**Index Description**

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**Section 1:** Define and justify what makes a strong or equitable local and regional food system.

Every single person relies on the food system for their most basic need. The strength of a food system is determined by its accessibility and availability to consumers, and the sustainability of the food products themselves. With this in mind, we characterize a strong food system in terms of high economic viability, strong social support, sufficient local food supply, and adequate food accessibility.

**Section 2:** Describe the variables chosen and explain why these variables were selected in relation to your definition of a strong or equitable local and regional food system.

Our selection strategy could be generally summarized as two rules. First of all, we pin down key dimensions that could capture a strong local food system. Specifically, based on our above definition of a local food system, we go back to the literature to find these dimensions. Then, we select variables that can describe each dimension. Finally, we finalize variables based on data availability. Our data sample starts from 2015 which can reflect more recent trends.

1) Economic variables. The first variable is “percent of population with access to fixed advanced telecom”. Areas with higher access to advanced telecom are likely to be more digitally connected, which can facilitate online businesses, improve access to education and job opportunities, enhance communication, and drive innovation and economic growth. The second variable is “bank deposits per capita at FDIC-insured institutions”. Stronger financial institutions and increased savings contribute to overall economic resilience. The third variable is “percentage of median income females earn compared to males”. A smaller gender pay gap generally indicates more equitable economic opportunities for women, which can lead to higher workforce participation and economic productivity and performance.

2) Social support variable. We calculate the percentage of people who participate in SNAP, which helps us understand the extent to which the local community is supported in accessing food. Higher participation rates indicate that more individuals are benefiting from the program's assistance in obtaining essential food items.

3) Local food supply. We include four variables to measure the strength of local food supply, which are percent of local farms using direct-to-consumer channels, percent of local farms using intermediate marketing channels, percent of local farms participate in local food marketing channels, and the number of Community Supported Agriculture. These variables together capture the food supply by local farms and the interaction of local producers and consumers.

4) Food accessibility. According to Ericksen (2008), food accessibility requires people to physically get access to affordable, and culturally or personally inclusive food. Small scale farmers and farmers’ markets are playing a crucial role in creating a food accessible local food system, which is also equitable to everyone (Meadow 2012).

**Section 3:** Explain how your index is presented in your data visualization.

We start with a map that shows the relative strength of the food system across the United States. The map uses the overall arching index that considers all the distinct aspects of the food systems. Next, we developed individual county scales that look at the interaction between the distinct aspects of the food system. These scales set color intervals for the distinct aspects and assign strength based on the shade of the food system; dark means a stronger food system. It then overlays the colors to show the county’s food system strength.