Reviewer's report

Title: Influences of Local Contextual Factors on Changing Food Environment in the United States

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Reviewer: Chalida Svastisalee

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Influences of local contextual factors on changing food environment in the United States

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The authors present a study of 1-yr changes in zipcode-level U.S. food outlet environment according to the Census 2000 zipcode sociodemographic composition. The study question is well-presented by the authors, who use relevant and sound data to answer the research question. Methods described are suited for the research question and the available data. In general, the manuscript presented is written according to standards in reporting. The authors provide a generally balanced discussion, while study limitations are cited at length. The study is described as a pilot study, and as it is unique in approach, few previous studies are cited within the discussion. The title and abstract adequately reflects the study purpose and findings, although it can be better described. While the writing is of acceptable level, there are a few sentences and sections that may need reformulation to better convey the ideas presented. As this study is unique and would add to the growing body of literature focused on the built environment and associated socioeconomic characteristics, my recommendation is that the study is worthy of publication, given the following changes. In my opinion, the paper presents an issue using nation-wide data, and has potential to be a strong paper. Further detailed commentary is listed below.

Major compulsory revisions

1. As an overall comment to the paper, the descriptions provided of the four neighborhood categories need to be tighter and consistently described throughout the paper in order prevent confusion. If the analysis is contained within zipcodes, then descriptions should refer to zipcode areas, or areas, but not communities, as a community from a geographical perspective, can be much more loosely defined and not necessarily defined by administrative census units. Additionally, as areas are described to contain proportions of a predominant population, then it becomes very helpful for the reader that such descriptors need to be consistent throughout the paper.

2. I am not familiar with the use of the phrase “more/less decrement” and “more/less increment” in this context. Could the phrase be better expressed as “greater decrements in” or “an increase in” or “greater increments in”? This
commentary follows throughout the paper.

3. In line 23 of the background section, I would question whether acculturation should really be reflected in representation of foreign-born population. A paper by Creighton et al (2012) point out that the acculturation process is complicated, and that while acculturation status may reflect duration in the adopted country, they are not necessarily linked to dietary behaviors and outcomes.

4. In the section on Methods, where outcome variables are described, as your use of “foreign born” characteristic is important, I am wondering where ethnic grocers are classified. Are ethnic grocers reflected in “small-size” grocery stores (or perhaps specialty markets?), as I would also imagine that ethnic characteristics of a neighborhood would be associated with the presence of outlets specifically tailored to their needs. In which category are these shops reflected?

5. In the section on Explanatory variables, there is again reference to race/ethnicity as well as acculturation level. I would consider replacing acculturation with just “proportion of foreign-born” because acculturation level may also be equated with duration within a country. Unless, acculturation level in the Census may be further described by generations within an area?

6. In the Explanatory variables section, although the categories of urbanization are provided, I am missing a bit on how urbanization level was actually defined. Is urbanization defined by the Census population density per zipcode or by density per urban center? Or is urbanization defined by land area?

7. In the second paragraph of the section on Explanatory variables, I am missing the justification for the cutpoints chosen. Was a cutpoint analysis also conducted, or are these arbitrary cutpoints?

8. Some of the titles in the results section sound a bit odd. Are some of them necessary? For instance, would it be safer to discuss one paragraph devoted to Table 1, and another paragraph devoted to the Table 2, and not separate the results of Table 1 among two sections?

9. The title for the section, “Among places with the stores/services at baseline” sounds odd. Should this be, Distributional changes of food outlets from baseline by zipcode characteristics? This section needs to be more clearly written. Is this paragraph supposed to highlight differences between any existing food outlet at baseline and change after one year?

10. In this section entitled, Introduction of food stores/services, it needs to be discussed earlier, perhaps in the methods section, which categories act as the referent. It would also be helpful to place some notation in the figure highlighting reference categories. That way, you can also express some of the comparisons in this paragraph as “compared to the referent”.

11. In the second paragraph of the Discussion section, I am not quite sure I follow the discussion about food outlet development in Hispanic areas. It seems that there is an indication that Hispanic-dominant areas are characterized by smaller-sized and fresh food markets than other areas, and that this is marked by the greater proportion of these stores at baseline as well as by the 1-year
increase of these stores? I think that providing a justification using the Duffey citation may be an appropriate explanation for the findings you see regarding Hispanic areas. I would suggest splitting this paragraph into two. What is written in the remaining text illustrates my comment on how difficult it is to separate concepts of acculturation and foreign-born status, and that these concepts do not translate to behavior. It also brings into question of how the foreign-born status demographic was created, as I assume that this is composed of a mixture of people who are not holding US passports. Therefore, this group will be completely incomparable to the residents in Hispanic areas, who may have a slightly more homogenous behavior than that of a larger group of immigrants.

