

Behavior and Healthier Lifestyle

Lab Experimental Economics in action: Nutritional Food labels

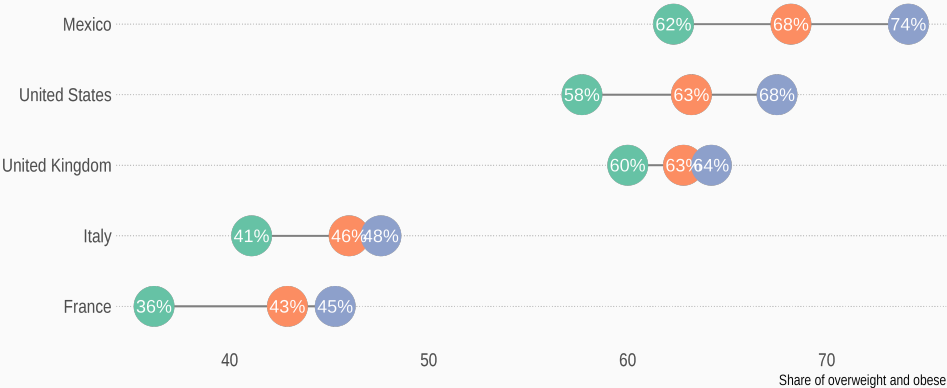
Paolo Crosetto

Behavioral Bridge Summer School – Valencia, July 2026

The problem

Evolution of the share of overweight and obese people: 2000, 2010, 2020

Selected OECD countries, all population aged 15+



...and this has huge **costs**

Health-related costs

Direct medical costs (2019):

- US: 300bn
- UK: 22bn
- Global: 1 to 3% GDP

Direct + indirect (projected 2030):

- Africa 1% GDP
- Americas 4% GDP
- Middle EAST 5% GDP

Environment-related costs

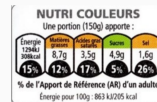
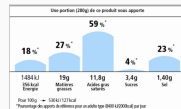
- Food: 34% of GHG emissions
- Obesity: 1.4% extra
- 14% more transport emissions
- 140Mt excess consumption

The spectrum of policies

- Information
- Fiscal interventions
- Nudges

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- Information
- Fiscal interventions
- Nudges



A series of key policy questions

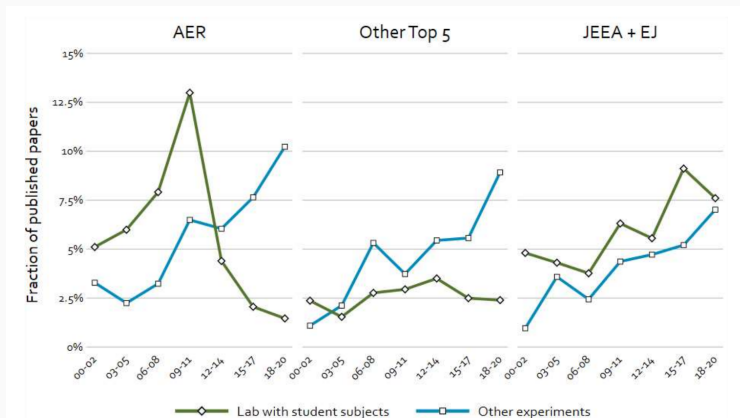
- Do labels **work**?
- **Why** and **how** do they work?
- Do people **use** them? and why?
- Which label design is the **best** to **impact** choice?
- **How much** of an impact labels have?
- ...

Which role for the lab?

What can we learn from the **lab**?



The rise & Fall of lab experiments



Reuben et al. (2021)

Behavioral (or "Nudge") Units Explosion

- Most OECD countries have a Behavioral Unit
- Behavioral interventions frequently featured at the EU's Commission JRC
- Behavioral interventions at work during the pandemics
- This very summer school

...in the meantime... (2)

RCTs are the best way of determining whether a policy is working

UK Behavioural Insights Team (2012)

RCTs are the purest and most accurate observation of behaviour, unlike experiments which take place in a laboratory

Bavel et al. (2013)

I speak on behalf of many more. For we represent a movement that is much broader than any one of us. We believe that the Prize recognizes not only what this movement has accomplished, but also what it could accomplish in the future.

Esther Duflo, Nobel Prize Banquet Speech (2019)

Two main **roles** in an applied policy context

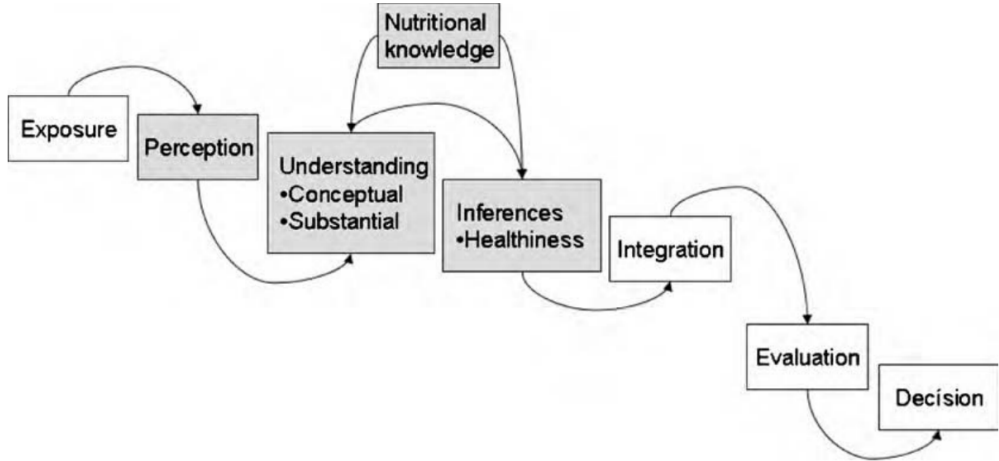
Getting into the mind of subjects

- focus on cognitive aspects
- clearly identify mechanisms
- (if needed) sidestep preferences
- heuristics, choice processes

