Decomposition Analysis of U.S. Corn Use for Ethanol Production from 2001-2008

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Summary - Recommendations

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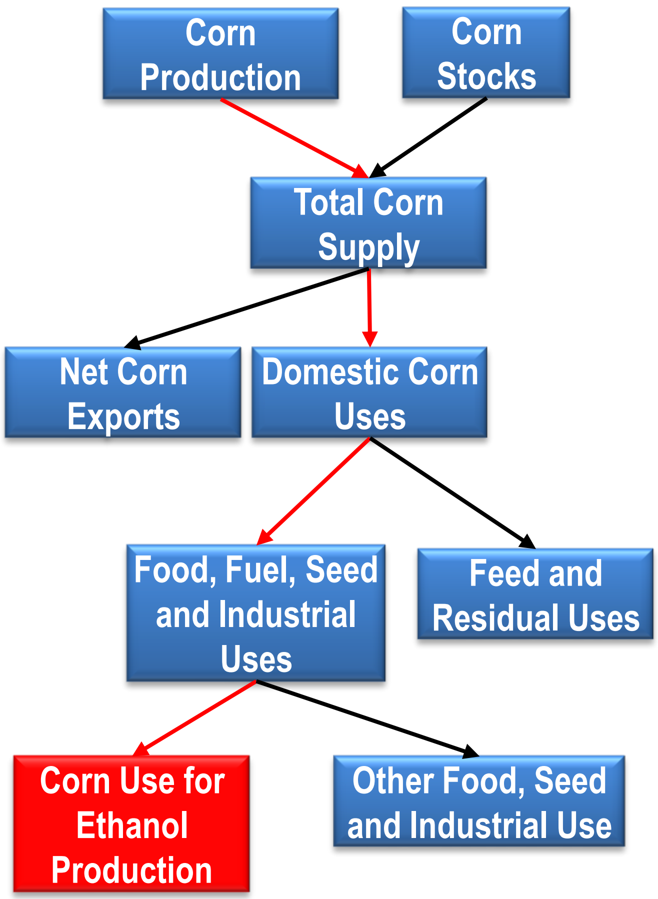
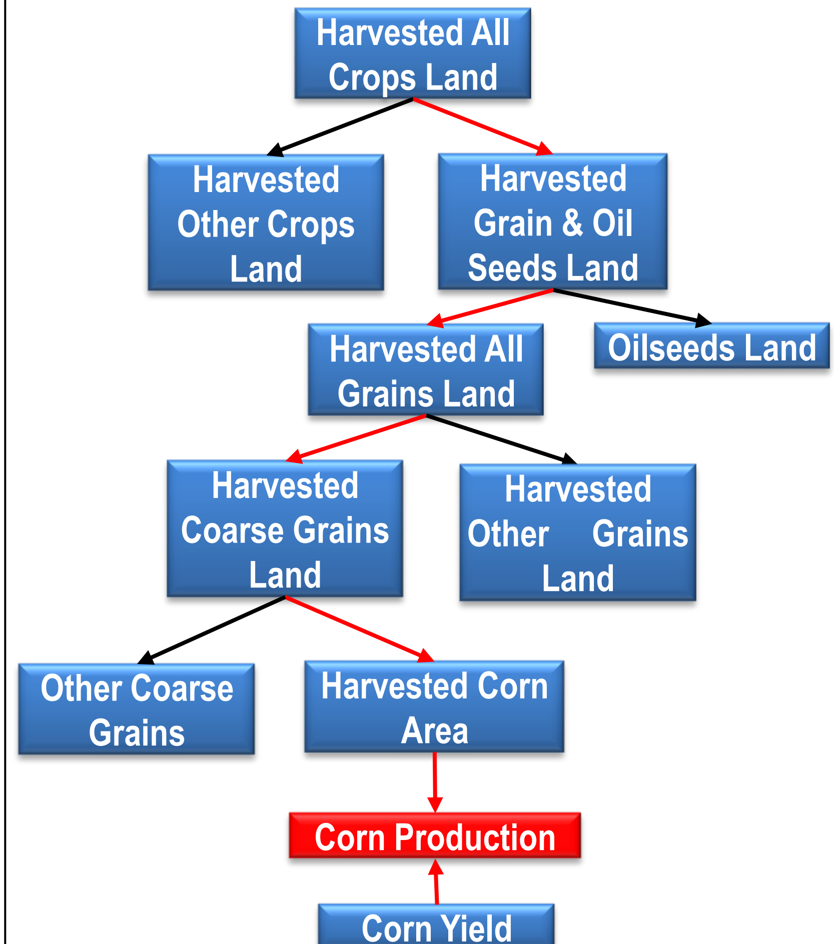
Decomposition Analysis of Empirical Corn Use for Ethanol Data with LMDI I: Linkages in the Chain