12. Lines 3-5 in 3rd paragraph of the Discussion section, please reformulate. I am not sure what the sentence means.

13. In line 7 of the 3rd paragraph of the Discussion section, it is stated that smaller size grocers stock a greater number of longer shelf-life food items, whereas in the previous paragraph, justification of more fruit and vegetable consumption was associated with greater numbers of smaller grocers and fresh/specialty markets. These statements seem to be conflicting.

14. In the 4th paragraph of the Discussion section, I fully agree with the first two sentences, but I question the placement of the remaining sentences, as I am not sure if they are relevant to the purpose of the paper. Perhaps parts of this paragraph, combined with the following paragraph 5, could be better placed in a discussion of overall implications of the findings after the paragraph on study limitations.

15. It is also curious that the analysis shows an increase in the overall number of carry-out and full-service restaurants as written in paragraph 4, but in paragraph 7, economic events in the US indicate a recession, with “average number of all types of establishments…decreased from 2001 to 2002.” Please explain this discrepancy.

Minor compulsory revisions

1. Although the title suggests the paper is about contextual factors on food environment, I am not sure it can fairly describe that the factors are actually the sources of influence. Rather the analysis focuses on 1-yr distributional change classified by socioeconomic and racial/ethnic zipcode characteristics.

2. In the abstract (results section), focal stores were mentioned. Please clarify. Does this mean base services such as 1 of each type of food outlet, or just baseline stores?

3. Line 7 in the abstract should read “convenience stores”

4. In the abstract (conclusion section), please include “1-year” as in, “…characteristics affect 1-year changes…”

5. In the last sentence of the abstract, perhaps you may want to clarify this sentence to include the word, “area” as they are not the residents themselves
who are denser, but the neighborhoods with higher concentration of foreign-born residents.

6. In the background section (line 2), the opening sentence may be bit too broad with the emphasis on leisure consumption, as this can also be interpreted to mean other types of leisure (sports, film, shopping, etc.) in addition to food consumption. And, some of the reasons for the boom and emphasis on “fast” or prepared foods out of the home is due to lack of time (perhaps also a luxury good) due to working households and greater affordability.

7. In line 10 of the background section, I would also encourage you to include some references by Larsen et al (2009) and Powell et al (2007) who looked at distribution of food outlets according to neighborhood characteristics.

8. Line 1 in the paragraph on Covariates, we tend to say this in our writing because it is certainly plausible, but perhaps a reference could be useful, as this may not be the case in non-US contexts (Zenk, 2005 perhaps).

9. Line 4 in the paragraph on Statistical Analyses, please put an (s) after the word, difference.

10. Line 6 in Statistical analyses section, perhaps better placed in the results section?

11. Line 6 in Characteristics of the four race/ethnicity section, take out the word, “there”.

12. Line 9 in Dynamics of food stores section, I would suggest the sentence expressed as, “….after controlling for covariates.”

13. Line 14 in Dynamics of food stores section, “…greater decrements in…”

14. Line 3 in Introduction of food stores/services section, please add an (s) after the word, supermarket and change the verb to plural.

15. Lines 5-6 in Introduction of food stores/services section, please rephrase the sentence to reflect “areas with a low proportion of foreign-born residents” as well as “areas with a high proportion of foreign-born residents”.

16. Last paragraph in the Introduction of food stores/services section, please correct for grammatical errors.

17. Line 1 in Discussion section, please restate the sentence to reflect 1-year changes. Also, perhaps food services may be too broad of a construct, but rather are these restaurants in general?

18. Line 3 in Discussion, “the first of such a study”.

19. Line 5 in Discussion, please reformulate, as we cannot demonstrate an effect with an ecological analysis.

20. Line 7 in Discussion, decreased in which year? Over the one-year examination?

21. Lines 9-12 in Discussion, please re-address the use of the word, “inhibit” in this context, as well as reformulate the sentence in lines 11-12.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.