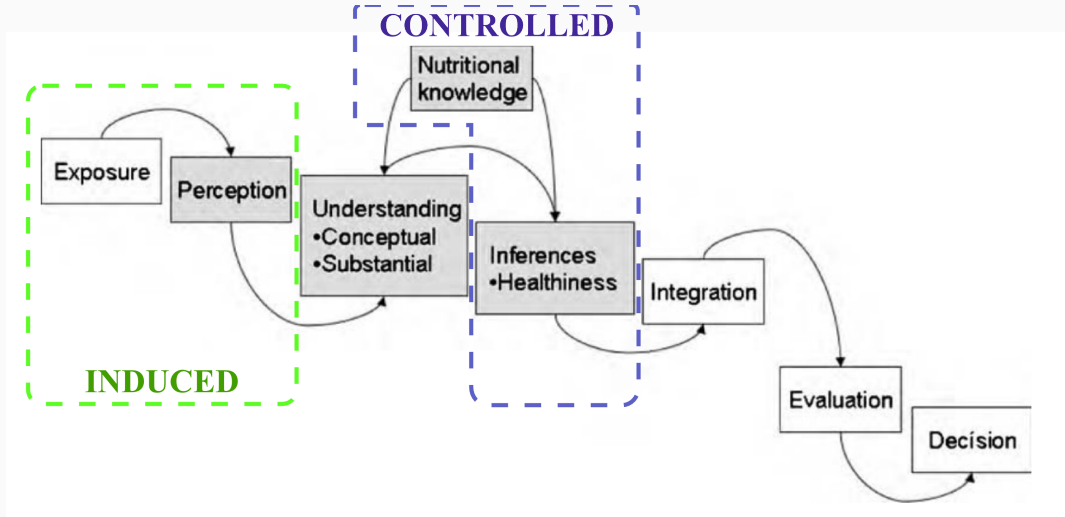
Building counterfactuals

- explore different scenarios
- integrate preferences with control
- track macro consequences
- cheaply explore solutions

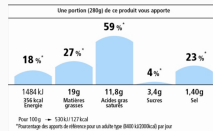
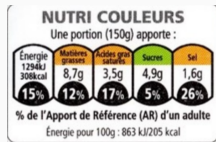
A conceptual **framework** (Grunert)



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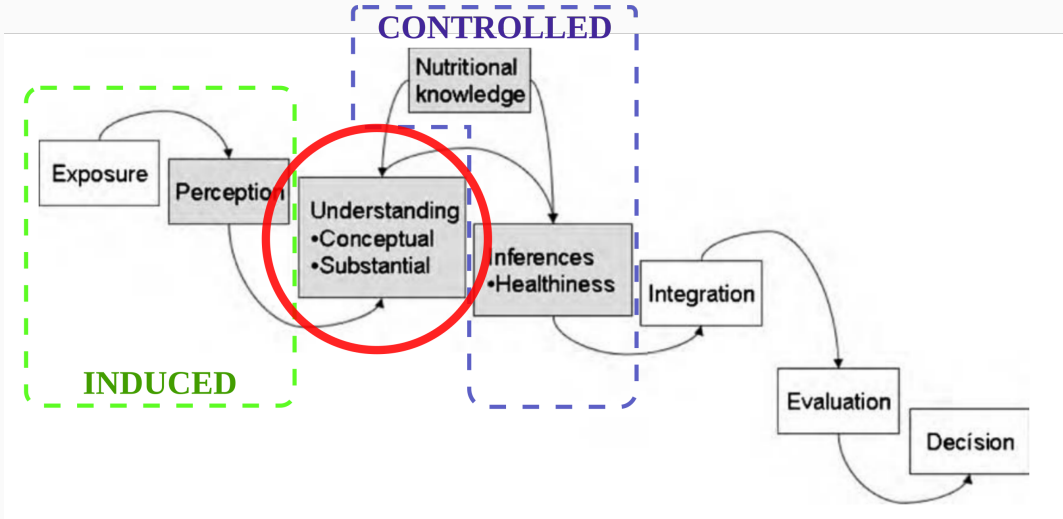


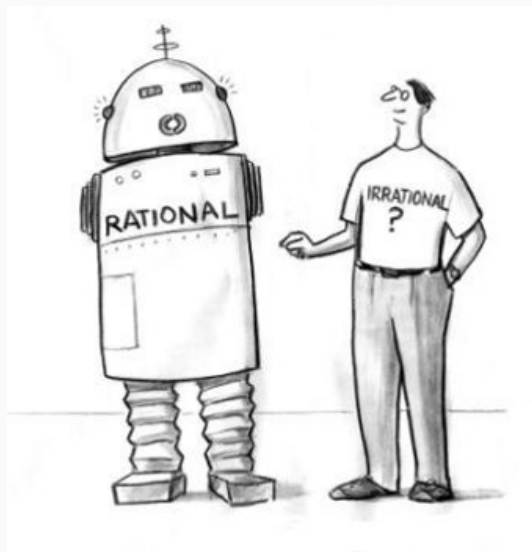
Using the lab to directly contribute to policy



Part 1: into the mind of subjects

Getting into the **mind** of subjects





How to induce healthier choices?

Homo Oeconomicus

- full attention
- no bias
- time-consistent
- goal: full information

Homo Sapiens

- limited attention
- biases
- time-inconsistent
- goal: salient cues

Nutrition Facts

Serving Size 2 CUPS (30g)

Servings per Container VARIED

Amount per Serving

Calories 150 **Calories from Fat** 70

% Daily Value*

Total Fat 7g **11%**

Saturated Fat 1.5g **6%**

Cholesterol 0mg **0%**

Sodium 120mg **5%**

Total Carbohydrate 20g **7%**

Dietary Fiber 4g **15%**

Sugars 9g

Protein 1g

Vitamin A 0% • **Vitamin C** 0%

Calcium 0% • **Iron** 2%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

Calories 2,000 2,500

Total Fat Less than 65g 80g

Sat Fat Less than 20g 25g

Cholesterol Less than 300mg 300mg

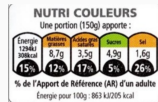
Sodium Less than 2,400mg 2,400mg

Total Carbohydrate 300g 375g

Dietary Fiber 25g 30g

Calories per gram:

Fat 9 • **Carbohydrate** 4 • **Protein** 4



Cognitive underpinnings of label use

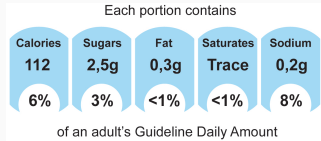
- Are colors more intuitive than numbers?
- Do numbers result in more accuracy?
- How much time is needed to use the information?
- Is there a time-accuracy trade off?

