible buyers would cut back on purchases, thus moderating the price increase. Likewise, if foreign producers can respond with increased production when prices rise as a result of reduced US subsidies, the price increase would also be limited.⁶

Across US subsidized products, corn has a large world market production share (about 40 percent) and has had a relatively large subsidy as a share of market revenue in some years (about 50 percent in crop year 2005). Sumner estimated that if 2005 were expected to be a typical year, US corn subsidies would have caused world price suppression by about 10 percent and foreign corn production would have been suppressed by about 5 percent.⁷ World price effects are smaller for wheat because the US market share is smaller and subsidy rates have been lower. Similarly, world price effects are much lower for rice because the US world market share for rice is quite

Figure 1. Farm Program Payments as a Share of Production Value, 2002-2005 Crop Years



Source: USDA, 2007

small, even if we recognize that much rice production is relatively isolated from world markets because of policy barriers and the physical remoteness of production from markets, and because a large proportion of the world's rice is consumed on the same farm or in the same village where it is produced. The world market effects of US oilseed subsidies are negligible because in recent years prices have been high enough that the subsidy rate has been very low.

The world market effects of US cotton subsidies have been the subject of WTO litigation and special WTO negotiations.⁸ A variety of price effect estimates have been produced with a central tendency of about 10 to 15 percent, depending on the specific policy counterfactual examined and the supply and demand parameters thought most appropriate. A later IPC Policy Focus will consider cotton in more detail along with sugar and dairy products.

The world market effects of support to the US sugar industry are also considerable given the high levels of subsidies and the fact that the US sugar industry is far from being competitive in world markets. Beghin and colleagues estimate that US sugar policy depresses the world price by about 14 percent.⁹

Estimates of world market impacts for US dairy subsidies are in the range of a few percentage points. The United States is a significant market for dairy, but the United States is close to a competitive producer in world markets and the subsidy rate is quite low. The market prices are usually well above the price support, the export subsidy is very small, and the payment programs average less than 5 percent of dairy revenue.¹⁰

We should also note that if the Conservation Reserve Program (CRP) were removed as a part of removing all US programs, much of that land would reenter production. Much of the CRP land is in the Great Plain states where wheat and barley are the most common crop. But, considerable acreage is in areas that also grow corn and soybeans. Given high ethanol driven corn prices, some of that CRP land may reenter production in 2007 to take advantage of high market prices.

The 2007 Farm Bill and World Markets

A major determinant of the expected impacts of US subsidies on world markets is the expected rate of subsidy. Given the price contingent nature of the most important US subsidies, the expected rate of subsidy depends on the baseline projections of market prices. Current projections made, for example, by the Food and Agricultural Policy Research Institute and the US Congressional Budget Office are for very low subsidy rates for all major commodity programs except cotton and sugar.¹¹ These projections take into account the uncertainty in the price projections, but still yield quite low rates of subsidy. The basic point is that projected prices of feed grains, oilseeds, wheat, and rice are projected to be well above loan rates and high enough that little or no counter-cyclical program payments are expected. A farm bill that lowered these loan rates would have no impact on subsidies, no impact on US production incentives, and no impact on world market conditions. (This scenario is not true for cotton, which has large program outlays projected throughout the 2008-2012 period.)

The commodity price projections are based largely on the high price of oil and government incentives driving continued demand for ethanol and the consequent increase in the demand for corn. As farmers shift acres from other crops to corn, this will moderate the rise in corn prices, but cause the production of these other crops to fall and the price to rise for wheat, soybeans, and others. Analysts note that a substantial increase in ethanol refining capacity is coming on line in the next few years and those commitments mean the price of corn will stay high even if the price of oil declines and even if production of corn expands substantially. Of course, agricultural price projections are notoriously difficult and the projections made in March 2007 may turn out to be far too optimistic. In that case, the world market impact of US farm subsidies will return to those listed in the previous section.

Given the current projections for high commodity prices, 2007 may be an opportune time to modify US commodity programs on a permanent basis. The

most direct approach would be to eliminate the main programs listed above. An outright elimination of these policies would end their global market impact also during future market price declines. A more moderate approach would be to reduce the loan rates and target prices and adjust other program parameters such that the programs would have less impact on markets should commodity prices decline. This is generally the approach taken by the USDA, which has proposed to lower marketing loan rates and increase direct payments.¹²

Subsidized or free revenue insurance has been proposed as an alternative farm “safety-net.” Under a revenue insurance scheme, government support would be based on some share of the difference between realized farm gross revenue and a historical benchmark considered acceptable. The size of payments would be determined by the benchmark revenue chosen, and the share of the revenue shortfall that was replaced by payments. If the program covered a low share of historical average revenue and replaced a relatively small share of income, then it would have little effect on production incentives and could even be considered minimally trade distorting for WTO purposes.

The problem, of course, is that a program that provided rare and small payments would not satisfy commodity interests and a program that paid more would cause the same sort of market effects that the current programs do. Several advocacy groups have put forward proposals calling for some type of revenue insurance, including the American Farmland Trust, the National Corn Growers Association, and the Chicago Council on Global Affairs. USDA has

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also proposed altering the counter-cyclical payments to be revenue-triggered rather than price-determined.

