Using Scanner Data To Answer Food Policy Questions

Conference

Wednesday, June 1 - Thursday, June 2, 2011

Economic Research Service
1800 M Street, NW
Waugh Auditorium
Washington, DC

Can Information Costs Affect Consumer Choice?
—Nutritional Labels in a Supermarket Experiment—

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ERS Conference, June 1st and 2nd, 2011

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Healthy Food Choices

- Consumers understand link between nutrition and health
- Nutritional content is not verifiable
- Purchase decisions based on beliefs
- Nutritional labeling and consumer choice (Kiesel, McCluskey, and Villas-Boas 2011)

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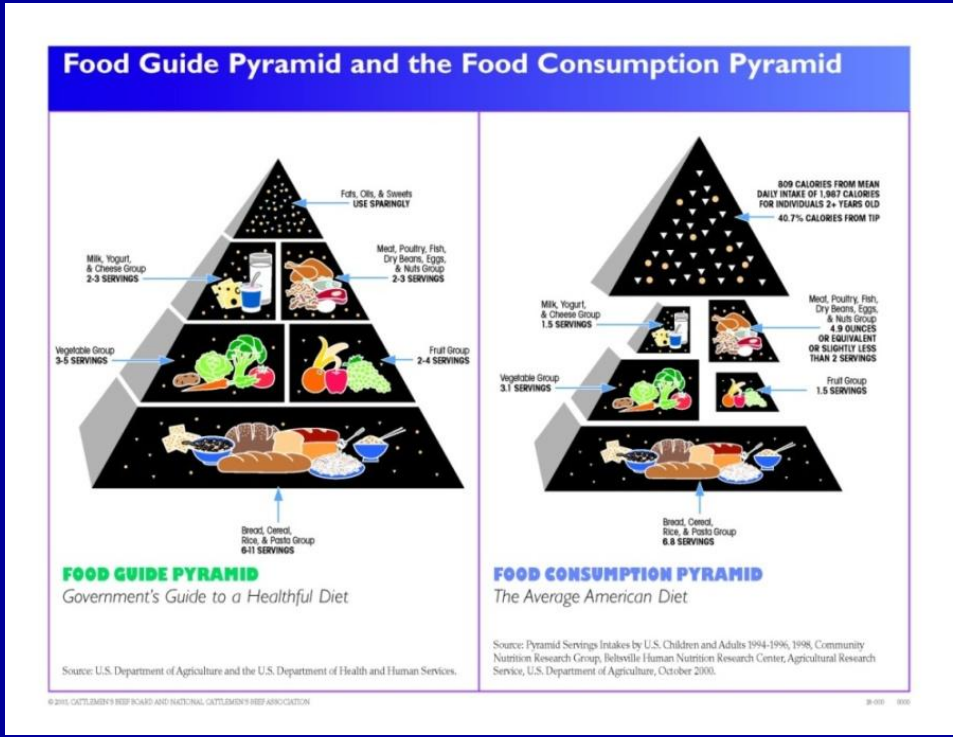
Research Question

Do information costs prevent consumers from making healthier food choices?



