

**STATEMENT OF DR. JOSEPH W. GLAUBER**  
Deputy Chief Economist  
U.S. Department of Agriculture  
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1. Good afternoon, Mr. Chairman and Members of the Panel. In our two submissions, we provided a critique of Brazil's new econometric model. I would like to briefly review, today, some of the main points laid out therein; in particular, the reasons why Brazil's new model exaggerates the impact of the removal of subsidies on world cotton markets. I will also discuss how Brazil's parameter estimates affect the assessment of the impact on world market prices and how they bias the estimates in the simulations. I will then discuss the difference between short-run and long-run models. Last, I will summarize the results that obtain from the basic re-calibration conducted by the United States.

**Flaws In Brazil's New Model ("Sumner II")**

2. Brazil's model in the original proceeding – I will call it "Sumner I" – used a multi-commodity, multi-country framework that was generally adopted from models developed by FAPRI. The FAPRI framework is a highly structured dynamic model with detailed equations specifying behavioral relationships of supply and demand for the U.S. and world cotton markets. The Sumner II model, by contrast, is based on a simplified formulation. It is a log linear displacement model that simulates the percentage effects of removing specific subsidy programs relative to "baseline" conditions.

3. We have identified a number of the key problems with Brazil's new model. These include that the model:

- lacks cross-commodity impacts and cross-price elasticities, potentially leading to biased price effects.

- is static with no explicit relationships for changes in cotton stock levels and no stocks equation
- contains foreign supply elasticities that are different from FAPRI that underestimate the response of foreign producers to changes in world prices.
- treats production flexibility payments and direct payments differently even though they operate in the same way.
- incorporates Step 2 payments directly into the producer revenue function as fully coupled payment, and
- appears to ignore statutory parameters, for example by including counter-cyclical payment rates in each of the various price expectations that sometimes exceed the statutory maximum. The maximum counter-cyclical payments paid on 85% of base and program yields can not exceed 13.73 cents. Yet Dr. Sumner’s model incorporates a value as high as 19.10 cents, which is 39 percent greater than the maximum allowed rate. As Dr. Sumner indicated today, this is largely due to the fact that cotton acreage is less than cotton base acres. Yet this ignores the fact that a sizable portion of CCPs go to cotton base holders who plant no cotton.

4. These are just some of the problems that stem from the structure of the model itself, and the simplified, reduced nature of the assessment it attempts to conduct. Even more significant biases result from the flawed econometric parameters used by the Sumner II model.

#### **Unsupported Econometric Assumptions and Parameters**

5. Initially, in this proceeding, Brazil has indicated that its new model “employs many of the same parameters used in the model and analysis submitted to the original panel, as well as parameters commonly used by USDA and Food and Agricultural Policy Research Institute (“FAPRI”) economists.”<sup>1</sup> This is not true. As shown in Table A-2 (Exhibit US-120), the elasticity estimates used by the Sumner I model (which were purported to be “FAPRI-based”) and the Sumner II model differ in each case except for the estimate of the US mill demand

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<sup>1</sup> Brazil First Written Submission, para. 168.

elasticity.

6. Why do these differences in the elasticities matter? Because they can have dramatic effects on the estimated outcomes. In its 2004 review of various cotton models, the Food and Agriculture Organization of the United Nations (“FAO”) concluded that the elasticities of supply and demand of cotton “[...] had significant roles in determining the simulation results. The solutions of the models are very sensitive to the values of these parameters.”<sup>2</sup> Brazil agreed in the original proceeding saying:

The key elasticities of supply and demand relating to the U.S. upland cotton market used in Professor Sumner’s [earlier] model are the same as those used in the FAPRI model. *This is significant as these elasticities drive the results of the model in terms of production, demand and price effects.*<sup>3</sup>

7. To illustrate, Table A.2 shows the effects of more elastic supply and demand elasticities on world market prices due to a removal of US marketing loans and counter-cyclical payments. As you can see, not only does the Sumner II model use different elasticities than the Sumner I model, but, *in each case*, the Sumner II model elasticity results in a greater effect on world price due to an elimination of marketing loans and counter-cyclical payments. Moreover, the Sumner II model simply ignores the demand for US and world cotton stocks. Yet, as Mr. MacDonald has pointed out earlier today, year-to-year fluctuations in stock levels are important factors in any credible analysis of world cotton markets.<sup>4</sup> These modifications exaggerate the effects of the elimination of marketing loans and counter-cyclical payments on world cotton price.

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<sup>2</sup> FAO Trade Policy Technical Notes. “Cotton: Impact of Support Policies on Developing Countries—a Guide to Contemporary Analysis,” pp. 4-5 2004 (Exhibit US-65).

<sup>3</sup> Brazil Further Submission, para. 216 (emphasis added).

<sup>4</sup> Brazil Oral Statement, 27 February 2007, para. 160.

