**Health and Environment From Accessible and Affordable Local Food (HEAL)**

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

Local and Regional Food Systems are complex and multidimensional functions that comprise various components ranging from producers to consumers and all associated infrastructures, business and policies interconnecting together for providing enough, nutritious food to local consumers while balancing financial, health and environmental needs of all the local people/communities and businesses involved.  A robust food system balances out all these dimensions such that there is fair access to nutritious food for everyone and is sustainable enough to continue for a long run. Better availability of quality food that is affordable for and accessible to everyone to sustain healthy living without seriously compromising the local environment makes a stronger and equitable local food system.

**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.

Health indicators provide insights into community well-being and potential health issues related to diet and nutrition. Variables such as diagnosed diabetes rates, obesity, food insecurity, and fast-food restaurants per 1000 population help address health disparities and promote better nutrition so that we can foster a more equitable food system that promotes better nutrition and overall community health.

Environmental indicators assess the system's sustainability and impact on ecosystems. Variables such as chemical pollution using pesticides and fertilizers reflect soil health and runoff pollution while the adoption of conservation practices, cover crops, no till, organic agriculture, rotational grazing and silvapasture supports ecological responsibility and environmental stewardship.

Food accessibility is a critical factor for ensuring that all individuals have easy access to a variety of food options. By considering the number of farms engaged in Directly-to-Consumers (DTC) as well as through local market channels per capita, we can identify areas with limited access to fresh food and facilitate the development of strategies to reduce food deserts and enhance food accessibility.

Food affordability is equally vital in promoting equitable access to healthy food choices. Higher food affordability can contribute to a more equitable food system that supports the well-being of diverse communities. Analyzing total nominal food sales per capita relative to median household income sheds light on whether individuals can afford local, nutritious food without financial strain.

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

Health and Environment from Accessible and Affordable Local Foods (HEAL) index are presented in the form of heatmap, spider chart and density plots in the data visualization. HEAL index is the unweighted mean of the standardized values of four dimensions (food affordability, food accessibility, health, and environment).

Heatmap shows the variation in HEAL index at the county level between California and Texas. A county or geographic area with higher index value is expected to have a higher level of food availability and affordability and relatively lower food-related environment and health concerns. Further, to see the strength of each of the dimensions, we are using spider chart, which is at the state level. In addition, to see the distribution of the standardized value for counties within a state for each of the dimensions, we used density plot.