Reviewer’s report

Title: A cross-sectional analysis of the relationship between tobacco and alcohol outlet density and neighbourhood deprivation

Version: 2 Date: 13 July 2015

Reviewer: Johannes Gruber

Reviewer’s report:

General assessment

1. Is the question posed by the authors well defined?
The research question is straightforward and well defined: Do more socially-deprived areas have a greater availability of both alcohol and tobacco outlets?

2. Are the methods appropriate and well described?
The methods are appropriate; however the author’s should state why they didn’t include a simpler, more direct approach on calculating density value (see comment 1).

3. Are the data sound?
Data sources are well-selected (tobacco register, alcohol licensing data, and public deprivation data = SIMD) and appear to be sound.

4. Do the figures appear to be genuine, i.e. without evidence of manipulation?
Yes, however Figure 1 (map of Edinburgh) is rather misleading than necessary (see comment 2).

5. Does the manuscript adhere to the relevant standards for reporting and data deposition?
Yes.

6. Are the discussion and conclusions well balanced and adequately supported by the data?
Yes, however the reading flow of the discussion appears scattered. A clearer structuring is desirable (see comment 3).

7. Are limitations of the work clearly stated?
Only one limitation concerning data cleaning is presented in an overemphasized manner. No structural or methodological limitations are addressed (see comment 7).

8. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
Yes.

9. Do the title and abstract accurately convey what has been found?
Yes.

10. Is the writing acceptable?
Yes.

Comments

Major compulsory revisions

1) The approach of assigning density levels to data zones appears counter-intuitive, especially using the KDE value of the population-weighted centroid for the whole data zone. Would a simpler way of calculating outlet density (numbers of outlets in a data zone per number of inhabitants) render more or less similar results? Why is a 800 m radius chosen and not the precise distance to the next outlet? Is it proven to be more important to have many retail options in a close proximity than to have one option in very close proximity?

2) Figure 1 (map of Edinburgh) doesn’t include information on neighborhood deprivation. In the results section, a connection between outlet density and population density is described. However, population density is not the dimension with which outlet density is associated throughout the paper. Possible solutions: Including information on neighborhood deprivation into the map; including population density into the analysis (e.g. checking its association with deprivation); deleting the map.

Minor compulsory revisions

3) The existing policy framework of supply-side interventions worldwide or in Scotland should be presented as part of the background (not the conclusion) chapter.

4) Why do the authors use deprivation quintiles? Why are quintiles 1/2 and 4/5 aggregated for one part of the analysis? (page 8, lines 8-9)

5) Is mapping by “postcode” (and not address) precise enough in order to assign a specific point of sale to a specific data zone?

6) Source [40] has also simultaneously examined the relationship between neighborhood deprivation and alcohol, tobacco, (and also fast food) outlets, so the authors might not provide the first study to this (as mentioned in page 10, lines 12-14). However, source [40] analyses only parts of a city, while this study uses data from whole Scotland.

7) Further questions that should be addressed in the “limitations”: Why is this ecological study relevant, even though it might not provide conclusions concerning causality between outlet density and deprivation? What flaws might
arise from using this specific type of density estimation? Furthermore, as all points of sale are treated unweighted, no effects of opening hours, product diversity, age restrictions etc. can be assessed.

8) “It is worth noting that outlet densities are comparatively high in all areas.” (page 12, line 20) – Comparatively to what? What is a high outlet density?

9) Missing word on page 10, line 10: “in both tobacco and alcohol off-sales”

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests.