

# Measuring Present Bias in Choices over Food and Money: Evidence from a Framed Field Experiment

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## ABSTRACT

We conduct a framed field experiment at a college canteen where participants repeatedly choose and consume lunch menus and allocate money over time. We find no correlation between dynamic inconsistency measures in food vs. money choices. We analyze food choice behavior at the aggregate level using 3,666 food choice observations and find that utility weight estimates reveal opposing patterns between different food categories that balance out at the overall meal level, hiding the inconsistency. We investigate the demand for a commitment device and find that committing individuals tend to enforce dynamically consistent behavior through internal self-control, while non-committers tend to be present-biased. Our results suggest that internal and external control strategies are substitutes, not complements.

## DATA

**Food and money choices:** Participants choose lunch items over time and allocate money with Convex Time Budget sets<sup>1</sup>. They participate in three sessions, spaced a week apart.

**Nutrient data:** We collect nutrient information for all dishes offered during the six-week study. The analysis focuses on the share of fruits and vegetables, calories, and a nutrient score.<sup>2</sup>

**On-campus purchases data:** We observe all canteen & cafeteria purchases to test for out-of-experiment consumption smoothing.

## THE FOOD TASK

**General setup:** Subjects choose a lunch from the canteen menu. They make advance food choices for in one week and immediate choices for the same day.

**Identification:** Inconsistency is identified as violation of revealed preferences between advance and immediate choice. A random utility model accounts for random shocks.

**Incentive compatibility:** Out of four food choices (two budgets, two time perspectives), one is randomly selected and served.

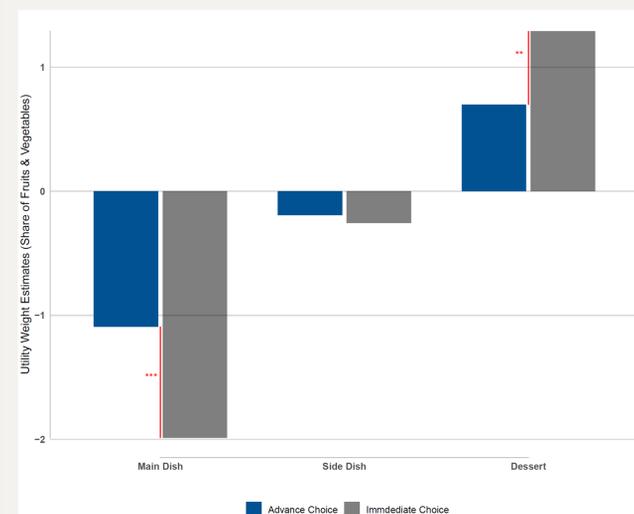
**Commitment:** In session 2, subjects decide upon switching off immediate decision-making in session 3 relying only on advance food choices made in session 2.



Figures. Registered participants (students) come to the experimental booth, select food items for lunch and allocate money using a tablet computer. While subjects answer short surveys, dishes are served with a cart and issued for free.

## EXPERIMENTAL SETUP

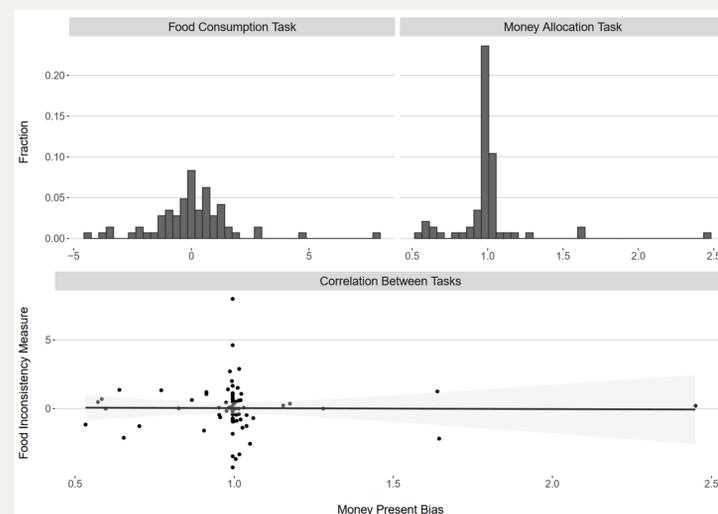
## DYNAMIC INCONSISTENCY IN FOOD CHOICES



**Regression results** show a preference for mixed bundles: unhealthier main but healthier desserts are preferred in advance choice (blue bars).

**In immediate choice,** food choice healthiness is balanced over dish categories: main dishes become even less healthy while desserts become even healthier (gray bars).

## CORRELATION OF FOOD & MONEY CHOICES



The figure presents estimates of dynamic inconsistency at the individual level.

The upper graphs display the distributions of the inconsistency measure for both tasks.

The lower panel illustrates the correlation between the measures: behavior is not correlated.

## DYNAMIC INCONSISTENCY IN FOOD CHOICES: SELF-SELECTION INTO COMMITMENT DEVICE

The table presents regression results based on a random utility model. The model examines the share of fruits and vegetables in an individual's diet and provides estimates for both committing and non-committing individuals.

	Committer=1			Committer=0		
	Main dish	Side dish	Dessert	Main dish	Side dish	Dessert
Veg/Fruit Quota ( $\hat{\phi}_A$ )	-1.321** (0.623)	-0.390 (0.287)	0.590 (0.359)	-0.862* (0.504)	0.023 (0.298)	0.807** (0.375)
Immediate choice × Veg/Fruit Quota ( $\hat{\phi}_I - \hat{\phi}_A$ )	-0.727* (0.414)	-0.022 (0.319)	0.916** (0.384)	-1.060** (0.423)	-0.108 (0.327)	0.276 (0.414)
$H_0 : (\hat{\phi}_I - \hat{\phi}_A) = 0$	$p = 0.080$	$p = 0.945$	$p = 0.017$	$p = 0.012$	$p = 0.740$	$p = 0.505$
# Observations	380	934	450	350	846	414
# Rankings	76	76	76	70	70	70
# Clusters	38	38	38	35	35	35

The analysis includes a dummy variable indicating whether a food item is chosen, as well as an interaction term with the choice perspective (immediate vs. advance). The interaction term indicates the change in utility weight from advance to immediate choice (variable of interest).

## Contact

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## References

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2. Rayner, Mike, Peter Scarborough, Anna Boxer, and Lynn Stockley (2005): Nutrient profiles: Development of final model, Food Standards Agency
3. Sadoff, Sally, Anya Samek and Charles Sprenger (2020): Dynamic inconsistency in food choice: Experimental evidence from two food deserts, Review of Economic Studies