Study 1:

diet building under constraints

(with Laurent Muller, Bernard Ruffieux – Jo Eco Psy (2015))

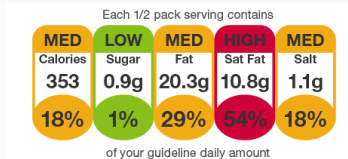
Guideline Daily Amount (GDA)



Traffic Lights (TL)



GDA+TL



The usual design



The usual design



What label is better to build a healthy diet?

Diets

- a diet is a complex object, akin to a portfolio
- you won't die for one bad item, but if the overall balance is wrong

Task

- subject "hired as a nutritionist for a canteen"
- must compose daily menu that satisfies nutritional constraints
- subject guided by labels: **numbers**, **colors**, or **both**.

Incentives

- If the daily diet built satisfies nutritional constraints $\Rightarrow$ flat fee (2 euro)
- Several daily diets to build

Daily diet

A daily **diet** is composed of *twelve* food items over *four* meals:

Daily base		120g bread, 10g butter, 20g oil
Breakfast	<i>Drink</i>	The, coffee, milk, hot chocolate, juice...
	<i>Main course</i>	Bread, sweets, viennoiseries...
	<i>Fruit</i>	Fruit, jam...
Lunch	<i>Entrée</i>	Light dishes, ham, paté...
	<i>Main course</i>	Sandwich, pizza, pasta...
	<i>Seasoning</i>	Oil, butter, spices & herbs
	<i>Dessert</i>	Fruit, sweets...
Afternoon snack	-	Sweets
Dinner	<i>Entrée</i>	Light dishes, ham, paté...
	<i>Main course</i>	Meat or fish
	<i>Side</i>	Vegetables, rice...
	<i>Dessert</i>	Fruit, sweets...

Our design: diet-building

Petit déjeuner		Lait frais entier		Nectar de fruits exotiques		Eau gazeuse		Lait aromatisé
		Céréale type All Bran		Pain de mie		Orange		Pain séchés
Déjeuner		Salade froide		Pommes de terre à l'huile		Viande des Grisons		Pâté de foie de volaille
		Sandwich crudités fromage		Sandwich crudités rosbi		Pot au feu		Sandwich type libanais (falafel)
		Pamplemousse frais		Fraise		Mousse de fruit		Salade de fruits
Collation		Gâteau de Savoie		Petit-suisse		Meringue		Kiwi
		Avocat vinaigrette		Salade		Asperges grandes		Roisheps de hareng
Dîner		Flageolet		Pâtes complètes		Quinoa		Châtaigne
		Haricots rouges		Pâtes fraîches		Poivrons rouges grillés		Carotte

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Characteristics:

- no preferences
- incentivized
- "realistic"

We add:

- labels
- constraints

Dimensions

Nutrition is multidimensional. We consider three cases:

1-dimension Kcal only are displayed.

4-dimension Kcal + 'bad' nutrients: salt, sugar, fat.

7-dimension 4d + 'good' nutrients: vitamin C, fiber, calcium.

Labels can have numbers, or colors, or both:

Numbers modeled on Guideline Daily Amounts / Reference Intakes

Colors modeled on Traffic Lights

Num+col both of the above combined



Tarte aux poireaux

Energie :	12.3
Sucres :	1.7
Graisses :	46.4
Sel :	19.1



Sandwich crudités rosbif

Energie : 14.4

Sucres : ●

Graisses : ●

Sel : ●



Pêche

Energie :	3	
Sucres :	14	●
Graisses :	0	●
Sel :	0	●
Vitamines :	11	●
Fibres :	12	●
Calcium :	2	●

A number + colors screen, 7 constraints

Petit déjeuner		Lait frais entier Energie : 6.3 Sucres : 10.2 Graisses : 21 Sel : 3.8 Vitamines : 8.4 Fibres : 0		Nectar de fruits exotiques Energie : 5.5 Sucres : 29.3 Graisses : 0 Sel : 0.3 Vitamines : 7.8 Fibres : 0.8		Eau gazeuse Energie : 0 Sucres : 0 Graisses : 0 Sel : 2.9 Vitamines : 0 Fibres : 0		Lait aromatisé Energie : 6.3 Sucres : 23.3 Graisses : 7.7 Sel : 3.8 Vitamines : 8.9 Fibres : 0
		Céréale type All Bran Energie : 4.2 Sucres : 5.3 Graisses : 1.1 Sel : 10.6 Vitamines : 22.8 Fibres : 32.4		Pain de mie Energie : 6.7 Sucres : 1.1 Graisses : 2.4 Sel : 12.5 Vitamines : 4.2 Fibres : 6.6		Orange Energie : 2.6 Sucres : 12.5 Graisses : 0.2 Sel : 0.1 Vitamines : 6.4 Fibres : 8.1		Pain suédois Energie : 9.5 Sucres : 9.5 Graisses : 3.5 Sel : 7.3 Vitamines : 3.6 Fibres : 15
		Salade frisée Energie : 0.2 Sucres : 0.5 Graisses : 0.1 Sel : 0.2 Vitamines : 3.1 Fibres : 1.9		Pomme de terre à l'huile Energie : 6.8 Sucres : 3.9 Graisses : 4.9 Sel : 17.3 Vitamines : 8.6 Fibres : 6.8		Viande des Grisons Energie : 2.6 Sucres : 0.1 Graisses : 3.2 Sel : 25.9 Vitamines : 13.3 Fibres : 0		Pâté de foie de volaille Energie : 3.5 Sucres : 0 Graisses : 7 Sel : 5.6 Vitamines : 29.7 Fibres : 0
		Sandwich crudités fromage Energie : 19 Sucres : 2.8 Graisses : 31.9 Sel : 25.3 Vitamines : 12.7 Fibres : 11.6		Sandwich crudités rostit Energie : 14.4 Sucres : 2.8 Graisses : 4.7 Sel : 23.7 Vitamines : 20.5 Fibres : 11.2		Pot au feu Energie : 13.9 Sucres : 11.3 Graisses : 24.6 Sel : 52.3 Vitamines : 28.6 Fibres : 21.4		Sandwich type libanais (falafel) Energie : 18.8 Sucres : 1.4 Graisses : 13.5 Sel : 33.5 Vitamines : 17.8 Fibres : 19
Déjeuner		Pamplemousse frais Energie : 3.2 Sucres : 18 Graisses : 0.1 Sel : 0 Vitamines : 13		Fraise Energie : 2.2 Sucres : 10.1 Graisses : 0.1 Sel : 0.1 Vitamines : 16.4		Mousse de fruit Energie : 5.9 Sucres : 2.5 Graisses : 21.4 Sel : 2 Vitamines : 11.9		Salade de fruits Energie : 4.2 Sucres : 21.3 Graisses : 0.3 Sel : 0.1 Vitamines : 6.8

Instructions

Screen 1: no info just select what you think is the overall healthiest (but nutritionally enough) menu

Screen 2: numbers, 1D you need to create a menu that has between 90% and 110% of the daily recommended calories.

