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# Are Food Stamps Income or Food Supplementation? A Meta-Analysis



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## Introduction

- Food stamp income can only be spent on food, but frees up other income for other uses. How much this happens is informative about the fungibility of food stamps.
- Understanding the difference between food stamps and cash income is important for evaluating potential restrictions on food that can be bought with food stamps (e.g. no soda).
- If food stamps are not used differently from cash income in household budgeting, we would not expect restrictions to lead to healthier diets for most households.
- One signal of the fungibility of food stamps is what happens to total food spending (food stamps + out-of-pocket) for an additional dollar of food stamps, i.e. the *marginal propensity to spend on food out of food stamp benefits (MPSFS)*.
- After 50 years of research on the MPSFS, estimates vary widely and consensus is lacking.

## Objectives

- Gather MPSFS estimates from all previous studies.
- Summarize the estimates and study characteristics.
- Use meta-regression analysis to analyze determinants of estimate heterogeneity.

## Methods

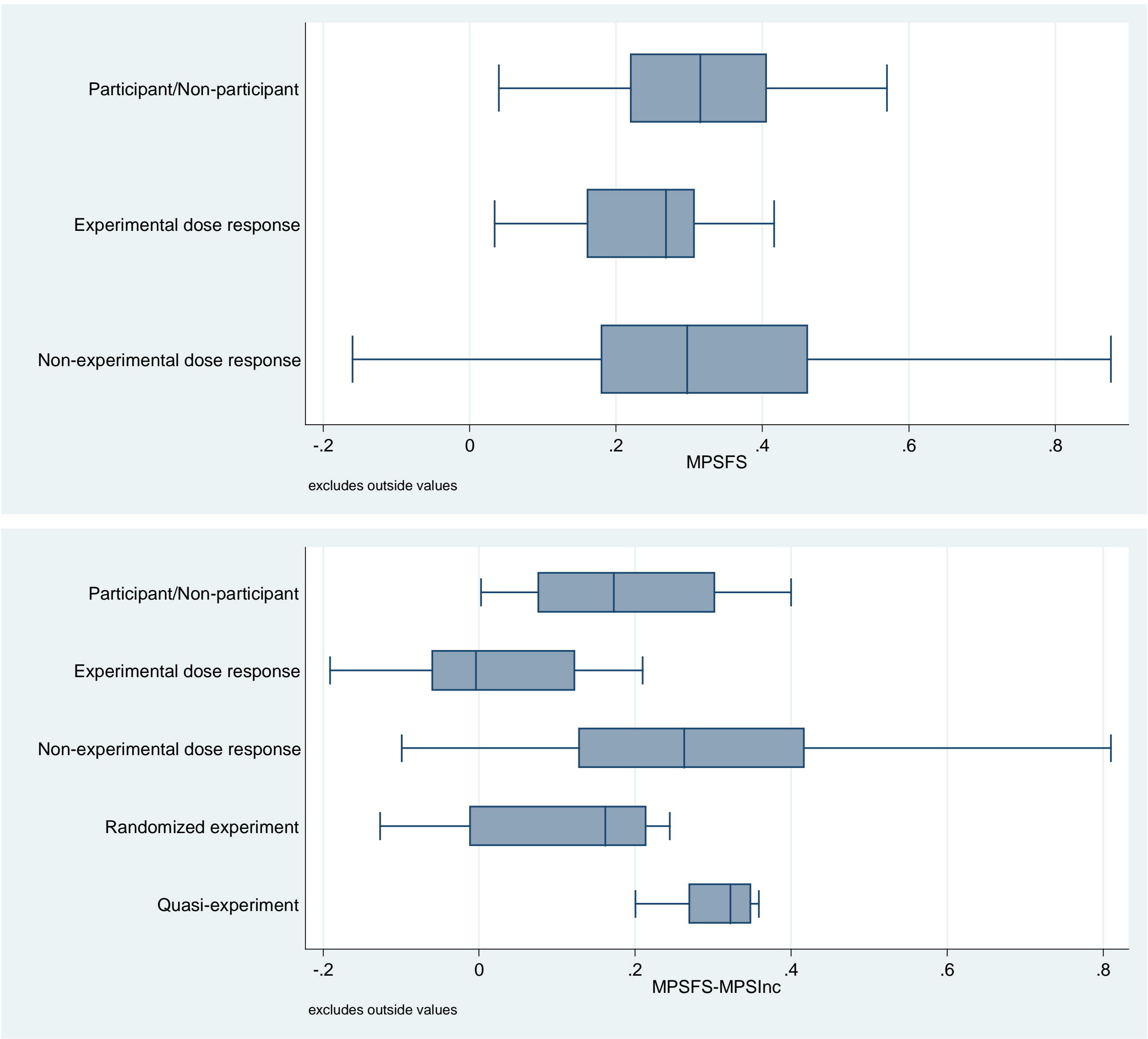
- Perform online search for published and unpublished studies, using:
  - A snowball technique starting with four systematic reviews, and
  - Keyword searches in Google Scholar and major online databases.
- Meta-analysis systematically compares estimates of a specific statistic (called the “effect size”) across studies.
- We use two effect sizes:
  - MPSFS
  - Difference between MPSFS and the *marginal propensity to spend on food out of cash income (MPSInc)*: MPSFS-MPSInc.
- We compare effect sizes across study designs.
- We use meta-regression, which is a regression analysis where the dependent variable is the effect size from different studies, and the independent variables are study characteristics such as the type of data, design, or method. Due to small sample size and substantial variation in study characteristics, we perform three regressions using:
  - “Bibliographic” variables: e.g. publication outlet, year of publication, and author information.
  - General study design variables: dummy variables for each of the four study designs (see next section).
  - Specific study design variables for only dose response studies (see next section): e.g. year of data, functional form, whether experimental data.

