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Cover Page Footnote

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The Economic Opportunity Mapping (EOM) Tool

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Abstract. Extension professionals increasingly understand data as integral to economic development planning and related efforts. However, regional economic data is often inaccurate, expensive, and unengaging for stakeholders. The Economic Opportunity Mapping Tool provides industry-specific free online interactive maps to engage stakeholders in the process of economic development planning, while also helping connect the determinants of business location with real local data on industry establishments.

INTRODUCTION

Data is integral to economic development planning and efforts, whether in implementation, targeting, or evaluation (Franz, 2018; Schmieder et al., 2018; Zimmerman & Kahl, 2018). As a result, Extension professionals emphasize where to download secondary data and how to use data in economic development, noting the wide variety of data sources and associated difficulties for users (Curtis et al., 2012; Davis, 2016; Caillouet et al., 2021; Zimmerman, 2013). One of those difficulties is suppression of data to avoid improper disclosure, particularly for smaller or more rural geographies, specific industries, and demographic subgroups. Because economic development Extension efforts often target rural areas and underserved subgroups of the population, these limitations can be substantial (Carpenter, Van Sandt, & Loveridge, 2022). In response to suppression, Extension professionals may resort to proprietary data, if their agency has the funds. However, proprietary data uses unknown algorithms, has similar accuracy concerns to suppressed public data, and is unavailable to institutions with limited funds.

In addition to accuracy and inclusivity concerns, stakeholders can perceive economic development data presentations as tedious. Furthermore, the connection between the number of local businesses within various industries, a common metric presented to stakeholders, as well as relevant local factors that may influence that metric is often tenuous at economic development meetings. To address these and other related concerns, the authors developed the data-driven *Economic Opportunity Mapping Tool* to more accurately and more engagingly present regional economic development opportunities.

DEVELOPMENT OF THE TOOL

After numerous, diverse focus groups representing various industries, rural Mainstreet, regional economic development corporations, and entrepreneurs were conducted, the authors began research on regional economic data sources, measurement error, and business locational choice methods (Carpenter et al., 2021; Carpenter, Van Sandt, & Loveridge, 2022; Carpenter & Fannin, 2021) using limited-access federal administrative data. Then, they used federal administrative data to research industry-specific locational determinants, including manufacturing, health services, food and agricultural industries, retail, finance, and transportation and warehousing (Carpenter, Dudensing, & Van Sandt, 2022; Carpenter et al., 2022; Carpenter, Van Sandt, & Loveridge, 2022b; Van Sandt & Carpenter, 2021; Van Sandt, Carpenter, Dudensing, et al., 2021; Van Sandt, Carpenter, & Tolbert, 2021).

THE ECONOMIC OPPORTUNITY MAPPING (EOM) TOOL

The Economic Opportunity Mapping (EOM) Tool provides interactive online maps that allow users to visualize potential county-level economic opportunities for businesses in different industries across the continental United States. After the user selects an industry, they move to a mapping dashboard specific to that industry. For example, Figure 1 shows the mapping dashboard for hardware stores. In addition to county summary statistics, the EOM tool provides visually represented results of a model producing expected industrial predicted presence. The model output is compared to measured values to categorize each county as above, below, or near predicted values for a specific industry ([1] in Figure 1). Measures of both expected and actual performance are subject to error and are imperfect, but the goal of these maps is to spur discussion and understanding of economic opportunities for different industries within a particular county or region, as well as discussions of the important local factors that may be affecting local industry. Within the map legend ([2] in Figure 1), clicking on a color of the state filter will cause the map to highlight just the counties that fit that description. For example, the Figure 2a shows the state of Michigan selected, while figure 2b shows tools available for users to select sub-state or regional areas. The mapping dashboard reacts dynamically to selections. For example, the county table ([3] in figure 1) and the county table legend ([4] in figure 1) shows industry support measures for the counties selected through the map or state filter. Finally, the mapping dashboard also includes a rurality table ([5] in figure 1). Importantly, these data are freely available and downloadable (figure 3, red circle) for users to easily access and discuss.