Screen 3: colors, 4D you need to do as in Screen 1, plus you have to **minimize** salt, sugar and fat.

Screen 4: numbers + colors, 7D you need to do as in Screen 4, plus you have to **maximize** vitamin, calcium and fiber.

Results from the experiment

2014, Grenoble

Two populations, three conditions

To investigate the role of

- **cognitive resources** and
- **time**

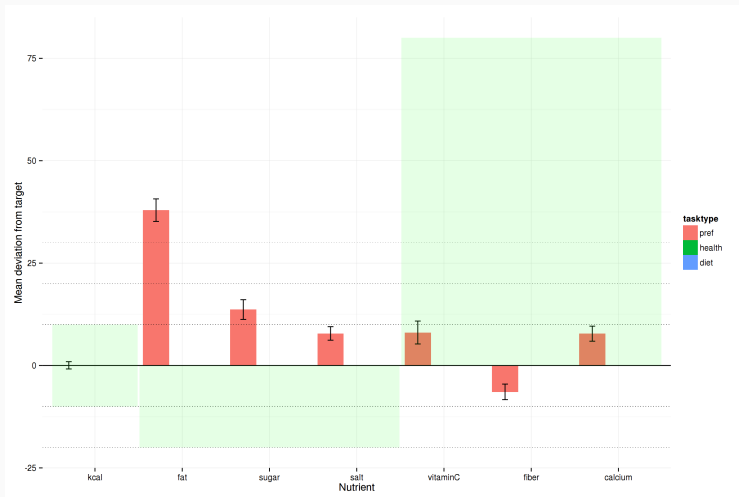
we run three conditions:

Students Highly skilled engineering students, no time limit, paper and pencil

Population Population at large, no time limit, paper and pencil

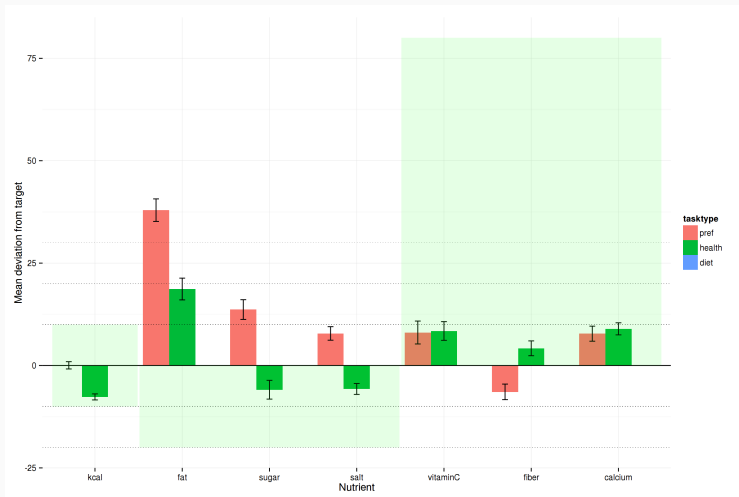
120 seconds Population at large, 120 seconds, NO paper and pencil

Average results – no labels – plain preferences



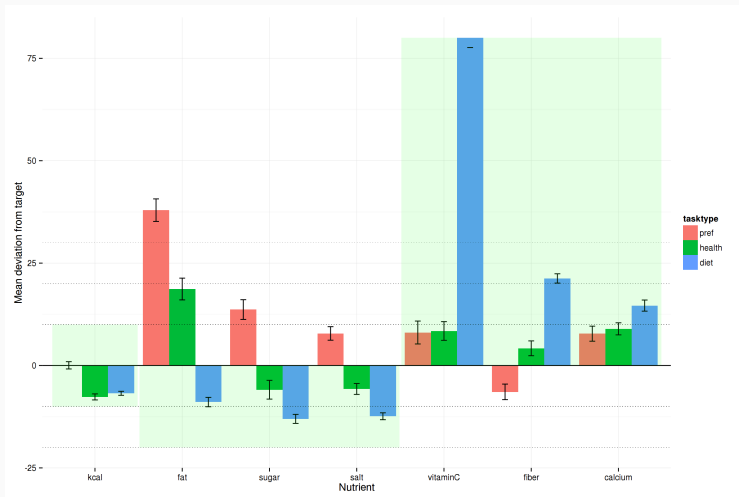
Preferences task, average performance by nutrient.

Average results – no labels – Healthiness



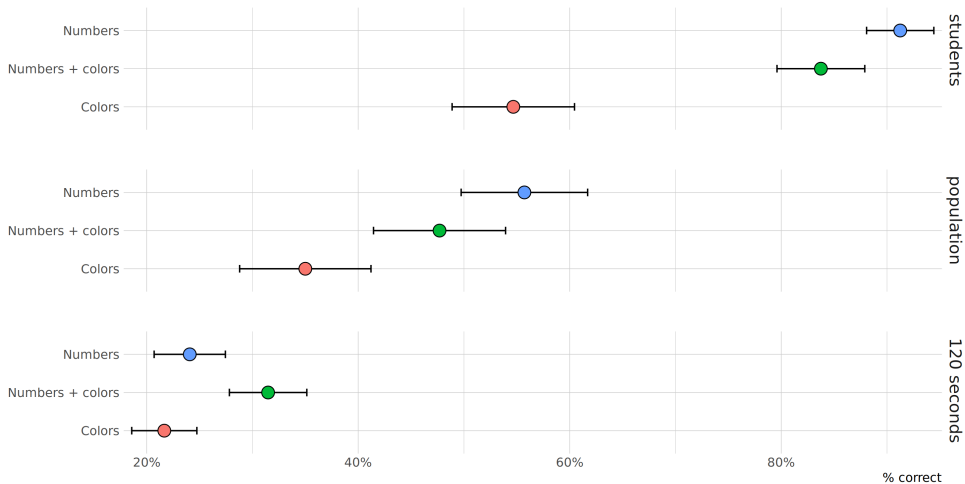
Preferences and healthiness tasks, average performance by nutrient.