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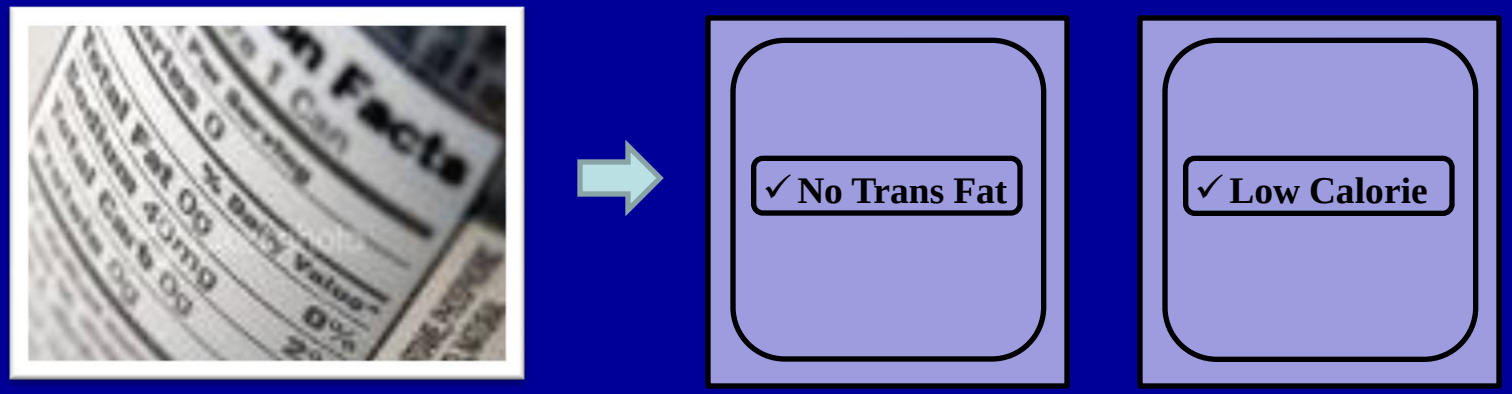
Information Costs Matter (Results)

- Increases in quantity sales due to no trans fat labels
- Increases in quantity sales due to low calorie labels
- Decreases in quantity sales due to low fat labels (with FDA claim)
- Limited inference on unlabeled products
- No effect of labels that combine multiple claims

Research Design

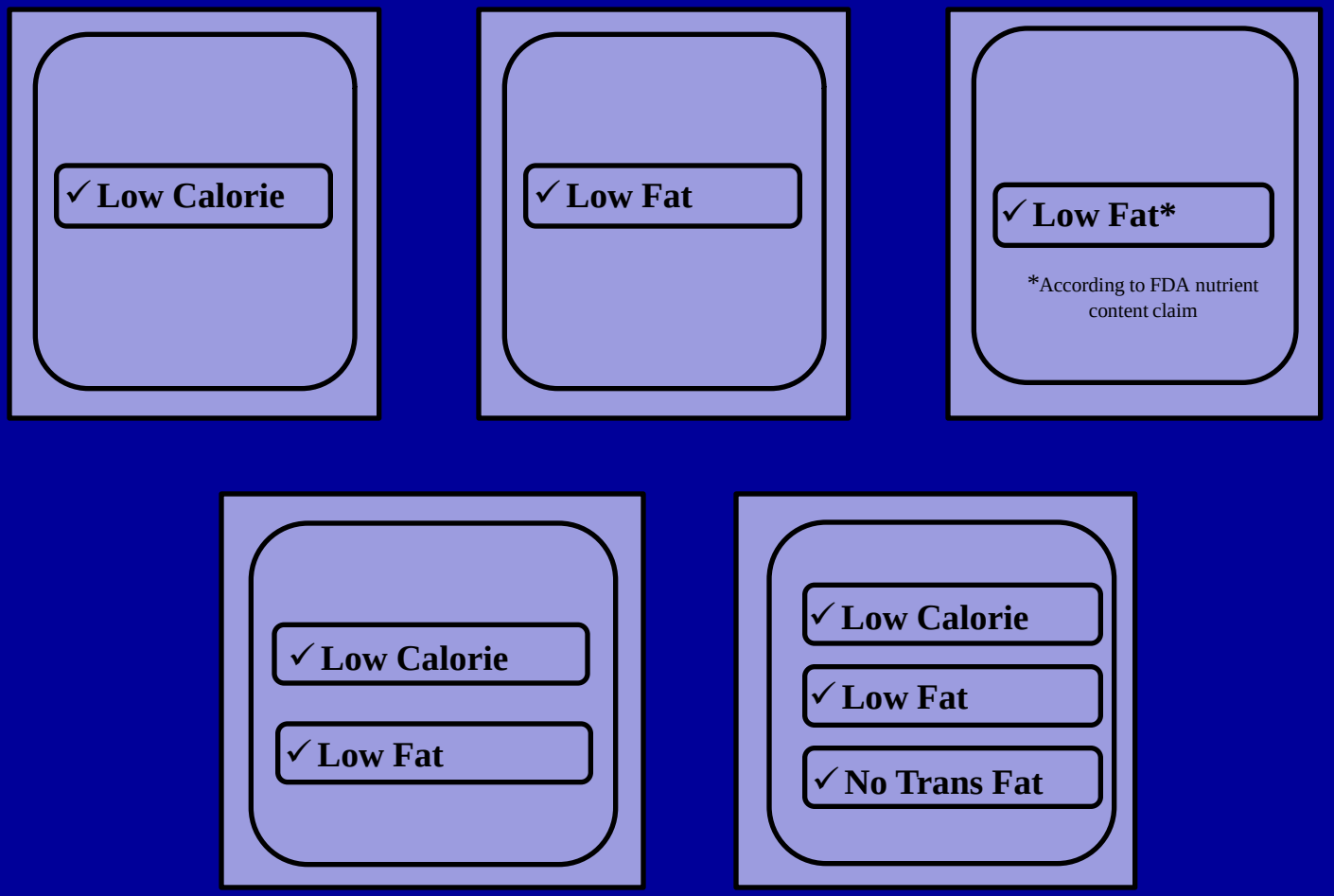
- Experimental approach implemented in major supermarket



