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Cultivating Portlandia: A Mixed-Method Study of Residential Urban Agriculture in Portland, Oregon

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Citation Details

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A Mixed-Method Study of Residential Urban Agriculture in Portland, Oregon

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1. Research Questions

- What is the scale and scope of residential urban agriculture (UA) in metro Portland?
- How does the practice of UA vary spatially?
- How do gardeners' motivations and practices vary along socioeconomic lines?

Figure 1. Examples of residential UA in Portland

2. Mapping

- Used Google Earth to visually identify residential gardens in Portland and Vancouver, WA (Figure 2).
- Identified 3,022 residential gardens totaling 7.6 ha in Portland and 503 gardens totaling 2.0 ha in Vancouver (Figure 3).
- To determine undercount and false positives, the results were "ground–truthed" using Google Streetview and via site visits to all streets in 7 census block groups.
- Analysis of canopy cover using SPRING remote sensing imagery processing software (see Figure 4) indicated a low correlation between canopy cover and undercount (R^2=0.16).
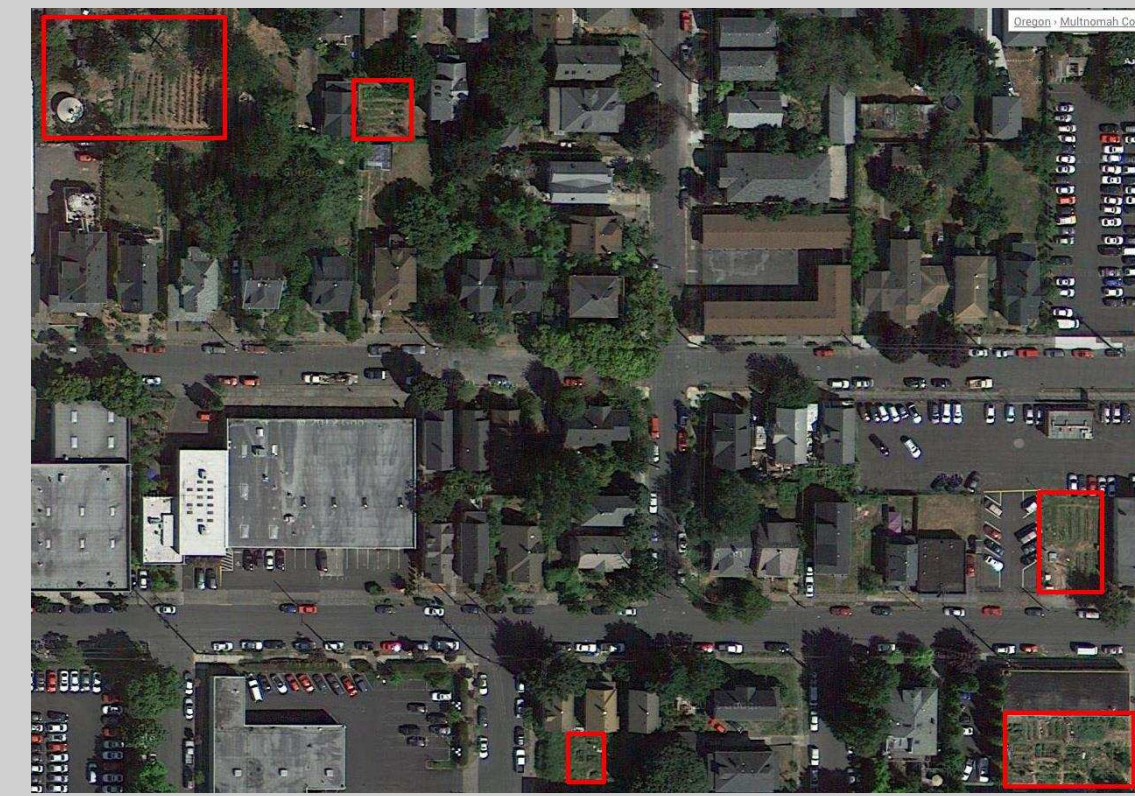

Figure 2. Examples of gardens Identified using Google Earth

Figure 3. Identified gardens in Portland

Figure 4. Example of canopy cover analysis using NIR imagery

3. Spatial Analysis

- Used GeoDa and ArcGIS to conduct spatial analysis of garden clusters by block group.
- Results show highest concentrations of gardens in parts of Inner-East Portland and North Portland (Figure 5).