Average results – labels – All

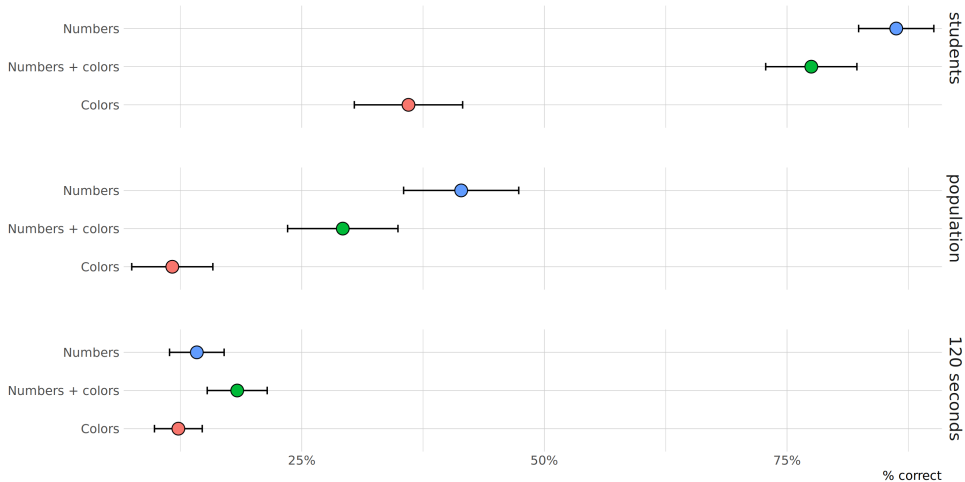


Preferences, health and diet tasks, average performance by nutrient.

Performance in the task - 4 constraints



Performance in the task - 7 constraints



Take-home message

If time is **unlimited**:

- Numbers win
- Especially so for highly skilled
- But also for general population

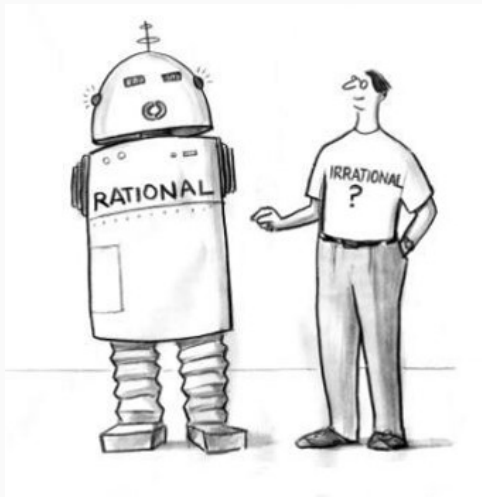
If time is **limited**:

- Numbers and colors equal
- Number + colors overall better
- Dismal performance in all cases

Study 2:

fast & slow reactions to labels

(with Laurent Muller)



Food choice is both fast & slow

Food choice : fast

Health goals : slow

Labels are both fast & slow

numbers : slow

analytic : slow

colors : fast

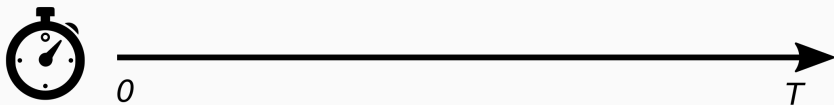
aggregate : fast

A comprehensive approach

Can we build a tool based on *both* System One and Two?

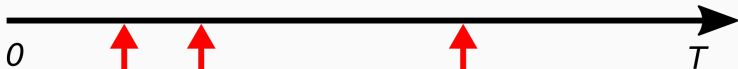
$\forall$ subject, $\forall$ choice, we want to capture

- the fast heuristics used
- *and* the slow reasoning applied
- *and* the moment the subject switched, if any





choices



A



C



B

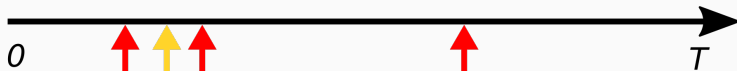


choices



uniform
draw





choices

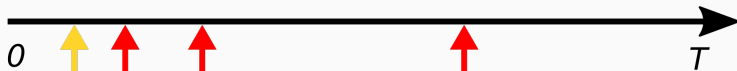
A

C

B

uniform
draw

A



choices

A

C

B

uniform
draw

random

Our design

Thanks to the design:

- No choice $\Rightarrow$ random choice: incentive to *fast* reply
- Time is ticking: incentive to *change* first decision upon reflection
- fast to slow *endogenous* (usually: exogenous)
- Data reveal choice *process* (usually: outcome)

This allows us to:

- tell apart how different labels tap on different heuristics
- measure how much *faster* colors are
- assess if numbers do a better job, and when

