Farmer to non-farmer: the role of farmer identity on conservation behaviors

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Changing rural landscapes

- Substantial demographic change in rural landscapes
  - Complex trends – variable across landscape
  - Ownership of land by non-operator landowners (NOLs) is increasing
  - Nearly 50% of cropland in the U.S. is now owned by NOLs (USDA 2014 TOTAL survey)
- What does this mean?
  - High land rental rates in some areas
  - Increased diversity in values attached to land, beliefs, attitudes, knowledge, relationships, identification as a farmer, management practices, among others
- Described as shift towards “multifunctional landscapes”
- Why does it matter?
  - Increasingly complex to connect with current populations to promote conservation objectives

Project objectives

- Develop a better understanding of rural populations, including testing the effectiveness of a measure to assess the “identity” of rural landowners
- Examine the influence of key variables on farm management practices
Factors affecting management decisions

- Held values: guiding principles (generally abstract)
- Assigned values: attached to specific goods, activities, services
- Beliefs: what we think is true
- Norms: how we/others think we ought to behave
- Attitudes: positive/negative evaluation of a topic
- Knowledge: grasp of facts, understanding of process
- Identity: suggested as influential in recent work
- Other factors: time, money, equipment, etc.

Measuring identity of rural landowners

- Attempts to classify rural landowners typically focused on actions of the farmer population
  - Ex. Productivist v. conservationist; farmer v. non-farmer
- May miss important information about current landowners / influences on decisions
  - Non-operator owners generally not involved in agricultural decision-making
  - However, research suggests these owners highly interested in conservation (e.g., Petzelka 2012, Petzelka et al. 2009, Petzelka et al. 2011)

Identity

- Identity
  - One’s self-concept
  - Influenced by multiple factors including personal (biographies, individual characteristics), role, and group (affiliation with others) variables
- Key points for this work
  - Social identity
    - People see selves as members of particular groups or categories (social identity)
    - Develop prototypes of what members are like (e.g., beliefs, attitudes, norms, behaviors)
    - Individual evaluates self based on developed prototypes
  - “Good farmer” measure
  - Occupational identity
    - Sense of identity closely tied to occupation
    - Profession - more than just a job, described as a "way of life"
    - Influenced by a range of factors (not just self-categorization)
    - Farmer Collective Occupational Identity Construct
Occupational Identity

- Applied to agricultural settings in a series of studies by Theresa Groth
  - Exploratory work in Australia and U.S. (Ohio)
  - Previous survey in Australia
  - Evidence was a valid and reliable scale
  - Final scale included 12 items assessing each dimension

Overview of research

- Mail back survey in 4 counties in OH (Paulding, Henry) and Iowa Wright, Pocahontas)
- Survey conducted in spring 2017
- Sample: 4,000 landowners with > 40 acres
- Responses rate: 26% (n=998)
- Measures: Good farmer identity, F-COIC, and several items assessing land rental practices, management practices, decision making, preferred qualities in landlords & renters, values, beliefs, among others

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<table>
<thead>
<tr>
<th>Dimension</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Self-categorisation</td>
<td>Self-placement, perceived similarity and certainty of an agricultural producer identity.</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Internal favourability judgments (about oneself) as an agricultural producer.</td>
</tr>
<tr>
<td>Importance</td>
<td>Importance of the agricultural producer identity to the overall sense of self.</td>
</tr>
<tr>
<td>Attachment and sense of interdependence</td>
<td>Emotional connection towards the agricultural producer identity.</td>
</tr>
<tr>
<td>Social embeddedness</td>
<td>An individual’s amount of ongoing social contacts with agricultural producers.</td>
</tr>
<tr>
<td>Behavioural involvement</td>
<td>Actions that directly implicate the agricultural producer identity.</td>
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</tbody>
</table>
Findings overview

- Consider three methods to classify rural landowners
  - Self categorization of participants
  - NOL's vs. operators
  - Identity: Results of F-COIC
- Concluding thoughts about take away messages

<table>
<thead>
<tr>
<th>Landowner characteristics</th>
<th>Non-farmers (n=524)</th>
<th>Part-time farmers (n=171)</th>
<th>Full-time farmers (n=215)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (median years)*</td>
<td>70</td>
<td>68</td>
<td>64</td>
</tr>
<tr>
<td>Retired (%)**</td>
<td>76.6</td>
<td>54.7</td>
<td>20.9</td>
</tr>
<tr>
<td>Female (%)**</td>
<td>42.9</td>
<td>12.7</td>
<td>11.6</td>
</tr>
<tr>
<td>Total acres owned (median acres)*</td>
<td>160</td>
<td>150</td>
<td>250</td>
</tr>
<tr>
<td>Acres rented in from other land owner (median acres)*</td>
<td>0</td>
<td>0</td>
<td>263</td>
</tr>
<tr>
<td>Acres rented out to farm operator (median)*</td>
<td>125</td>
<td>35</td>
<td>0</td>
</tr>
</tbody>
</table>