- Repetition of information provided on the Nutritional Facts Panel (NFP), or provision in a new format

Labeling Treatments

- Five treatments in five different stores

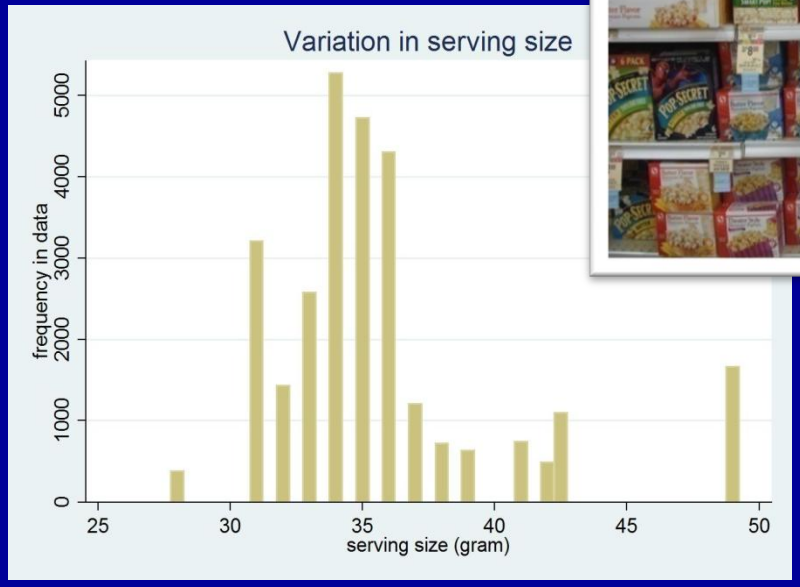


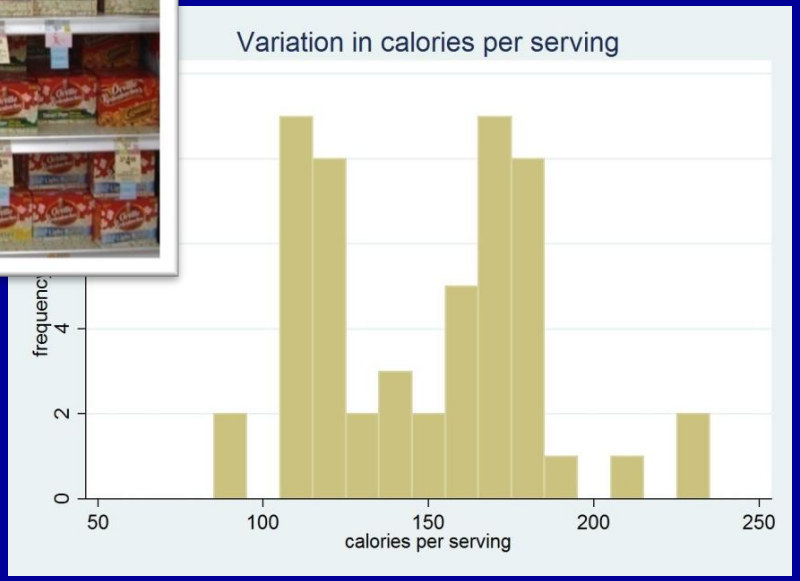
Data

- Weekly store-level data:
  - one product category (microwave popcorn)
  - 14 weeks in fall 2007 (5 weeks prior-5 weeks post treatment period)
  - 32 stores in Northern California (5 treatment stores and 27 control stores)

- Socio-demographic statistics by zip code

