Reviewer's report

Title: Socio-economic status, racial composition and the affordability of fresh fruits and vegetables in neighborhoods of a large rural region in Texas

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Reviewer: Angela Liese

Reviewer's report:

This is a very nicely written paper describing an observational study of the community food environment characterized through cost of fresh fruit and vegetables. Specifically, the authors were interested in exploring whether food prices vary with demographic and socio-economic status (SES) characteristics. The paper is very well written and the data thoughtfully analyzed and interpreted. Not many studies of this type have been done and the results are important to the field, even though the sample size of this study is relatively small. My suggestions are listed below:

Minor essential revisions:

1. Page 3, third paragraph: Reference is made here to the process of locating and geocoding all stores that could sell food items. If the authors in fact geocoded the stores (which implies obtaining a full street address, using a geographic information system software to generate geo-coordinates etc), then it would be very helpful if the software and road file used would be mentioned briefly, as well as the address match rate. If, however, a GPS device was used to obtain the geo-coordinates while the trained observers were on the store grounds, then the term “geocoding” should not be used, but the process and device described.

2. It would also be helpful if somewhere in the methods section the authors would state that each store was assigned to its Census block group and what method was used to accomplish this.

3. Page 9, description of results shown in Table 3: My strong recommendation would be to present the results of the univariate regression first, followed by the multivariate results. This approach would seem more consistent with the way data analyses are typically conducted, moving from the surface (crude, potentially biased approaches) to the more sophisticated in-depth models. Again, this is my recommendation, but I could be convinced otherwise if there are specific reasons.

4. Page 11-12: The authors very thoughtfully interpret their findings on the relation of neighborhood income and food prices, offering several different plausible reasons. However, with respect to the reason why food prices would be higher in stores in areas with a larger African American population is not discussed beyond potential consequences. Can the authors speculate on why
prices in African American neighborhoods would be higher than White neighborhoods (controlling for income levels) but not in Hispanic neighborhoods compared to White neighborhoods?

Discretionary revisions:

5. Page 4, second paragraph, first and second sentence: I had to reread this section multiple times because I initially could not reconcile the numbers presented here (9 fruits, 10 vegetables) with those presented in the paragraph above. It might be clearer to word these sentences like this: “..., 9 of the 10 fruits used accounted for …” and “Ten of the 11 vegetables used account for …”

6. Page 9, second paragraph: “Multivariate regression analysis….. revealed that stores in CBG with higher median household incomes and greater proportion of Black residents tended to….” This may be a matter of semantics, but my initial read of this sentence and similar ones later on that link the two key attributes (income & race) was that stores in areas that had both higher incomes and a higher proportion of Black residents were meant. Clearly, that is not what the authors intended to convey, as these results are from a multivariate regression model that contains both variables, but not in terms of an interaction. If it were possible to make this point clearer, I think it would avoid confusion by other readers.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.