Labels

global
quality



fat



3%

sugar



13%

salt



7%

fat



sugar



salt



fat

3%

sugar

13%

salt

7%

Barres au chocolat au lait
et aux céréales



Choisir

Barres chocolatées
fourrées au lait et aux noisettes



Choisir

Barres chocolatées
au caramel



Choisir

Barres de céréales
raisins et chocolat au lait



Choisir



Barres au chocolat au lait
et aux céréales

Sucre



AGS



Sel



Choisir

Barres chocolatées
fourrées au lait et aux noisettes

Sucre



AGS



Sel



Choisir

Barres chocolatées
au caramel

Sucre



AGS



Sel



Choisir

Barres de céréales
raisins et chocolat au lait

Sucre



AGS



Sel



Choisir



Barres au chocolat au lait
et aux céréales

Sucres	AGS	Sel
55%	110%	5%

Choisir

Barres chocolatées
fourrées au lait et aux noisettes

Sucres	AGS	Sel
46%	87%	5%

Choisir

Barres chocolatées
au caramel

Sucres	AGS	Sel
69%	42%	7%

Choisir

Barres de céréales
raisins et chocolat au lait

Sucres	AGS	Sel
34%	27%	9%

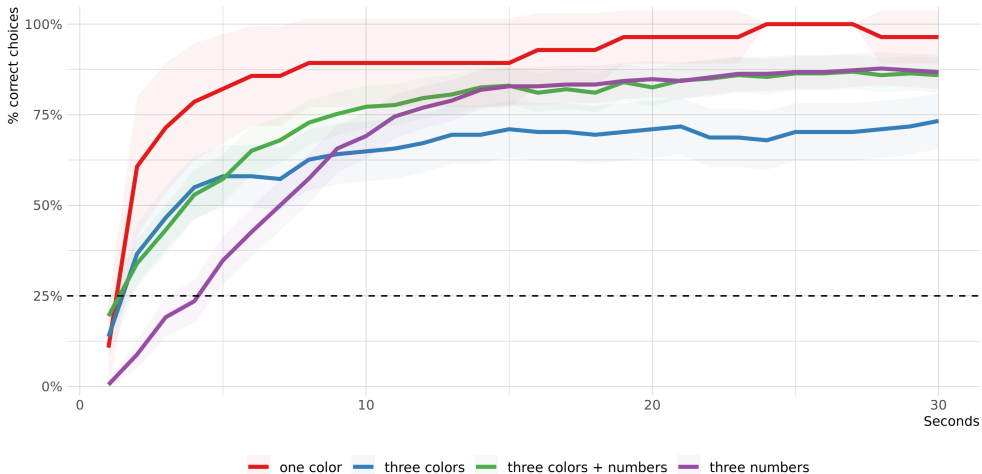
Choisir



Results from the experiment

2016, Grenoble

Share of correct choices in time, by labeling scheme



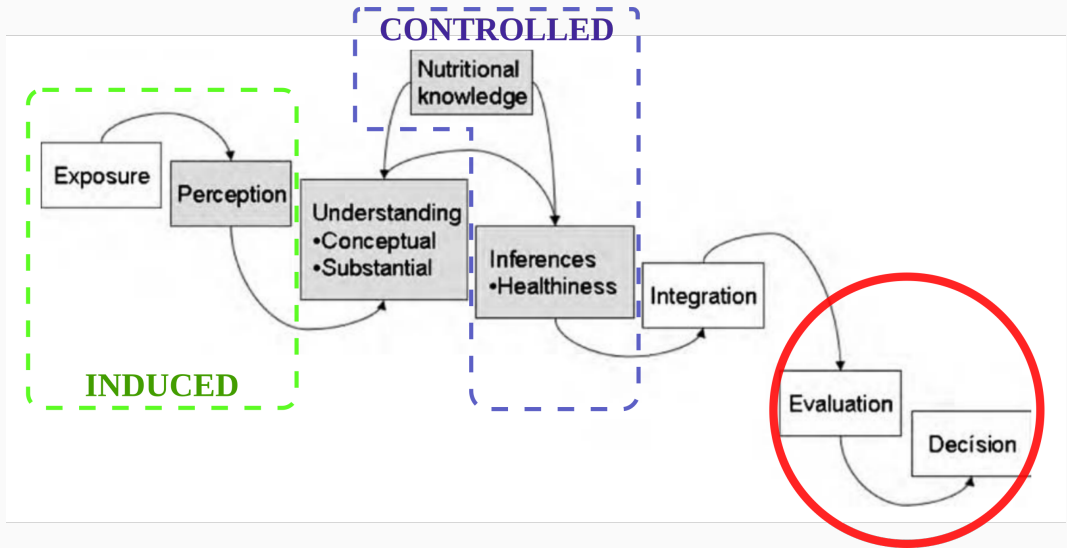
from Fast&Slow labels, wip

What do we learn?

- Trade off time/accuracy
- Heuristics give way to computation in time
- Indirect evidence of different cognitive processes
- We explicitly measure 'how more intuitive' colors are

Part 2: Building counterfactuals

Building counterfactuals





Study 3:

*Using WTP elicitation to assess policy impact:
is there a social multiplier?*

(WIP, with L. Muller)

How to use the methods to build experimental designs?

Earlier we've seen methods to *elicit value* from subjects. But how do we combine these methods to answer to research questions?

- build different *ceteris paribus* conditions [stimuli]
- repeat elicitations over time/conditions
- exploit subjects' individual characteristics

Peer effects & policy interventions

Peer Effects

- large literature
- conformism: preferences?
- conformism: information?
- in any case: convergence

Labeling policies

- large applied literature: WTP
- why: information?
- why: preferences?
- in any case: behavior changes

How do the two interact?

- usually WTP experiments rely on individual observations
- WTP is then linked to individual characteristics
- but (labeling) policies do not happen in a vacuum!
- do policies have different impacts in a peer context?

Research questions

- Do social interactions affect WTP of subjects?
- Does a food policy (e.g. labeling) have different effects in social vs. anonymous contexts?
- Do social interactions accelerate or decelerate the impact of the label?
- Are subjects conformists? Why?

Using BDM to shed light on social multipliers

A labeling policy in a peer-effect WTP design

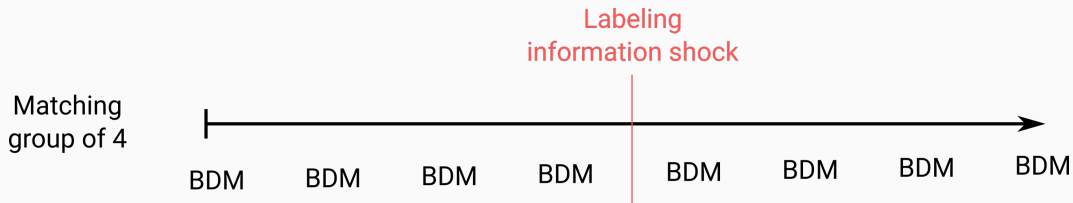
- we repeatedly elicit subjects WTP
- using the BDM mechanism
- in a social context: subjects observe other subjects' WTPs
- we introduce an information shock: a label
- we then again repeatedly measure WTP
- in a social context
- control: same structure, no social context