## Results: Study Design

- We found a total of 70 studies, for a total of 121 MPSFS and 118 difference (MPSFS-MPSInc) estimates.
- We found four general kinds of study designs:
  - 1. Non-experimental dose response:** Directly estimate the MPSFS by including the amount of food stamp benefits in a regression analysis. Use observational data.  
Example: Levedahl, “The role of functional form...” *J Ag Econ Research*.
  - 2. Experimental dose response:** Use experimental (food stamp cashout) data and directly estimate MPSFS by including the amount of food stamp benefits in a regression. The MPSInc here corresponds to the MPS of cash benefits, not normal income.  
Example: Wilde & Ranney, “The distinct impact of food stamps...” *J Ag and Resource Econ*.
  - 3. Participant/non-participant:** Estimate the total \$ impact of food stamps on food expenditures. An approximate MPSFS can be backed out of this impact.  
Example: Basiotis *et al.* “Nutrient availability, food costs, and food stamps” *Am J Ag Econ*.
  - 4. Experimental:** Use a simple comparison of means on experimental or quasi-experimental data to estimate a \$ impact on food expenditures of cashing out food stamps. An approximate difference (MPSFS-MPSInc) can be backed out of this impact.  
Example: Ohls *et al.* “The effects of cash-out...in San Diego” (Report).