Hidden Information and Salience





- Firms have limited incentive to fully reveal their product quality (e.g. Bonroy and Constantatos, 2008; Gabaix and Laibson, 2006; Chetty, Looney, and Kroft, 2006)

Empirical Strategy: Difference-in-Differences

$$\ln Y_{i,s,t} = \alpha T_{i,s,t} + \beta C_{i,s,t} + \gamma X_{i,s,t} + \mu_j + \eta_s + \tau_t + \varepsilon_{i,s,t}$$

$Y_{i,s,t}$ = quantity sales of product i, store s, and week t

$T_{i,s,t}$ = average treatment effect

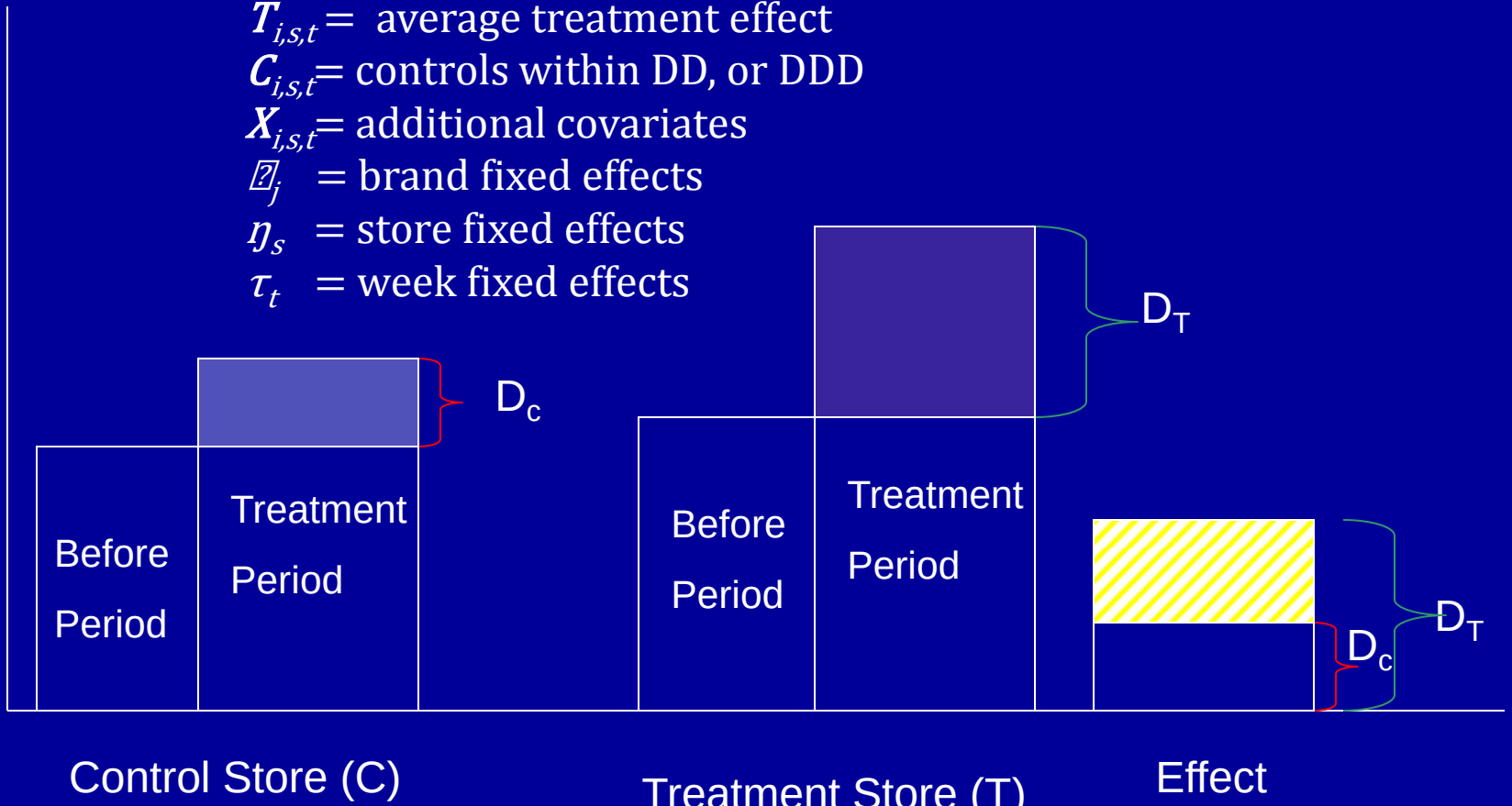
$C_{i,s,t}$ = controls within DD, or DDD