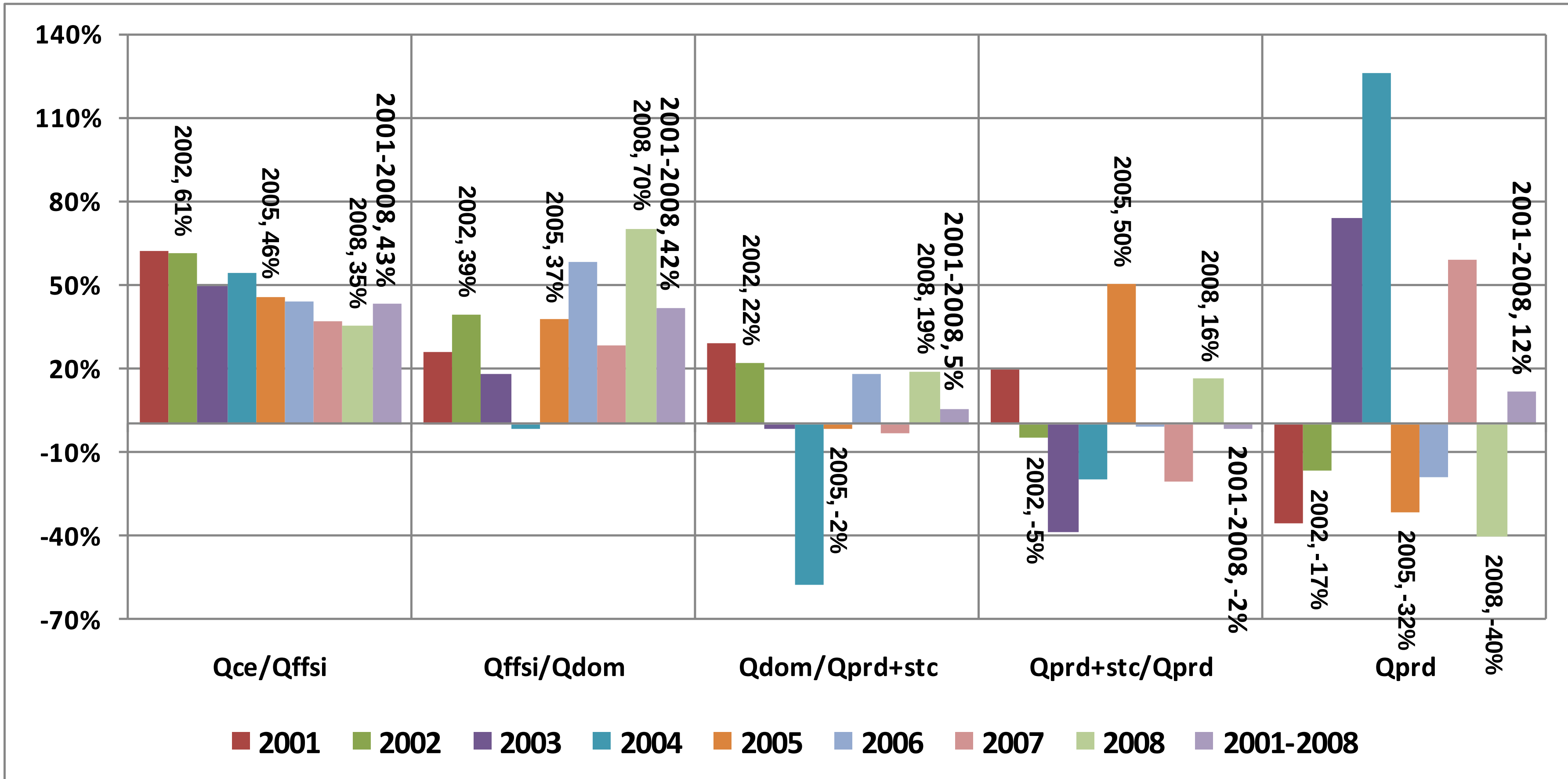
Corn Production and Distribution Chain



Land Use Chain



Decomposition Results of Corn Use for Ethanol: Domestic Adjustments Account for Most Change



- Contribution across all years, 2001-2008
  - Domestic Reallocation: 85%; Production: 12%; Domestic Corn Use Share: 5%; Corn Stock Withdrawals: -2%;

Conclusions: Decomposition analysis of empirical data does not support key ILUC assumptions

- The analysis of empirical data (2001-2008) indicates that:
  - Feedstock for ethanol expansion was mainly derived from domestic reallocations (85%) and increased yields (6%)
  - Empirical evidence does not support significant effects on:
    - US commodity exports
    - Other crops or cropland expansion in the U.S.
- Understanding the interactions of policy with baseline trends is crucial to improve estimates of policy effects on land use
  - Models calibrated to historic data could not adequately capture implications of large, new changes in the economy (such as the 78 million ton increase in corn use for ethanol)
  - Analysis of the data can illustrate how the economy actually adjusted to biofuel policy that increased demand (and supply) of corn for ethanol
    - More detailed analysis of policy effects on prices is needed
- The analysis suggests minimal to zero indirect land use change was induced by use of corn for ethanol over the last decade

Recommendations

- Analysis of policy effects – considering intended and unintended costs and benefits (including actual land use and emissions) – needs to be updated frequently
  - Assess factors affecting progress toward meeting goals
  - Focus on manageable time horizons (4-6 years)
  - Consider regulatory options that reduce uncertainty and transaction costs, and facilitate evaluation of performance
- Apply the analysis of recent empirical evidence to adapt regulations to better fulfill goals for an effective, efficient, performance-based, LCFS
- Research is needed to clarify interactions among policy, shifting production, domestic and global markets. For example, to:
  - Better reflect trends and production capacities in baselines
  - Distinguish how current economy responded to "advance notice" (versus an imposed "demand shock" on prior economy)
  - Assess how an expanding production base interacts with cyclic markets, volatility and risks to disruption (from weather, policy)
  - Refine policy to provide incentives for improved efficiency, competitiveness and more sustainable land management practices
- The CARB ILUC approach needs to incorporate ongoing gains in knowledge and experience

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