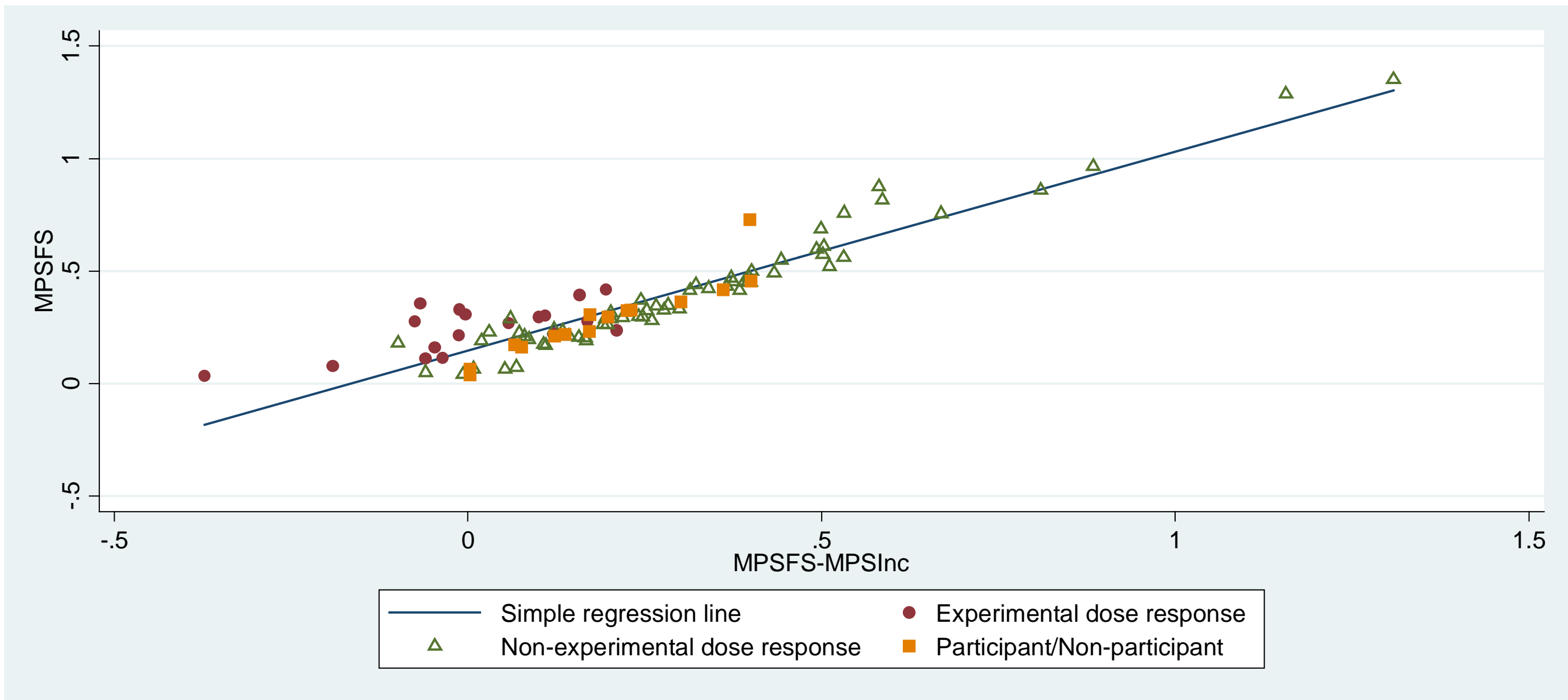
## Results: Descriptive

Box-and-whisker plots of the effect sizes over study design:



## Results: Descriptive (cont.)

Scatterplot of effect sizes (MPSFS and difference):



Most of the variation in the difference is a result of the value of the MPSFS, not MPSInc.

## Results: Meta-regression

Larger effect sizes (both MPSFS and difference) are indicative of greater difference between food stamps and income.

- 1. Bibliographic results:**
  - Studies in Ag Econ journals have larger effect sizes than other outlets except econ journals.
  - Govt reports and dissertations have lowest effect sizes.
  - Effect sizes have been decreasing over time.
- 2. General study design results:**
  - Non-experimental dose response have highest effect sizes.
  - Experimental and experimental dose-response have lowest effect sizes.
- 3. Specific study design results (For dose response studies only):**
  - Effect sizes have been decreasing over time – due to better methods?
  - Linear functional form associated with lower effect sizes.
  - Normalizing variables by household size (e.g. AME) is associated with lower effect sizes.
  - Sample selection correction associated with larger effect sizes.
  - Use of experimental data *not* related to effect size when we control for other characteristics.

## Conclusions

- Small sample limits how much we can control for and what we can say about publication bias.
- Cautious optimism that experimental results can be approximated using observational data, given the right mix of study characteristics.
- As a whole, the literature suggests that there is a difference between cash and food stamp income for most households, but that the difference has been overstated by some studies:
  - The median and mean of the difference (MPSFS-MPSInc) is approximately 0.2.
  - Given this difference, we would expect households to spend 20 cents more per food stamp dollar on food at home than if given a dollar of cash benefits..



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