

SUPPLEMENTAL INFORMATION

Community Demographic Information

Table A1. Selected Demographic Characteristics of Surveyed Springville Residents

<i>Gender/sex</i>	
Male	53 (71%)
Female	22 (29%)
<i>Race/Ethnicity</i>	
Non-Hispanic Black/African American	37 (49%)
Hispanic	19 (25%)
Non-Hispanic White	19 (25%)
<i>Household Composition</i>	
Lives alone	18 (24%)
Lives with others	57 (76%)
<i>Tenure</i>	
Long-term residents (lived in Springville before 2003)	25 (33%)
Newer residents (moved to Springville after 2003)	50 (67%)
<i>Other Factors</i>	
Age 65+	29 (39%)
Receives government assistance	24 (32%)
<i>Highest Level of Education</i>	
Less than high school diploma	33 (44%)
High school diploma/GED	39 (52%)
Four-year degree	3 (4%)

<i>Car Ownership</i>	
Does not own a working car	32 (43%)
Owns a working car	43/ (57%)
<i>Employment Status</i>	
Employed	50 (67%)
Not employed	25 (33%)
Total (n)	75

Note. Cells include counts with percentages in parentheses. Due to rounding errors, some percentages do not sum to 100.

Store Type

Table A2. Primary Store Type Visited for Grocery Shopping Trips by Automobile Ownership Status

	Lacks working car	Has working car	Total
Big-box store (Walmart, Sam's Club, Target)	15 (47%)	24 (56%)	39 (52%)
Full-service grocery	9 (28%)	13 (30%)	22 (29%)
Dollar store	7 (22%)	3 (7%)	10 (13%)
Gas station	1 (3%)	0 (0%)	1 (1%)
Food bank / family member	0 (0%)	3 (7%)	3 (4%)
Total	32 (100%)	43 (100%)	75 (100%)
<i>Pearson's chi-squared</i>	6.94		
<i>Degrees of freedom</i>	4		
<i>p</i>	0.139		

Note. Cells include counts with percentages in parentheses.

Table A2 shows the frequencies of store types visited by automobile ownership status. The chi-square test results indicate that automobile ownership was not associated with the type of store visited. Instead, most residents, regardless of car ownership, shopped at big-box stores.

Residuals for Table 1

Table 1 in the main text reports a statistically significant association between automobile ownership and primary travel mode to grocery stores ($\chi^2 = 35.27$, $df = 4$, $p < .001$). Table A 3 shows standardized residuals for each cell.

Table A3. Residuals (Travel Mode by Automobile Ownership)

Travel Mode	Residual (Lacks Working Car)	Residual (Has Working Car)
Drives alone	-3.15	2.72
Carpools	2.38	-2.05
Bicycles	1.76	-1.51
Walks	0.88	-0.76
Take public transit	0.88	-0.76

Standardized residuals greater than approximately 2 in absolute value indicate cells contributing most to the significant chi-square result. The largest residuals are in the Drives Alone and Carpools rows. This is consistent with the pattern described in the main text: automobile owners disproportionately drove alone, and non-owners disproportionately carpooled. Given that six of ten cells in Table 1 have expected counts below 5, we also computed a Fisher–Freeman–Halton exact test. It confirms the association ($p < .001$), consistent with the chi-square result.

Store Type Definitions

Table A 4 shows how we coded the primary grocery stores patronized by each respondent.

Table A4. Store Type Category Definitions and Examples

Store Type	Examples
Big-box store	Walmart, Sam’s Club, Target
Full-service grocery	Tom Thumb, Kroger, Brookshire’s
Dollar store	Dollar Tree, Dollar General
Gas station	Store connected to a gas station
Food bank / family member	Mentioned family member as source of food or food bank (both inside and outside of Springville)

Community and Site Selection

In our previous work (see References), we describe in detail how we selected the case study. Over several years, we had conducted community-engaged research there and documented widespread energy insecurity and transport poverty. Its unusual transportation context (as it sits within an urban county, but outside of the regional transit system service area) also explains why we use this setting to explore how automobile access affected the ability to reach food.

Reflexivity Statement

Our research team's positionality and identities shaped both data collection and interpretation. In particular, the lead investigator – who directed the data collection effort from 2021 to 2025, and had the most direct interaction with the community -- is a Mexican national, which may have influenced the relationships developed and data collected. Further, she speaks Spanish fluently and, alongside other researchers, conducted many of the interviews in Spanish. The remaining team included Latine and non-Hispanic White researchers, along with a small number of African American graduate student interviewers. Given that Springville is a historically black community (founded as a Freedmen's town), this may have slowed down the process of creating trust between our team and certain members of the community; the large proportion of Spanish speakers likely sped up the process for that portion of the community. Further, some of our interviewers were native to Dallas County, although none had grown up in Springville; again, this may have positioned us as outsiders.