Figure 5. Location quotient showing concentration of gardens by block group

- Similarly, the percentage of front yard gardens is greatest in areas of Inner-East Portland and North Portland; several clusters suggest "spatial contagion" (Figure 6).
- Results reveal how both the frequency and the form of home gardening vary across parts of the city, and suggest socio-economic variation in aesthetic preferences.
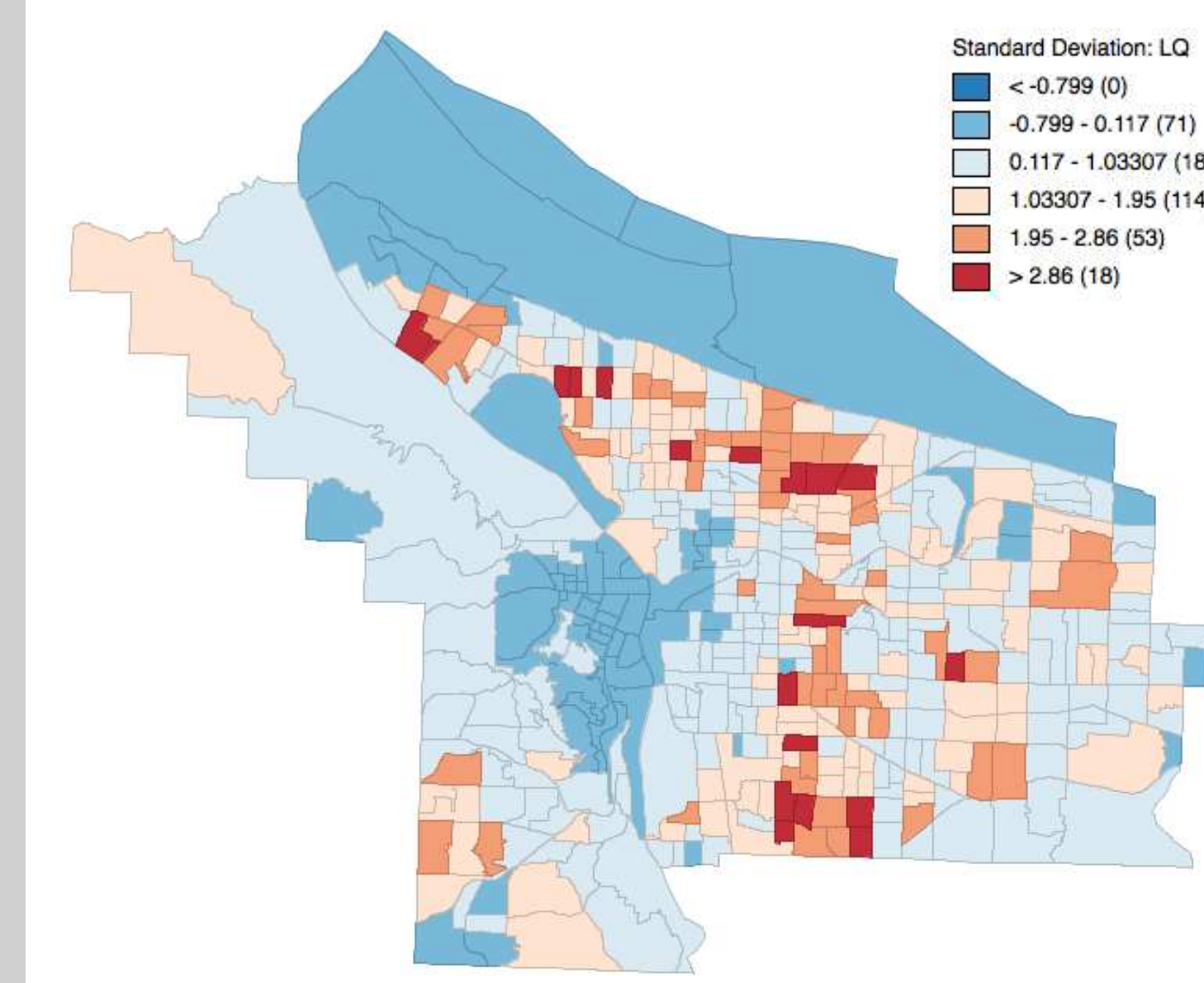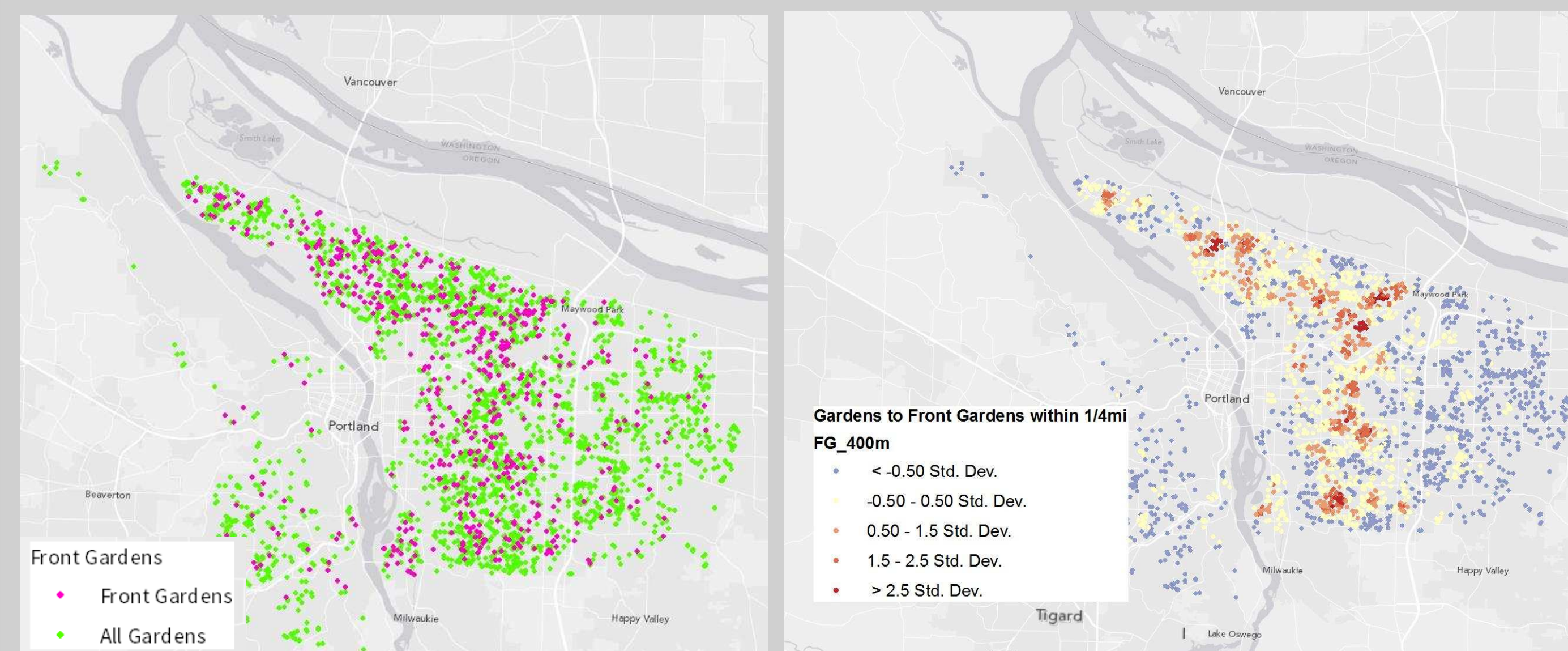