8. Brazil has not provided any valid basis for discarding the generally-accepted economic parameters that it recognized, itself, as being appropriate in the original proceeding. As Brazil argued at that time, the FAPRI econometric model is well-established, well-known and widely used.<sup>5</sup> It is also valuable inasmuch as its calculations and parameters have not been developed in conjunction with any specific dispute or on behalf of any specific party. The FAPRI model has a strong foundation within economic circles and is well-respected.

9. The Sumner II model, by contrast, has no foundation within economic circles. As just discussed, Brazil cannot try to justify it by suggesting that it uses similar parameters as FAPRI. Although Dr. Sumner argues that the departures from FAPRI-based parameters indicate “improvements based on . . . continued research,” Brazil has not identified that “research” and has provided no citation to any independent literature or other established or accepted bases for the new parameters.

### **Long versus Short Run and Eliminating the Marketing Loan and Counter-cyclical Payment Programs**

10. Brazil has also attempted to justify a number of its flawed econometric parameters on the basis that it is looking to assess the impact of eliminating the marketing loan and counter-cyclical payment program in the short-run, while leaving all else equal.<sup>6</sup> However, as my colleague will discuss shortly, the relevant legal question at issue here is not what happens in the short-run when there is a sudden shock to the system. Moreover, the economic literature

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<sup>5</sup> Brazil Further Submission to the Panel, 9 September 2003, para 214.

<sup>6</sup> See e.g., Brazil First Written Submission, Annex I, 25-26 (noting that FAPRI uses an 0.5 rather than a 0.8 U.S. supply elasticity because “it is used for simulations of different questions, such as, for example, the effect of reducing (but not eliminating altogether) marketing loan rates for all crops by a certain amount) and 28 (attempting to justify a “relatively small” rest-of-world supply response on the basis that “*in the short run*, it is difficult for farmers in certain regions of the world to expand cotton production . . . in response to the anticipation of a higher world price.”) (emphasis added).

supports the view that examining the kind of counterfactual scenario at issue here requires a long-run analysis. In its review of cotton market models, for example, the FAO argued that long run models may be more appropriate to consider the sustained effects of removal of subsidy programs:<sup>7</sup>

As the objective of most analyses is to estimate the longer term impacts of any policy reforms, the correct way to think of any elasticities is in long run form, namely after producers and consumers have adjusted fully to a given policy change. . . . The exact dynamic pattern of adjustment is not the concern in this or other similar studies, but rather the overall longer term impact. This aspect of the analysis must be emphasized, and must be distinguished from the shorter term responses to any particular yearly price shock.<sup>8</sup>

Moreover, earlier today, Brazil pointed out that while growers in developing countries may not immediately react to changes to cotton prices in the short run, in the mid to long run, there is price transmission.

11. To capture the long run effects of removal of marketing loans and counter-cyclical payments the United States has also applied parameter estimates taken from the UNCTAD-FAO Agricultural Trade Policy Simulation Model (“ATPSM”). This is a comparative-static, multi-commodity, multi-region, partial-equilibrium global trade model designed primarily for simulating agricultural trade policies, notably in the context of the *WTO Agreement on Agriculture*. The parameter values for the short and long run models are presented in table A.3

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<sup>7</sup> FAO Trade Policy Technical Notes. “Cotton: Impact of Support Policies on Developing Countries—a Guide to Contemporary Analysis” 2004 (Exhibit US-65).

<sup>8</sup> Poonyth, Daneswar, Alexander Sarris, Ramesh Sharma, and Shangan Shui. “The Impact of Domestic and Trade Policies on the World Cotton Market.” FAO Commodity and Trade Policy Research Working Paper No. 8, pp. 8-9 (April 2004) (Exhibit US-55).

(Exhibit US-121).<sup>9</sup>

12. Summary results are presented in table A.4 (Exhibit US-122) for the periods MY 2002-2005 and MY 2006-2008. The results of the short run model show the removal of counter-cyclical and marketing loan programs resulting in a 1.41 percent increase in world cotton prices over the 2002-2005 period and a 0.96 percent increase over the 2006-2008 period. Results using the long run model are slightly higher, showing a 2.26 increase in world cotton prices resulting from removal of marketing loans and counter-cyclical payments over the period MY 2002-2005 and 1.52 percent increase in world cotton prices over the MY 2006-2008 period.

13. These conservative results – which obtain from some very basic changes to the parameters of Brazil’s new model – illustrate that the estimates provided by Brazil of price effects in the range of 9-11 percent substantially overstate any possible impact on world market price.

14. That concludes my comments, Mr. Chairman. Thank you very much.

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<sup>9</sup> See also Poonyth, Daneswar, Alexander Sarris, Ramesh Sharma, and Shangan Shui. “The Impact of Domestic and Trade Policies on the World Cotton Market.” FAO Commodity and Trade Policy Research Working Paper No. 8, (April 2004) (Exhibit US-55) (providing parameter estimates for long run supply and demand elasticities).