U.S. Farm Subsidies and the Biofuel Industry

Jude Bayham† and Stephen Devadoss*

† Doctoral Student
Washington State University
jbayham@wsu.edu

Professor of Agricultural Economics
University of Idaho
devadoss@uidaho.edu

Poster prepared for presentation at the Agricultural & Applied Economics Association 2010
AAEA, CAES, & WAEA Joint Annual Meeting, Denver, Colorado, July 25-27, 2010

Copyright 2010 by Jude Bayham and Stephen Devadoss. All rights reserved. Readers may make
verbatim copies of this document for non-commercial purposes by any means, provided that this
copyright notice appears on all such copies.
Introduction

- Biofuels have been promoted as a “silver bullet” to energy problems in the United States: provide an alternative, renewable energy source and increase farm income.
- The U.S. government supports biofuel production with a $0.46 tax credit, a mandate of 36 billion gallons by 2022, a $0.54 import tariff, and agricultural subsidies for feedstock inputs.
- While the United States has modified its farm support programs, they still create controversy in world trade negotiations.

What effect would a reduction in farm supports have on the biofuel and allied industries?

Objectives

- Develop a general equilibrium model to investigate the price, production, and use effects of reducing agricultural supports by 15% on biofuel and allied industries.
- To specifically identify the interaction between the significant policies affecting the biofuel industry.
- Quantify the analytical results using a computable general equilibrium model.

Theoretical Model

We assume:
- Five profit-maximizing, competitive production markets with constant returns to scale technology (Feedstock, Biofuel, Petroleum, Blended fuel, and Composite good).

A representative consumer maximizes a utility function subject to his/her income earned on the factors of production.

Analytical Result

- A change in agricultural supports impact social welfare through biofuel, food production, and international trade markets.
- This result suggests that a socially optimal policy needs to account for environmental as well as economic impacts.
- The welfare impact of agricultural supports depend on the level of policies in related industries.

Empirical Model

- Computable General Equilibrium: 36 commodity markets,
- Data from the U.S. Department of Commerce, U.S.D.A., Energy Information Administration

Summary

- The 15% reduction in agricultural supports raises the feedstock price which causes biofuel production to decrease and price to rise.
- The biofuel consumption mandate creates demand for biofuel which translates into demand for the feedstock crop.
- The mandate effects dominate the reduction in agricultural supports but cause severe distortions in commodity and land prices ultimately resulting in a $2.71 billion loss in welfare.

Conclusions

- The biofuel tax credit and mandate stimulate the feedstock market making current agricultural supports redundant.
- Agricultural supports have little impact of on fuel prices.
- Biofuel policies cause agricultural producers to bid up the price of land and food around the world.
- Reducing support policies could save the government $253 million while the mandate causes expenditure to rise $1.8 billion.
- Replacing agricultural supports on feedstock crops with a biofuel consumption mandate could provide the same support while appeasing WTO member countries.