$X_{i,s,t}$ = additional covariates

μ_j = brand fixed effects

η_s = store fixed effects

τ_t = week fixed effects



Triple Difference for Store-Specific Average Treatment Effects
(aggregated by treatment and pre-treatment period)

dependent variable: (log) quantity microwave popcorn (by 4 weeks, by store)

independent variables:	low calorie	low fat	low fat (FDA)	low cal/fat	all labels
label*treated store*period	**0.289 ****	**-0.166**	**-0.426 ***	**0.024**	**0.043**
	0.125	0.179	0.224	0.141	0.102
treatment period*label	-0.014	0.055	0.053	0.063	0.111 ***
	0.037	0.037	0.037	0.037	0.037
treatment period* store	-0.107 **	-0.051	0.053	-0.052	-0.080
	0.053	0.053	0.037	0.054	0.057
treated store*label	-0.131 *	-0.086	-0.075	-0.102	-0.051
	0.072	0.073	0.072	0.075	0.074
label	-0.266 ***	-0.389 **	-0.398 ***	-0.346 ***	-0.433 ***
	0.037	0.037	0.037	0.035	0.049
treatment period	0.020	-0.028	-0.026	-0.033 *	-0.062 **
	0.031	0.030	0.030	0.030	0.031

Triple Difference: Differentiated Average Treatment Effects
(aggregated by treatment and pre-treatment period)

dependent variable: (log) quantity microwave popcorn (by 4 weeks, by store)

