

**Research Seminar**  
**Friday, March 28, 2014**  
**11:30am – 1:00pm**  
**Energy Institute Auditorium**

## **Policy Matters: Economic, Land Use and Environmental Impacts of Transportation Fuel Policies in Brazil**

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### **Abstract:**

Brazil is the second largest biofuel producer in the world and largest exporter of ethanol. The government uses taxes, subsidies, and blending mandates as policy instruments to manage its transportation fuel markets. The fuels sector has been very dynamic in recent years due to frequent adjustments in government policies and disturbances in global ethanol and sugar markets. A large scale price endogenous mathematical programming model is developed to simulate the Brazil agricultural sector and transportation fuels sector and analyze the role of ethanol blending mandates, fuels taxes, and global market conditions on land use and agricultural supply responses, consumers' driving demand and fuel choice, and greenhouse gas (GHG) emissions in Brazil. Some major findings are: i) a lower blending rate leads to a significant reduction in kilometers driven by conventional vehicles and encourages flex fuel cars to switch from gasohol to pure ethanol; this reduces consumers' economic surplus while increasing producers' surplus, ii) a reduction in fuel taxes is always beneficial for consumers, but it adversely affects competitiveness of sugarcane ethanol against gasoline blends, thus lowers producers' surplus. While being advantageous in terms of social welfare a reduced tax policy has dramatic environmental impacts and increases GHG emissions from consumption of transportation fuels in Brazil.

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### **Bio:**

Dr. Hayri Onal is a Professor of Operations Research (2005-present) in the Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign; he received his BS, MS and PhD degrees from Middle East Technical University in Ankara; he teaches mathematics for economists, applied mathematical programming for economists, system dynamics and simulation modeling courses; his current research focuses on operations research methods and applications in environmental/resource economics focusing on land use, water and ecosystems conservation, bioenergy/biofuels economics and supply chain management; he published more than 50 refereed articles most of which appeared in mainstream journals of operations research and environmental/resource economics, including Operations Research, Transportation Science, Manufacturing and Service Operations Management, Transportation Research Part E, European Journal of Operations Research, Networks, American Journal of Agricultural Economics, Journal of Environmental Economics and Management, Agricultural Economics, Environmental and Resource Economics, Energy Policy, and many others. For more information see: <http://ace.illinois.edu/directory/h-onal>.

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