Design: treatment



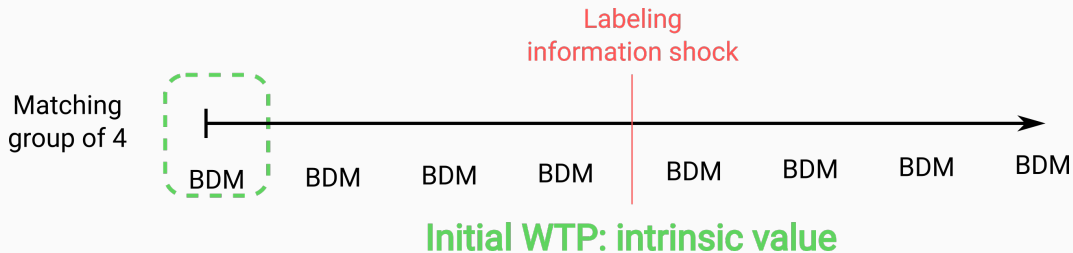
TREATMENT: Impact of the observation of others' WTP on own WTP before and after information shock.			Own WTP	Other people's WTP		
						
Phase A	Product display					
Phase B	WTP elicitation	Period 1	... €	X	X	X
		Period 2	... €	... €	... €	... €
		Period 3	... €	... €	... €	... €
		Period 4	... €	... €	... €	... €
Phase C	Information shock					
Phase D	WTP elicitation	Period 1	... €	X	X	X
		Period 2	... €	... €	... €	... €
		Period 3	... €	... €	... €	... €
		Period 4	... €	... €	... €	... €
Phase E	Real purchase	One randomly drawn period is binding. BDM mechanism				

Measures yielded by our design: treatment

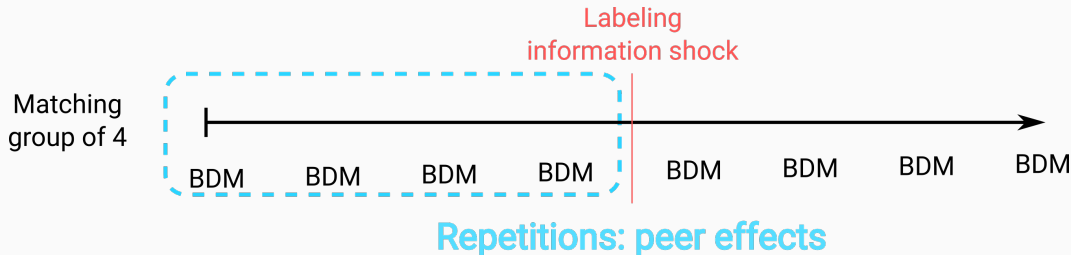


Measures

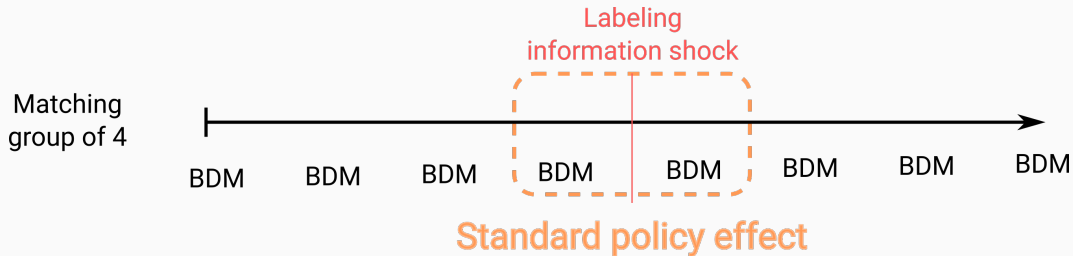
Measures yielded by our design: treatment



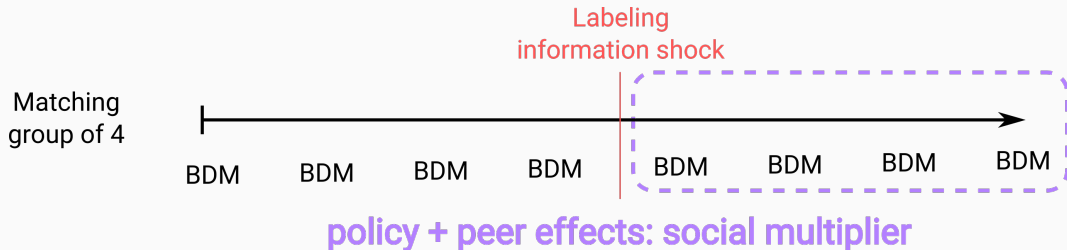
Measures yielded by our design: treatment