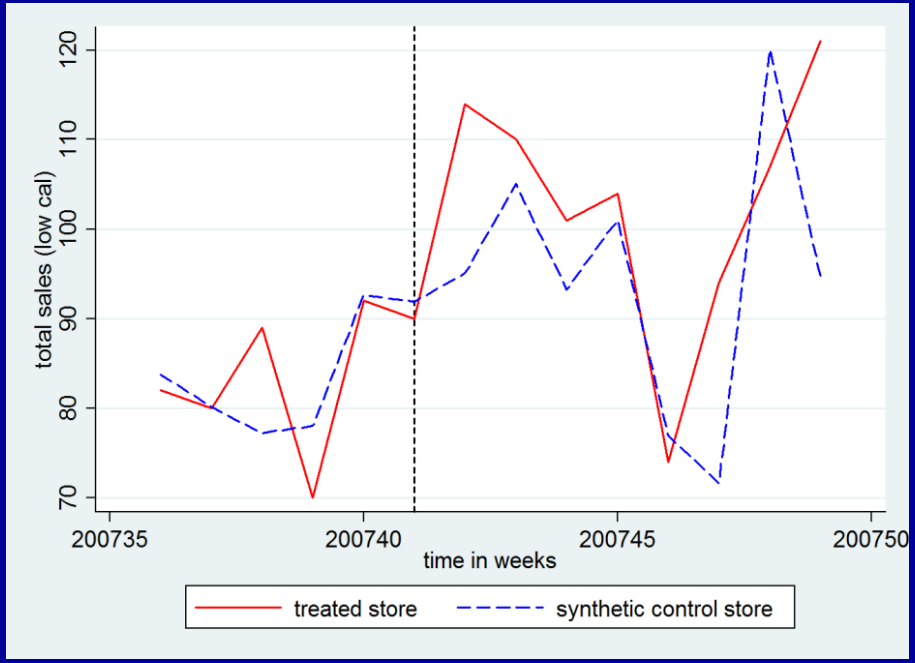
independent variables:	low cal/fat	low cal/fat/transfat
<u>interacted treatment effects</u>		
low calorie	0.119 0.130	-
low fat	-0.171 0.249	-
no transfat	-	0.396 ** 0.158
low cal/fat	-0.018 0.165	-0.182 0.278
low cal/trans fat	-	-0.169 0.180
low fat/trans fat	-	0.227 0.186
low cal/fat/trans fat	-	-0.183 0.162

Synthetic Control Method

(Abadie, Diamond, Hainmueller 2007)

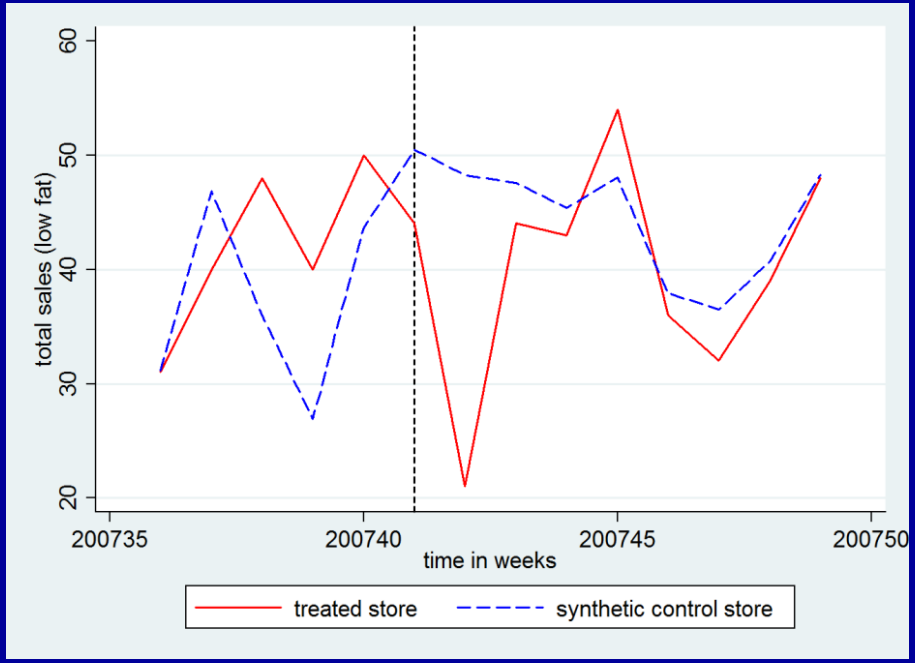
- considers any weighted average of control units as potential (synthetic) control

Low calorie label



Increase in sales by 18.7 units (19.6%)

