Proposal for Biobased Industry Center Grants Program

Project Title: How to improve the modeling of world sugar markets

Project Leadership

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<tr>
<th>Name (PI/Co-PI)</th>
<th>Department</th>
<th>Phone No.</th>
<th>E-mail</th>
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<tr>
<td>John Beghin (PI)</td>
<td>Economics</td>
<td>515294 5811</td>
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<td>Bruce Babcock (co-PI)</td>
<td>Economics and BIC</td>
<td>515 2945764</td>
<td><a href="mailto:babcock@iastate.edu">babcock@iastate.edu</a></td>
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Research Priority Addressed by this Project:
International Trade in Biorenewables (with a focus on world sugar markets)

How will trends in world sugar markets influence the comparative advantage of Brazil as a low-cost low-carbon ethanol producer and sugar exporter?

Objectives

1. Long term objective is to enhance outlook and policy analysis expertise for world sugar markets including better predictions of the foreign sugar demand faced by Brazil
2. To provide in depth qualitative assessments of market conditions in key sugar markets (the EU, Australia, India, South Africa, others) leading to development of an improved model of world non-Brazilian sugar supply and demand that can be integrated into the BIC/CARD biofuels model that is used for policy analysis and outlook information concerning advanced and conventional biofuels.

Motivation

The existing CARD/FAPRI international sugar model is well respected and established. It is useful as an “accounting” tool to keep track of supply, inventories, and disappearance in many countries the world and to provide approximate estimates of supply and demand conditions in these key markets. The proposed project will lead to an enhanced sugar expertise going beyond these two accounting and estimation functions.

The project takes a step back to revisit and assess, in depth, market conditions (supply, demand, policy) in key sugar markets (The EU, Australia, India, and China) to identify current shortcomings and potential improvements in the current sugar modeling capability at ISU. Although the project is qualitative, it will provide the necessary information and analytical improvements needed to develop an improved model that can be integrated into the existing BIC/CARD biofuels model. These improvements are necessary to develop better estimates of the world demand for sugar faced by Brazil and its underlying determinants. The improvements will directly contribute to better predictions and elucidation of the sugar-biofuel output mix coming out of Brazil and will allow ISU economists to provide more accurate outlooks of biofuel and feedstock markets.

Continued high sugar prices have been caused by a series of market and policy developments, and accentuated by the thinness of world sugar markets. The link to fossil energy markets is certainly one reason as in the corn market. India’s policies are allegedly pro-cyclical and exacerbate price volatility; weather conditions have deeply affected Australia and other cane producing regions. These producers have scaled back and idled some of their capacity but the extent of this is not well known. In a world of persistent high prices, how much supply expansion can one expect in key markets?

Further, the EU has had radical sugar policy changes causing trade pattern reversals from being a large exporter to being a large importer sourcing from ACP (African, Caribbean, and Pacific) countries. Currently the spatial dimension (the origin of the sugar) of EU imports is not captured by available models nor are the reformed policies fully reflected in the models. Finally, China has been importing increasing amounts of sugar, most likely because of westernization of diets, rising income
and urbanization and stagnant production. These import changes have yet to be sorted out.

In addition, the project will explore an international collaboration with biofuel and sugar markets economists in the EU, Alex Gohin (INRA) and Jean-Christophe Bureau (AgroParisTech), who have researched these two EU markets extensively. The two PIs will organize a 2-day meeting to explore joint modeling and research efforts, likely to lead to improved expertise for ISU. A better understanding of the 2009 EU Renewable Energy Directive and its implications for sugar and biofuel modeling is one of the priorities to explore. The other would be to ascertain proposed improvements in the current models, especially for the EU component.

Staff constraints at FAPRI-ISU preclude such needed assessment to take place. Our proposed effort is complementary to two proposed BIC research projects on Brazil sugar production (Babcock and Nasser) and a corresponding modeling component (Carriquiry and Babcock). Co-PI Babcock would coordinate these efforts and their integration.

Approach
1. Collect market intelligence, data, and stylized facts on sugar markets and, when relevant, associated biofuel markets. We plan to cover supply conditions, current capacity use, older/idled capacity, demand for sugar, and policy developments. These will be undertaken fro Australia, China, India, the EU
2. Translate this market intelligence collection effort into a sequence of proposed implementable modeling developments and improvements into the existing international partial equilibrium sugar model. PI Beghin will identify model developments. Co-PI Babcock will evaluate them and prioritize them into a sequence.

Workplan and Schedule
1. June-August. EU and Australia market assessments. For the EU, the focus is on the trade from ACP countries, and the impact of sugar reforms on supply, and bio-energy policies on sugar markets. For Australia, the focus is on capacity, yield and weather, and new bio-energy policies.
2. September. Travel to France to work with Gohin and Bureau on identifying potential collaboration and use their expertise to check proposed model developments.
3. December-January. Continuation of the market assessment: India. For India the focus is on policy response to weather shock and their pro-cyclical effects. Price transmission from border to local sugar markets will be investigated.
4. February-March. Assessment of Chinese markets. For China, the focus is on demand developments (urbanization, diets, income).
5. April-May. Identification of implementable model improvements and sequencing them.

Budget
The total cost of the project includes 1 summer month and benefits for the PI and travel support for the PI and co-PI to travel to France for a short meeting with EU economists, and two small honoraria for Gohin and Bureau to contribute to the meeting and defray them.

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<tr>
<th>CATEGORY</th>
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<tr>
<td>Salaries (1 month for PI)</td>
<td>$15,776</td>
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<tr>
<td>Benefits</td>
<td>$4,701</td>
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<td>Sub-total</td>
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<tr>
<td>Travel to France (PI and co-PI)</td>
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<tr>
<td>Honoraria ($2000 each)</td>
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<td>TOTAL</td>
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CV OF PI JOHN C BEGHIN

EDUCATION
Ph.D. agricultural and resource economics, University of California-Berkeley, CA (1988)
M.Sc. agricultural economics, North Carolina State University, NC; statistics minor (1983)

RECENT PROFESSIONAL EXPERIENCE  Iowa State University, Ames, IA (1998-present)
Economics Department. Professor (associate professor 1998-2000)
Marlin Cole Professorship of International Agricultural Economics (2001-2012)
Director, Food and Agricultural Policy Research Institute (FAPRI) at ISU and Head, trade and agricultural policy division, Center for Agricultural and Rural Development (CARD) (1999-2007)

SCHOLARLY RECORD
63 journal articles, 6 edited volumes and journal special issues, and 26 book chapters

RECENT RELEVANT PUBLICATIONS ON SUGAR AND BIORENEWABLES

RECENT FUNDING FOR BIO-RENEWABLE AND SUGAR RESEARCH
Sweetener Users Association, $45,000 contract (2011) with Amani Elobeid. Analysis of U.S. sugar policy reform
USDA National Institute for Food and Agriculture National Need Fellowship, $234,000, competitive grant (2011-2015), PI, with GC. Moschini co-PI. Funding for doctoral training in the Economics and Management of Bio-renewable Energy