

Urban and Rural Purchase Patterns of SNAP Participants in North Carolina

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Objectives: Urban and rural environments have different economic and social factors that influence un/healthy food access. SNAP participants are at greater risk for diet related chronic disease compared to non-SNAP participants and it is unclear whether rurality amplifies or alleviates these risks. This study examines grocery sales to SNAP participants from rural vs urban stores to provide insights into geographical disparities in the prevalence of chronic disease.

Methods: We used de-identified store-week level transaction data from a large grocery chain with >490 stores across North Carolina from Oct 2019-Dec 2020 (n = 32,182 store weeks), classifying stores as urban or rural based on USDA definitions (main exposure). We identified SNAP sales from payment mode and defined SNAP participation as having used a SNAP EBT card within the last 3 months. Products are classified into nutritionally meaningful categories: fruits, vegetables, nuts, and legumes (FVNL), sugar sweetened beverages (SSB), junk

food (JF) and processed meats (PM), linked to nutrition data. We used multivariate random effects models with robust standard errors to examine the association of rural/urban stores with the share of calories of food categories purchased (main outcomes). We controlled for annual county level factors (socio-demographic composition, food environment) and weekly store level factors (composition of sales among SNAP vs non-SNAP).

Results: 127 stores were classified as rural and 369 stores were urban. Adjusting for covariates, an average of 13.12% of total calories sold from rural stores were from FVNL, compared to an average of 13.27% of total calories sold from urban stores. Rural stores' sales to SNAP participants had small but significantly higher share of total calories sold from SSBs (10.34% vs 9.36%), JF (30.68% vs 30.36%) and PM (5.7% vs 5.64%) compared to urban stores' sales to SNAP participants.

Conclusions: Rural store sales to SNAP participants appear to be marginally different from urban store sales to SNAP participants which support concerns around the need to improve healthy food access and limit unhealthy food access in rural settings.

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