Figure 6. Hotspot analysis to identify clusters of front yard gardens

4. Validation & Household Mail Survey

- A mail survey was sent to 1600 households in Portland and Vancouver, WA.
- Survey results confirm that gardens identified using Google Earth were 95% accurate.
- However, undercount was considerable. Percent of respondents who confirmed having a household garden by area:

  Inner Portland: 46%
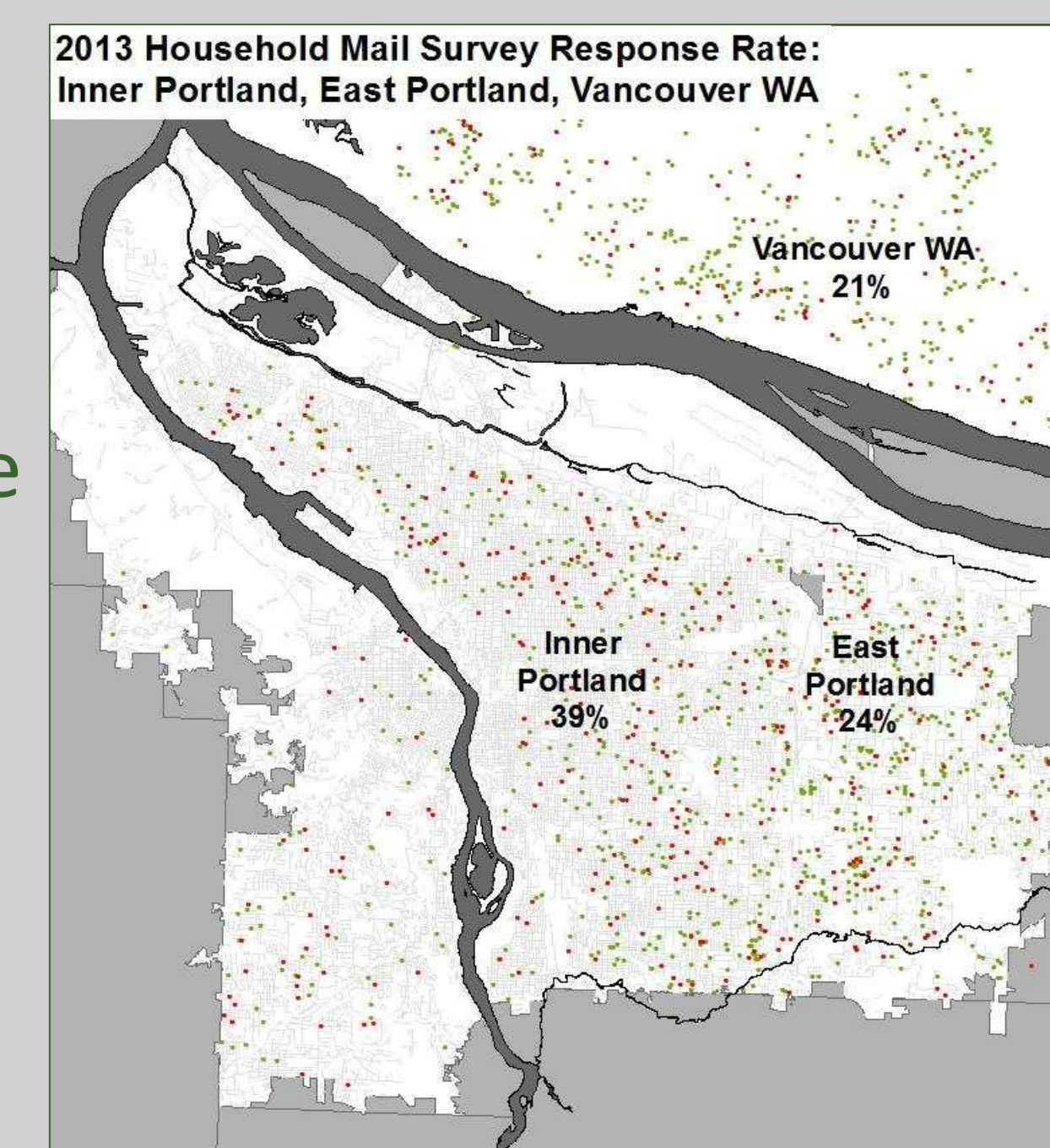 East Portland: 40%
  Vancouver, WA: 57%