If revenue insurance covered only a few program crops, it would distort production in favor of these crops. But, if all

of agriculture were included, either the payments would need to be rare and small for each commodity, or the program cost would far exceed that of the current programs. Canadian experience with similar programs suggest that they are not popular with growers unless there is a large and regular subsidy element.

In theory, revenue insurance would replace both crop yield insurance and the price-contingent subsidies. However, crop yield insurance is much more widely available than are priced-contingent subsidies. Revenue insurance is now available for several crops and is popular for some crops and regions at highly subsidized premiums. It is either not popular, not yet available, or considered infeasible for most commodities. Advocates have also suggested that revenue insurance would reduce the demand for ad hoc disaster programs. A similar claim was made for the expansion of the crop insurance subsidies in the 1990s, but reality showed that this was optimistic.

Concluding Remarks

US farm subsidies affect world markets for those commodities for which the United States has a large market share and high subsidy rates.

For most programs crops, current projections are for market prices well above loan rates such that little or no production-enhancing subsidies are expected for the next five years or more. If these projections are correct, the farm bill subsidies for these crops will be irrelevant to world markets. But, these projections also imply that the United States has the opportunity to eliminate the subsidy programs with no impact on farmer revenues. If such a major shift were undertaken, the long-term price effects of US subsidies would be permanently removed.

Since cotton prices are not projected to increase as much as are prices for other crops, US cotton subsidies are likely to continue to account for a large share of cotton revenues and provide significant production incentive. These conditions are likely to persist under the 2007 farm bill unless substantial subsidy

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reductions are introduced as, for example, along the lines of the USDA proposal to lower cotton loan rates and target prices and compensate with higher direct payment rates.

The USDA and others have proposed permanent changes in subsidy programs that would make them permanently less trade distorting and allow production to be more responsive to markets. Given current commodity price projections, such changes would have only small effects in the next few years, but they would put the United States on a long-term path of fewer subsidies and smaller impacts of US farm programs on global markets.

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5 "Economic Effects of U.S. Dairy Policy and Alternative Approaches to Milk Pricing." USDA Report to Congress, July 2004. <http://www.usda.gov/documents/NewsReleases/dairyreport1.pdf>

6 Daniel A. Sumner. "Boxed In: Conflicts between U.S. Farm Policies and WTO Obligations."

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7 The question Sumner considered in Table 5 of the "Boxed In" analysis related to removing subsidies for a single crop, as would be relevant in trade litigation. The U.S. supply effects and therefore the world market effects would be smaller if all subsidies were reduced together as might be more likely in the context of a new farm bill.

8 Daniel A. Sumner. "Reducing Cotton Subsidies: The DDA Cotton Initiative." In *Agricultural Trade Reform and the DOHA Development Agenda*. Will Martin and Kym Anderson, eds. Washington, D.C.: The World Bank (2005): 271-294.

9 Beghin J., B. El Osta, J. Cherlow, and S. Mohanty. "The Cost of the U.S. Sugar Program Revisited,"

Contemporary Economic Policy 21 (1) (2003): 106-116.

10 Julian M. Alston, Joseph V. Balagtas, Daniel A. Sumner, and Henrich Brunke. "Supply and Demand for Commodity Components: Implications of Free Trade versus AUSTFA for the U.S. Dairy Industry." *Australian Journal of Agricultural and Resource Economics*, (50), 2 (June 2006): 131-152.

11 World Agricultural Briefing Book 2007. Food and Agricultural Policy Research Institute Briefing Book, <http://www.fapri.iastate.edu/brfbk07/>. See also <http://www.cbo.gov/budget/factsheets/2007b/agriculture.pdf>.

12 2007 USDA Farm Bill Proposal. <http://www.usda.gov/documents/07finalfbp.pdf>

13 "Analysis and Cost Projections of the Integrated Farm Revenue Program." Report of the American Farmland Trust, February 2007. http://www.farmland.org/programs/campaign/documents/AFT_FarmPolicy_Bab

Endnotes

1 Of course, there are many cross commodity interactions. For example, costs of production for hay crops are driven up by competition for land with subsidized crops and price of hay is lower because of competition on the demand side with subsidized feed crops. Livestock costs are lower because of subsidized feed, but beef cattle must compete with additional cull dairy cattle on the market due to dairy protection and subsidy.

2 <http://www.ers.usda.gov/features/farbill2002farmact.pdf>

3 Paul C. Westcott, C. Edwin Young and J. Michael Price. <http://www.ers.usda.gov/publications/aib778/>

4 "Risk Management 2006." USDA Farm Bill Theme Papers. May 2006. <http://www.usda.gov/documents/Farbill07riskmgmtrev.pdf>. See also Daniel A. Sumner. "Boxed In: Conflicts between U.S. Farm Policies and WTO Obligations." Cato Institute Trade Policy Analysis, No. 32

cockReport_2007.pdf. See also Catherine Bertini, August Schumacher Jr., and Robert L. Thompson, Cochairs. "Modernizing America's Food and Farm Policy: Vision for a New Direction." Chicago Council on Global Affairs Task Force Series, 2006.

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