Reviewer’s report

Title: Impact of fruits and vegetables vouchers on food insecurity in disadvantaged families from a Paris suburb

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Reviewer: Parke E Wilde

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Impact of fruits and vegetables vouchers on food insecurity in disadvantaged families from a Paris suburb

Comments for authors

1. This paper studies the effect of a fruit and vegetable voucher intervention on measures of household food sufficiency. A strength is the random-assignment design.

2. The random assignment may have functioned imperfectly in ways that are not yet reported clearly in this version of the manuscript. At baseline, the intervention group had higher estimated food insufficiency than the control group by 15 percentage points (Table 3), a large difference that is noted as "insignificant" but only because the test was not highly powered. Although it is fine to report that this difference is insignificant, the article should note that the difference in point estimates is large enough to matter in practice, because this difference at baseline complicates the random-assignment design.

3. Because of this difference at baseline, it was possible to observe a statistically significant 23-percentage-point reduction in food insufficiency for the intervention group and yet end up with just a much smaller 8-percentage-point difference at one-year follow-up. This difference between intervention and control at follow-up may be statistically insignificant, which should be reported.

4. It also is possible to report a test of the difference in difference, which (fortunately for the article) is more likely to report a statistically significant advantage for the intervention. It is not really proper to just report that intervention change over time was significant, and control was not significant, because the real object of study in this design is either the post-intervention treatment/control difference or the difference-in-difference comparison.

5. Related to the preceding comments, the results section appears too short, and currently may not explicitly reference the critical Table 3, which itself should probably have more detail at least in footnotes about intervention/control comparison tests.

6. The sample size is fairly small, reducing statistical power, as noted in the limitations section. This means that non-significant differences may be due to low power rather than actual small magnitudes, so "insignificant" should not be treated as synonymous with "small" in practice.
7. The random assignment is shown in the figures, but could be discussed more explicitly in the methods section. At some point, the article should mention the magnitude of differences in food insufficiency at baseline.

8. The article's main finding is that a fruit/vegetable voucher reduces food insufficiency. What is the mechanism? One natural mechanism would be that low-income consumers very much want fruits and vegetables, and food sufficiency depends on fruit/vegetable acquisition, so the voucher thereby helps food insufficiency. This would reflect favorably on the voucher program, but it is not yet persuasive that this is what is happening. Many low-income consumers in developed countries (as well as many higher-income consumers) choose quite low amounts of fruit/vegetable even when they are available, in part because grains, meats, and processed foods are palatable and popular. Is it plausible that the direct mechanism implied is responsible for a 23 percentage point fall in food insufficiency? That is very large. Think about the comparatively small economic value of the voucher. Is it easy to shift food insufficiency with a small amount of resources? The authors may be hinting that they believe this, but I think if they discussed it explicitly, they might think this is a strong claim that cannot yet be made from the evidence in this paper, so the results could be interpreted more cautiously.

9. The article presents some results for food insecurity at baseline, and food insecurity is in the title, but really the main experimental results about the intervention are for a simpler food insufficiency survey item. The food security results could be clearer about the "scores" distinguishing Rasch scores (for which there is a skeptical literature noting that the assumptions of the Rasch model may not really hold well in these food security applications) or "raw scores" (simple counts of affirmatives to the food security items). It is not clear how the responses to food security items were converted to categorical classifications, because the method appears not to be the same as the official approach in the U.S. to categorical definitions (for example, food security if 3+ items are affirmed).

10. The Healthy Incentives Pilot (HIP) study, Olsho et al. (American Journal of Clinical Nutrition), may be one of the most notable studies of fruit/vegetable incentives, and there may be food security results in the longer final report on the USDA/FNS site. Is there other recent literature overlooked?

Details

The writing is mostly good, but there is a bit of non-idiomatic English. "A little proportion" (line 203). "mean to reduce it" (line 207). "despite using vouchers" (line 239). And so forth. "Families answered face-to-face" (abstract).

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
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