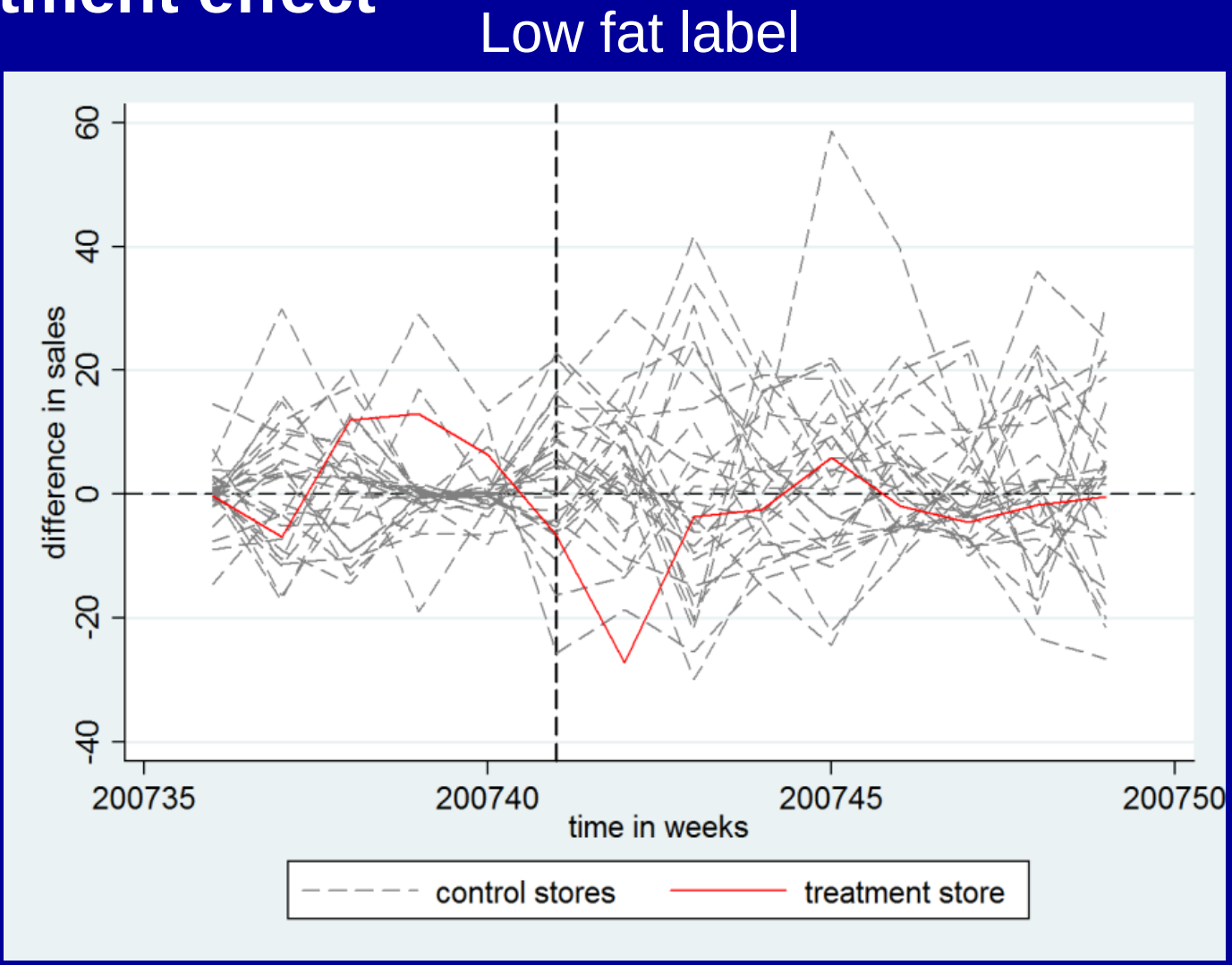
Low fat label



Decrease in sales by 27.7 units (68.0%)

