Modelling the Spatial Distributional Effect of Common Agricultural Policy Reform

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Context and Background
Context

- Significant spatial variability in agriculture in Ireland
  - Better land in the South and East
  - Poorer land in the North and West
  - Water Quality is spatially dependent
- Significant reliance on off-farm income
  - Spatial variability in labour markets
- Location specific costs – e.g. transport costs
- Spatial dimension to Direct Payments
  - A function of historical production which is location related
  - Disadvantaged Areas
  - HNV’s
  - Localised REPS/AEOS
Ideal Data

- Ideal Data
  - Farm Survey Income Data
  - Spatial Scale
  - Detail Farm Management Information

- However
  - Not available
  - Census – Spatial
  - Teagasc NFS – Income and Management Information

- Spatial Microsimulation in Agriculture
  - The Netherlands: Van Leeuwen et al. (2008)
  - Sweden: Lindgren and Elmquist (2005)
  - Landscape services from Agriculture (Pfeiffer et al., 2012)
  - Participation in Rural Environmental Protection Schemes, (Hynes et al., 2008)
Methodology

- Data Enhancement or Sampling Methodology
  - Currently on third version
  - Much improved speed and accuracy

- Sample Farms from NFS to generate spatial samples with same structure as Census of Agriculture
  - By Sizem System and Soil Type
  - NB not the same farms, merely the same characteristics
  - Adjustment to ensure that stocking rates are compatible

- Challenges
  - NFS is not representative of the smallest farms and
    - on land with poorest quality
  - Cell sizes can be challenging
  - Choice to sample from within region/LFA
Validation

- Methodology
  - 12 Alternative Choices
- Validate against
  - Census variables
  - Local stocking rate
  - Winners and Losers from CAP reform at regional level (using NFS analysis)
- Correlations of Best Method
  - CAP Winners ~ 95%
  - CAP Losers ~ 95%
  - Census Variables ~ 90%
  - Stocking Rate ~ 70%
- Caution on peninsulas, due to limited number of small farms
  - However good across main farming areas
Structure of Agriculture
Structure of Agriculture

Tillage – East and South
Dairy – South
Beef – Midlands and West
Sheep – West and North West
Incomes Higher – South and East of Kerry-Dundalk line
Direct Payments reflect both SFP and Disadvantaged Areas
Viability

Viable
Income > Min Wage + Return on investment

Sustainable
Not Viable but with job

Vulnerable
Not Viable, no job

Viability – reflects higher incomes
Sustainable in West and Midlands
Vulnerable North West, Border, Coast
CAP Reform
Winners and Losers Analysis from post 2014 CAP analysis

Winners
Losers

Winners in peripheral areas and in North Leinster
Losers in the East and South East
However overlaps
### Spatial Distribution

<table>
<thead>
<tr>
<th></th>
<th>Between District</th>
<th>Within District</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Reform</td>
</tr>
<tr>
<td><strong>Direct Payments</strong></td>
<td>17.8</td>
<td>13.9</td>
</tr>
<tr>
<td><strong>Family Farm Income</strong></td>
<td>14.5</td>
<td>13.1</td>
</tr>
</tbody>
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Far more variability between farms than between areas
CAP Reform reduces spatial variability of incomes
But many winners and losers within the same areas
Next Steps

- Solve the peninsulas/small farms issue
- Methodology is currently being used in 5 other countries
  - Utilises data that is available in all EU members states
  - Pitch to EU Commission to fund development for all EU members states for use in EU CAP and RDP policy analysis
    - Gap in capacity at the moment
- Model future Less Favoured Area reforms
  - Improve the consistency with localised environment
Thank You
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