Figure 7. Survey recipients and respondents

5. Preliminary Survey Results

- Preliminary analysis suggest that individual motivations to garden differ across space, income, and level of education.
- Home gardeners in East Portland are more likely to be motivated by ensuring that they have enough to eat (Figure 8).
- Respondents with lower annual income were more likely to garden in order to save money (Figure 9).
- At all income levels, those with higher levels of educational attainment were more likely to be motivated by sustainability concerns, while healthy eating motivated all groups equally (Figure 10).
- Implications for policy and planning? Framing matters; some language (eg, "sustainability" may not resonate with all socio-economic groups, while other language (eg, "healthy eating") may transcend class differences.
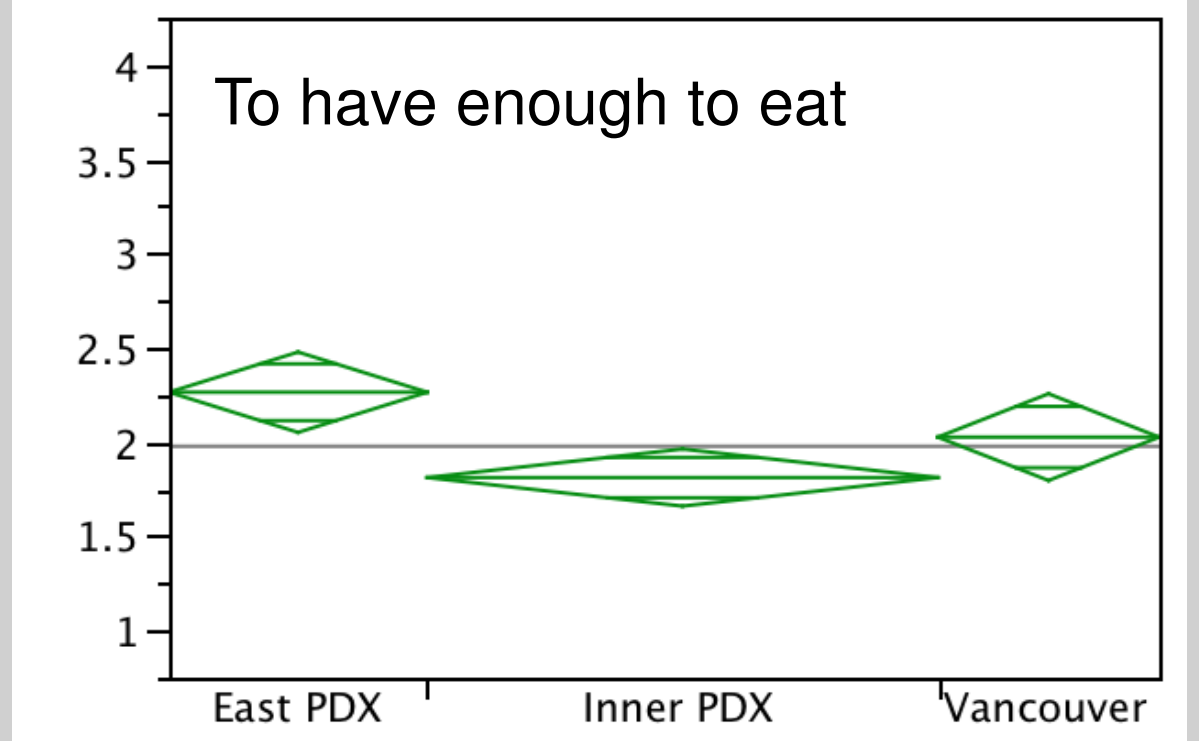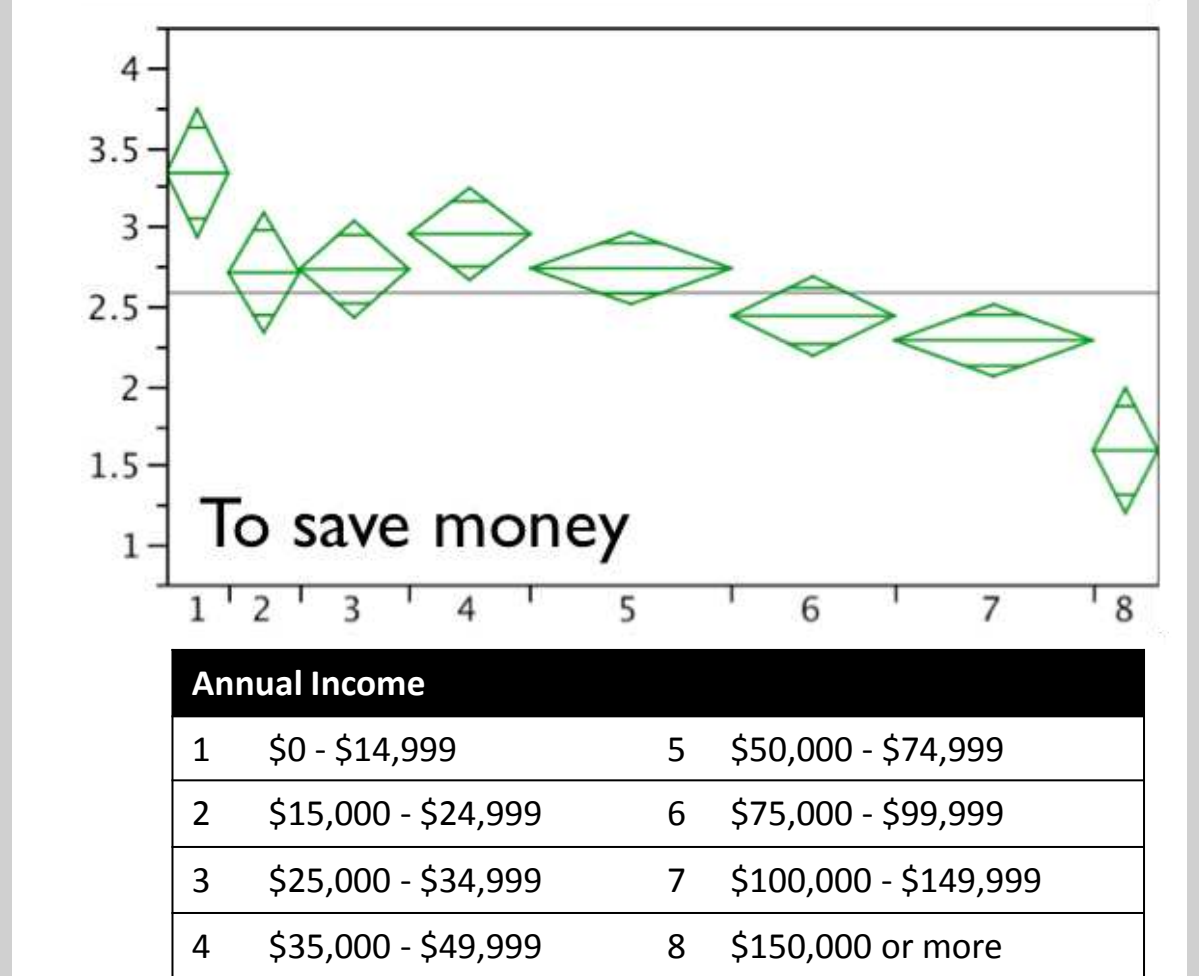

