CABBI
CENTER FOR ADVANCED BIOENERGY AND BIOPRODUCTS INNOVATION

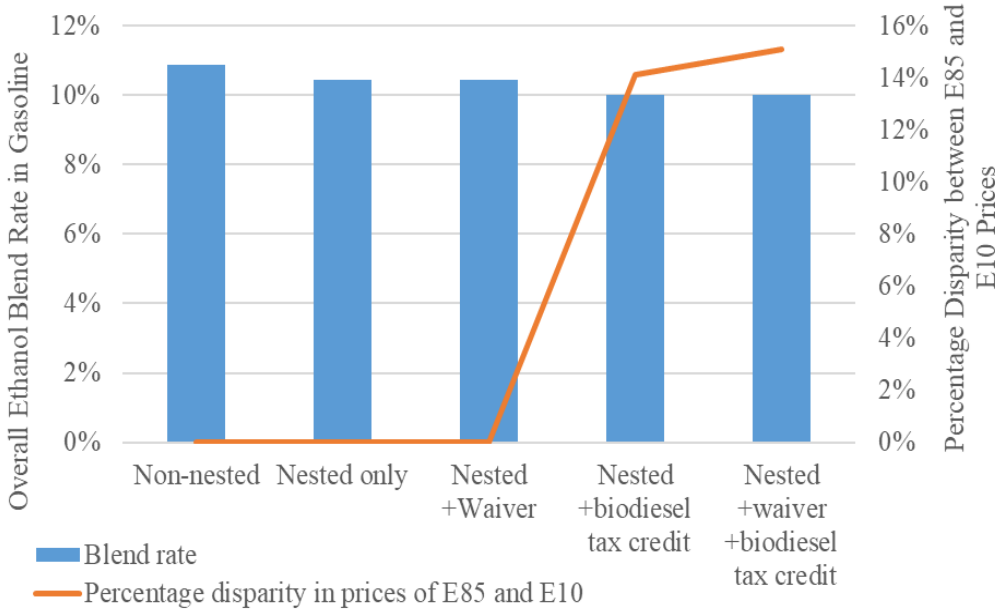
Assessing the Efficiency Implications of Renewable Fuel Policy Design in the United States

Background/Objective

The U.S. Renewable Fuel Standard (RFS) was revised in 2007 to accelerate supply of various biofuels and stimulate demand for high blends of ethanol in transportation fuel. This study analyzes the implications of three key elements of the RFS: 1) nested RFS structure, 2) cellulosic waiver credit, and 3) biodiesel tax credit on different biofuel blends, on the mix of biofuels blended, and the price discrepancy between E10 and E85 blends.

Approach

- Developed a stylized economic model of the U.S. transportation sector.
- Used model to demonstrate and quantify policy implications of current and alternative RFS designs.
- Assessed greenhouse gas (GHG) emission implications and overall social welfare effects of RFS implementation



Impact of RFS design on E85-E10 price disparity.

Results

- Compared to a non-nested RFS structure, the nested structure leads to 21% more biodiesel production.
- Addition of the biodiesel tax credit increases production of biodiesel to 42% more than mandated.
- Together, the biodiesel tax credit, nested RFS structure, and cellulosic waiver credit create a 15% price gap between E85 and E10.
- Flexibility in compliance provides marginally enhanced GHG reduction and welfare benefit in the short-term.

Significance/Impacts

This work provides insight into structural and policy deficiencies that currently hinder the emergence of a bioeconomy. Specifically, it identifies structural deficiencies that prevent the RFS from achieving current targets and suggests policy modifications to alleviate these challenges.

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