*Significantly different based on Kruskal-Wallis contrast (p<.05)
**Significantly different based on Chi-square comparison (p<.05)
<table>
<thead>
<tr>
<th>Management practices</th>
<th>Non-farmers (n=524)</th>
<th>Part-time farmers (n=171)</th>
<th>Full-time farmers (n=215)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested soils for nutrient status (%)*</td>
<td>59.0</td>
<td>87.5</td>
<td>91.0</td>
</tr>
<tr>
<td>Used minimum or no tillage techniques (%)*</td>
<td>55.8</td>
<td>78.5</td>
<td>70.9</td>
</tr>
<tr>
<td>Used filter or buffer strips (%)*</td>
<td>38.2</td>
<td>52.7</td>
<td>63.3</td>
</tr>
<tr>
<td>Used variable rate N application (%)*</td>
<td>32.6</td>
<td>52.1</td>
<td>46.2</td>
</tr>
<tr>
<td>Used a manure or nutrient management plan (%)*</td>
<td>27.1</td>
<td>30.3</td>
<td>42.0</td>
</tr>
<tr>
<td>Planted cover crops (%)*</td>
<td>19.0</td>
<td>33.6</td>
<td>23.0</td>
</tr>
</tbody>
</table>

*Significantly different based on Chi-square comparison (p<.05)

For some practices, substantially more “non-farmers” selected “don’t know” option.

<table>
<thead>
<tr>
<th>Motivations for owning land (assigned values)</th>
<th>Non-farmers (n=524)</th>
<th>Part-time farmers (n=171)</th>
<th>Full-time farmers (n=215)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The land is an important source of annual income (mean)*</td>
<td>4.02</td>
<td>4.01</td>
<td>4.65</td>
</tr>
<tr>
<td>A feeling of responsibility to previous generations to keep the land in the family</td>
<td>3.91</td>
<td>4.08</td>
<td>4.11</td>
</tr>
<tr>
<td>All/part of the land has been passed down through generations (mean)*</td>
<td>3.83</td>
<td>3.54</td>
<td>3.60</td>
</tr>
<tr>
<td>Ability to pass on a healthier environment for future generations (mean)*</td>
<td>3.68</td>
<td>4.00</td>
<td>4.01</td>
</tr>
<tr>
<td>A place to view wildlife (mean)*</td>
<td>2.06</td>
<td>2.51</td>
<td>2.18</td>
</tr>
<tr>
<td>A place for recreation (mean)*</td>
<td>1.71</td>
<td>2.40</td>
<td>1.92</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Beliefs</th>
<th>Non-farmers (n=524)</th>
<th>Part-time farmers (n=171)</th>
<th>Full-time farmers (n=215)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am concerned about agriculture’s impacts on my state’s water quality</td>
<td>3.08</td>
<td>3.92</td>
<td>3.85</td>
</tr>
<tr>
<td>Nutrients from agricultural fields contribute to water quality issues in my state</td>
<td>3.83</td>
<td>3.71</td>
<td>3.62</td>
</tr>
<tr>
<td>Nutrient management practices on my farm are sufficient to protect local water quality</td>
<td>3.72</td>
<td>3.89</td>
<td>3.96</td>
</tr>
<tr>
<td>Farming activities on my farm don’t make much difference to overall water quality</td>
<td>2.86</td>
<td>2.86</td>
<td>2.86</td>
</tr>
</tbody>
</table>

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Non-farmers (n=524)  
Part-time farmers (n=171)  
Full-time farmers (n=215)

<table>
<thead>
<tr>
<th>Norms</th>
<th>Non-farmers</th>
<th>Part-time farmers</th>
<th>Full-time farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most farmers whose opinions matter to me consider environmental impacts when making nutrient management decisions</td>
<td>3.76</td>
<td>3.81</td>
<td>3.65</td>
</tr>
<tr>
<td>Most farmers in my community expect me/my renter to use best nutrient management practices</td>
<td>3.70</td>
<td>3.83</td>
<td>3.79</td>
</tr>
</tbody>
</table>

**Landowners**

Landowners and land rental:
- Landlords: 45% - Nearly half rent ALL land out (NOL)
- Tenants only: 22%
- Operator landlord: 4%
- Owner/farmer: 29%

**Gender** *(Significantly different, Chi-square test)*
Formal education* (Significantly different, Chi-square test)

Retired* (Significantly different, Chi-square test)

Community where grew up
Community where live now* (Significantly different, Chi-square test)

Ever consider self to be a farmer?* (Significantly different, Chi-square test)

F-COIC Reliability & Validity

- Scale reduced from 12 – 9 items (based on evaluation of Cronbach’s alpha and inter-item correlations)
- Reliability: Cronbach alpha level of 0.882 (evidence items are consistent)
- Principal components factor analysis (PCA)
  - KMO=0.903
  - One component w’ eigen value > 1; explained 52.2% of variance
  - Higher values on scale associated with stronger farmer identity
- Validity: farmer id levels sig. dif. across self declared landowner types (K-W test)
Occupational identity

Findings suggest two clusters related to occupational identity (K-means clustering):
- F-COIC – sum responses to 9 items; scores range from 0 – 45
  - Farmers (37.92 / 45)
  - Non-farmers (25.52 / 45)
- Farmer group includes both full and part-time farmers

Conclusions

- Population of rural landowners is growing increasingly complex
  - Nearly half of participants rent out ALL agricultural land
  - Multiple methods available to distinguish population groups; all can provide some insight to better understand current rural populations
  - Several differences evident between different population groups
    - Full-time farmers more likely to financially rely on agricultural production
    - NOLs differ from farmer operators (gender, education, retired, where live now)
    - Part-time farmers identify as “farmers”
  - Thoughts about how it may influence efforts to engage landowners

Thank you!

Questions

Please contact me with questions/comments/more information:
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