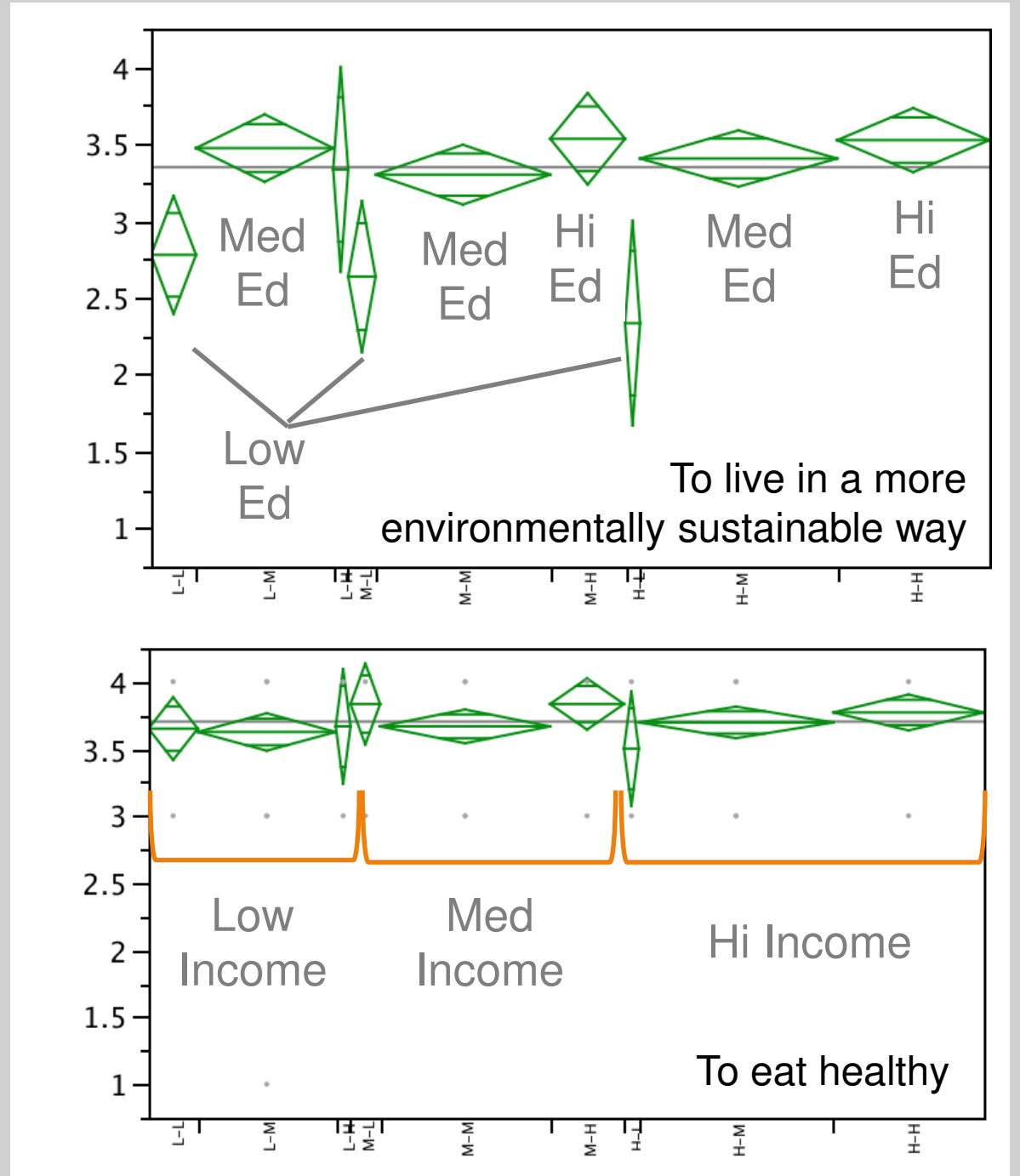Figure 8. Motivation by area

Figure 9. Motivation by income

Fig. 10. Motivation by education

5. Future Directions

- Expand study to Gresham, as well as to Seattle, WA and Vancouver, BC metropolitan regions.
- Conduct interviews with UA practitioners and policy makers to better understand motivations and practice.
- Integrate study data with historical geographic analysis of municipal and regional political economies.
- Examine UA's relationship to patterns and processes of eco-gentrification in Cascadia's three metropolises.
- Develop white paper of policy recommendations for municipal stakeholders.