



FOOD INSECURITY IN THE RIO GRANDE VALLEY

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Background

- Low Access Food, described often as food insecurity, is “the state of being without reliable access to a sufficient quantity of affordable, nutritious food”.
- The Rio Grande Valley (RGV), located along the U.S. – Mexico border, includes four Texas counties: Starr County, Hidalgo County, Willacy County, and Cameron County.
- The RGV is one of the poorest regions in Texas with more than 93% of the population as Hispanic or Latino, high family poverty rate of 27% and 52% of the census tracts described as food deserts.

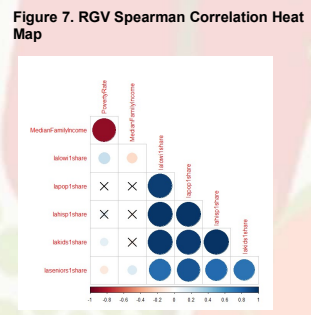
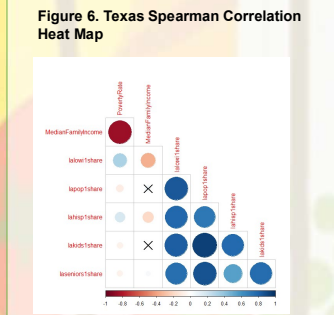
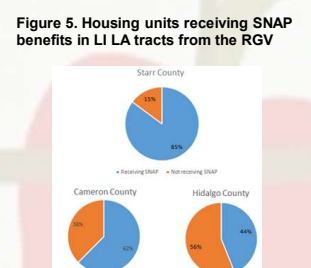
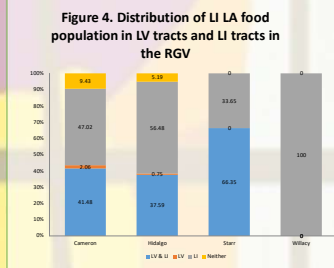
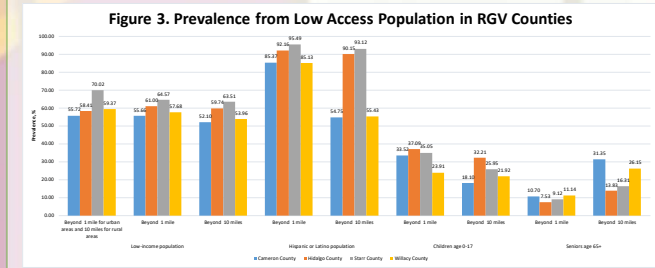
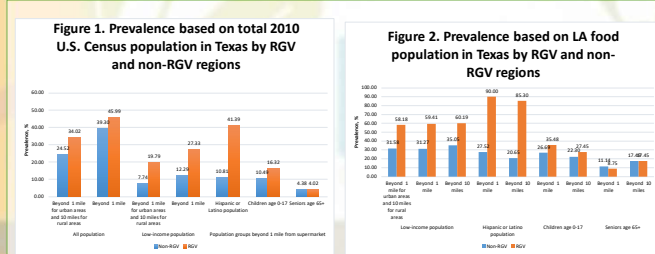
Objective

- To determine the prevalence of low-access (LA) food population in the Texas RGV and non-RGV regions, and in the RGV counties based on modified date from original Food Access Research Atlas.
- TO compare the distribution of LA food population between the RGV and non-RGV regions and between RGV counties in the total population, as well as in the low-income (LI), Hispanic or Latino, children, and senior subpopulations.
- TO evaluate the correlation between LI LA food shares and LA food shares at a census tract level by the RGV and non-RGV regions, and by the RGV counties.
- TO determine the LI LA food areas in the RGV that are of the highest need of food resources.

Methods

- Prevalence were calculating using counts of individuals beyond 1 mile for urban areas and/or beyond 10 miles for rural areas from nearest supermarket.
- Distributions of LA and LI LA food were compared between the RGV and non-RGV regions, and the RGV counties using the chi-squared test.
- Spearman's rank correlation was used to evaluate the strength and direction of potential monotonic relationships between LI LA food shares and LA food shares at a census tract level by the RGV and non-RGV regions, and by the RGV counties. Correlations were depicted using heatmaps.
- Prevalence analysis was conducted using SAS 9.4 (SAS Institute, Inc., Cary, N.C).
- The correlation analysis was conducted using the R programming language.
- All statistical tests were two-sided and were performed at the 5% level of significance.

Results



Results Cont.

These findings are significant in determining key areas of Texas and the Rio Grande Valley that need additional assistance with food security::

- Figure 1 and Figure 2 show that the RGV's prevalence of LA food population were higher than that of the rest of Texas in most categories and the chi-squared test p-values were <0.0001.
- Among the RGV counties, Hidalgo and Starr counties' prevalence of LA food population were higher than the rest of the counties in the RGV in most categories. Overall, the distributions of LA food population across the RGV counties were significantly different and the chi-squared test p-values were <0.0001.
- It was shown that there are significant differences in the LI LA population with LV between the counties in the RGV (p<0.0001). However, all counties in the RGV appear to show significantly large portions of the population being either LI or LV LI.
- Hidalgo County, followed by Cameron County had higher proportion of housing units among the LI LA food population with LV not receiving SNAP benefits.
- Based on Figure 6 and 7, overall, positive correlations between LI LA food shares and LA food shares in total population, in the children population, and in the Hispanic or Latino population were stronger in the RGV than in the rest of Texas.

Conclusions/Recommendations

- We recommend Texas officials should focus resources in the RGV since proportions of low access to food are significantly higher than the rest of Texas.
- Additionally, leadership in the RGV should focus on Starr and Cameron county's low-income and low vehicle access tracts to tackle issue of low access to food.

References

1. American Statistical Association – This is Statistics 2021 Fall Data Challenge Data Set
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4. “Measuring Access to Food.” *Economic Research Service - USDA*, https://gisportal.ers.usda.gov/portal/apps/experiencebuilder/experience/?id=a53cbd7396cd4ac3a3cd09137676fd40&page=page_4.