Additional Robustness Checks

- Use each control store and estimate **Placebo treatment effect**



Conclusions and Implications

- Information costs matter :
  Information provided on NFP is not efficient and *could* prevent welfare improving changes to food choices

➡ Short relative claims on shelf or front package

- Consumers taste perceptions matter

➡ Focus on calorie content

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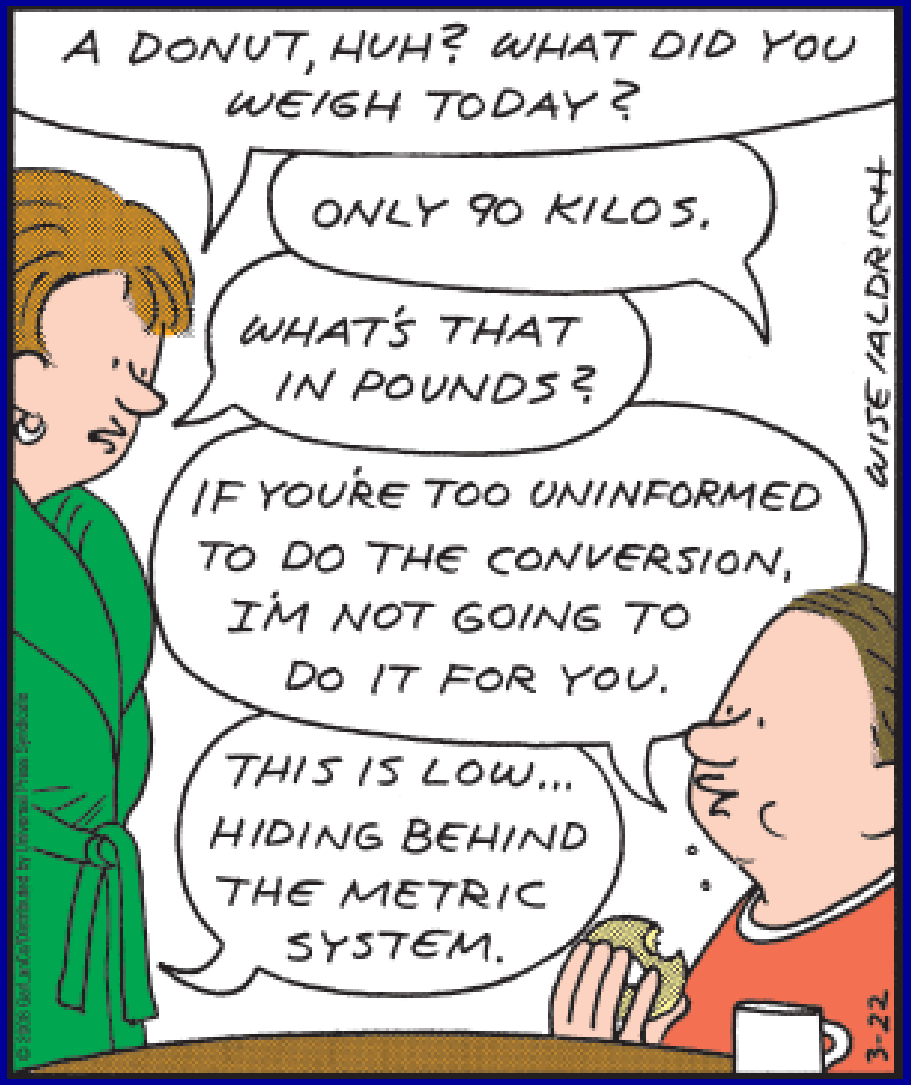
A DONUT, HUH? WHAT DID YOU WEIGH TODAY?
ONLY 90 KILOS.
WHAT'S THAT IN POUNDS?
IF YOU'RE TOO UNINFORMED TO DO THE CONVERSION, I'M NOT GOING TO DO IT FOR YOU.
THIS IS LOW... HIDING BEHIND THE METRIC SYSTEM.
WISE ALDRICH
3-22

Thank you!