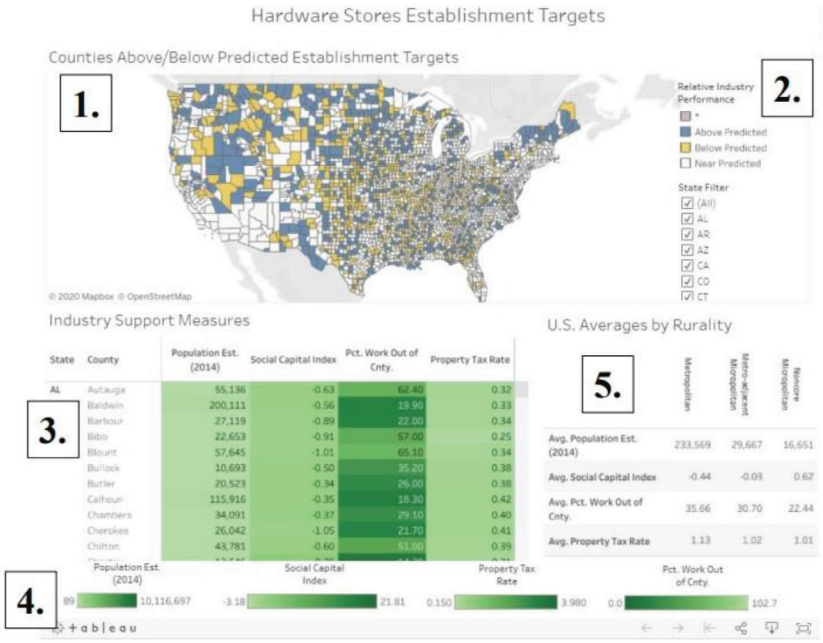

Figure 1. The mapping dashboard. This figure shows the mapping dashboard for hardware establishments as an example. Each overlaid number represents a different aspect of the mapping dashboard, which are delineated in text.

INTERPRETING AND SPURRING DISCUSSION

As stakeholders engage with the maps, Extension professionals can guide them through how to interpret the results. For example, if a county is "Above Predicted," then there are more establishments in that industry than our economic models predicted. This could suggest that either the industry is exceeding our expectations and doing well in this county, the industry is acting as a larger regional industry serving the neighboring counties, or the industry is overdeveloped for the local market and at risk of shrinking. The true scenario can only be iden-

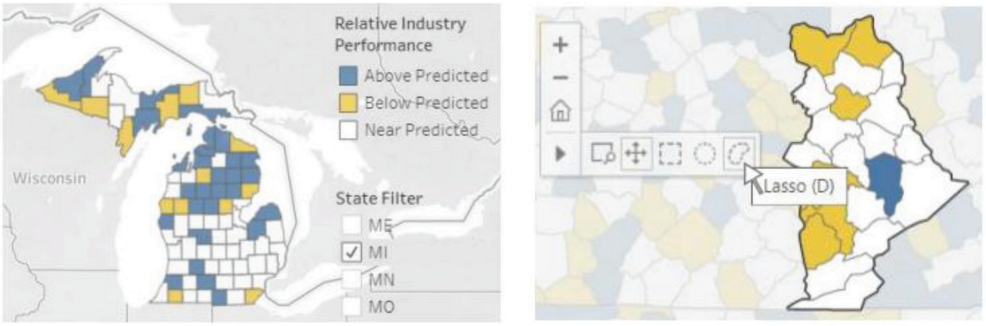

Figure 2. Mapping geographies. Figures show interactive options for selecting geographies within the mapping dashboard. Users can (a) select states directly, or (b) manually select counties, with the mapping dashboard changing based on selections.

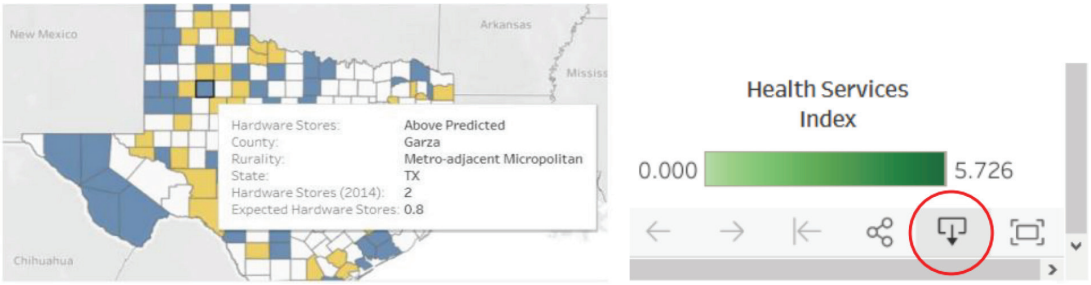

Figure 3. Interactive options for (a) data visualization and (b) downloading selected data.

tified after stakeholders apply on-the-ground knowledge of that place, an important aspect of the stakeholder engagement possible with these maps. Analogously, yellow counties indicate there are fewer establishments than the models predicted. This could suggest that either the industry is facing local barriers preventing development, demand in the county is being pulled away from the same industry in another county, or the county has just not yet realized the potential for growth in this industry.

SUMMARY AND CONCLUSIONS

The EOM Tool is freely available online and has been adopted by Texas A&M AgriLife Extension Service, Michigan State University Extension, and University of Wyoming Extension. The tool helps engage stakeholders in the exploration of their data and connect the size and types of regional industries to their determinants. The tool represents a powerful new opportunity to empower stakeholders in their data-driven economic development efforts nationwide.

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