To develop community connections, the lead investigator, along with a graduate student, began fieldwork in Springville in 2021 by attending community events and meeting residents. During an early visit, we met Ted, a long-term White resident whose extended family had lived in the community for more than a decade. Ted introduced us to Sam, an African American long-term resident whose mother is deeply involved in local civic and faith-based networks. Sam shared information about an upcoming town hall meeting, which provided an important entry point for engaging with residents and community organizations.

Building meaningful relationships in Springville required sustained engagement over many months. Through regular attendance at community meetings, participation in local events, and collaborations with nonprofit organizations, we gradually established trust with residents. Our continued presence in the community demonstrated a long-term commitment to understanding local concerns rather than extracting data for a short-term research project.

A particularly critical relationship was with Andres, a Mexican immigrant who has lived in Springville since 2008 and is well connected within the community's Latine population. Andres introduced us to several residents and helped us better understand the experiences of Latine households in Springville. As a Mexican scholar, the lead investigator was able to facilitate conversations that might otherwise have been difficult to initiate. These relationships were essential for ensuring that our research reflected the perspectives of diverse community members and supported a participatory research process.

Our affiliation with a public university also likely influenced how we interacted with participants and how they viewed us. Related to this point, as part of our research design, we provided each resident with \$25 VISA gift cards for participation in interviews and \$50 cards for oral histories, with the intention to compensate people for their time and insights. While we believe that this was a fair and ethical approach, it may have also contributed to a transactional relationship that influenced how people responded to our interview questions and oral history prompts. We also engaged with non-profit organizations who conduct regular work in the area, including a group that provides bottled water to residents. This may have increased residents' willingness to participate in our project; however, several community residents later complained of survey fatigue.

As outsiders to the community, we recognize that Springville residents may have been less likely to share sensitive information with us; further, as a vulnerable population (for example, many residents were undocumented immigrants), they may have felt especially uncomfortable interacting with researchers affiliated with a public university. Specific to this project, we believe there is potential that respondents did not discuss certain types of behaviors that are not socially desirable. However, many interviewees mentioned their participation in the informal economy and past histories of incarceration unprompted (see Reyes et al (2026) for more detail). This suggests that we gained the trust of many residents, so that they felt comfortable speaking candidly about their experiences.

Interview and Oral History Protocol. As we explain in the main text and in other publications (Reyes et al., 2025, 2026), we rely on original field research conducted with residents between 2021 and 2025. Using qualitative methods -- including 75 housing and transportation interviews across 46 lots and 15 oral histories (a subset of the interviews) -- we gathered detailed information on residents' sociodemographic characteristics, commuting patterns, car ownership, and employment. Because data by lot included information for more than 75 residents, we captured data on approximately 80% of Springville residents.

We conducted interviews in English and Spanish in residents' homes. While the interviews followed a structured guide with some open-ended questions, the oral histories invited residents to speak more generally about their experiences living in Springville and the mobility issues they faced. The full interview and oral history guides are available upon request from the authors.

Credibility and Analytic Rigor

Triangulation across sources. The study design drew on three data sources collected with the same population over the same period: structured interview questions (n=75), open-ended interview questions (n=75), and longer, less structured oral histories (n=15). Structured responses established patterns in travel mode and store type by automobile ownership. Via open-ended responses and oral histories, we then complicated and explored those patterns. For example, the finding that most respondents relied on cars regardless of ownership status was corroborated across both structured and open-ended responses, while the reasons for that reliance (carpooling networks, walking when no ride was available) emerged in the answers to open-ended questions and oral history data.

Member checking. While we did not share paper drafts with community members, we did engage in member checking by sharing preliminary findings and impressions with participants throughout the data collection period. This also contributed to the development of our codebook and oral history approach; for example, this prompted us to add a code for food bank access after several participants raised it unprompted.

Audit trail: coding and analysis. We coded interview and oral history transcripts thematically using Microsoft Word and Excel. Coding began with three dimensions: level of automobile access, primary source of food, and mode of access to grocery stores. Two researchers independently coded each question and discussed any disagreements. We developed additional themes related to food access and mobility (e.g., intermittent access, selective use of the food bank, energy insecurity) from the coded data. We then re-reviewed transcripts to identify illustrative quotes. We maintained a formal codebook, which is available upon request.

Transferability. These findings reflect the experience of one unincorporated Freedmen's town in North Texas. We do not seek to generalize our findings to all unincorporated communities. However, we provide qualitative data about the context of Springville (including its relative isolation, high rates of resident participation in informal economies, and demographics) that enable readers to judge whether our observations transfer to other communities. While in many ways Springville is unique in its high levels of poverty and unique cultural history, communities that also lack municipal services and public transit may see findings on food access as especially relevant.

IRB Approval

This study was approved by the Institutional Review Board of the University of Texas at Arlington under protocol #2023-0171.3.