Measures yielded by our design: treatment

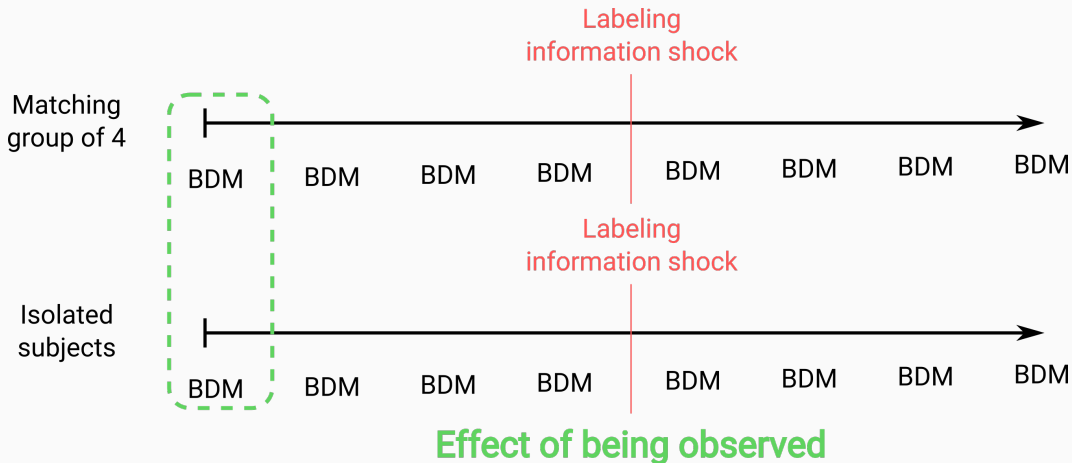


Measures yielded by our design: treatment



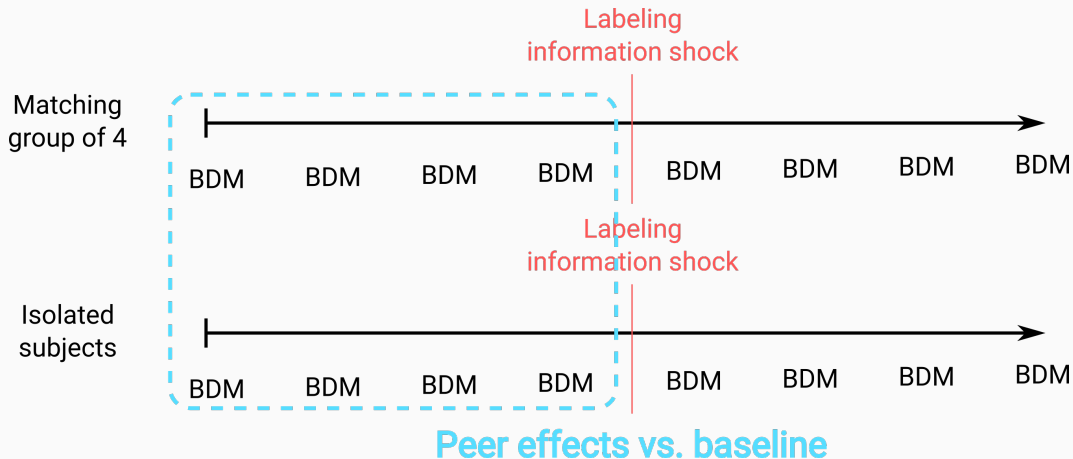
Measures

Measures yielded by our design: control vs. treatment



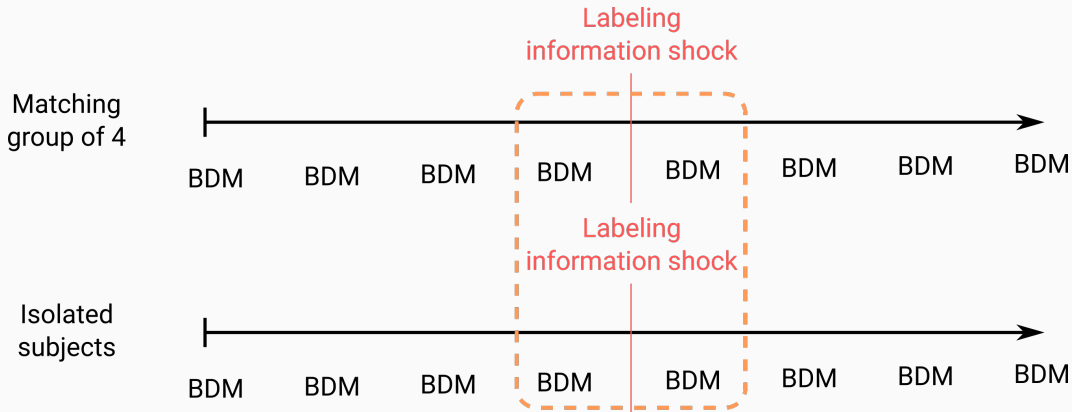
Measures

Measures yielded by our design: control vs. treatment



Measures

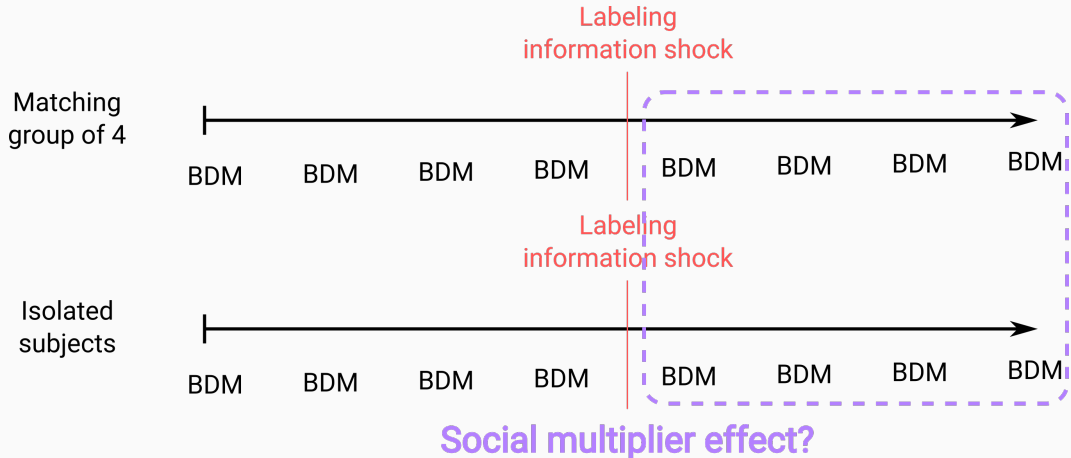
Measures yielded by our design: control vs. treatment



Policy effect differs in social context?

Measures

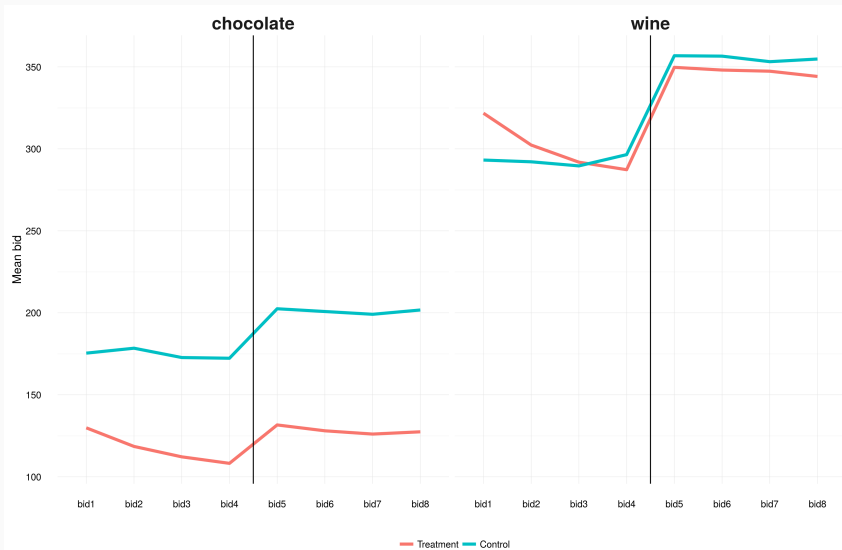
Measures yielded by our design: control vs. treatment



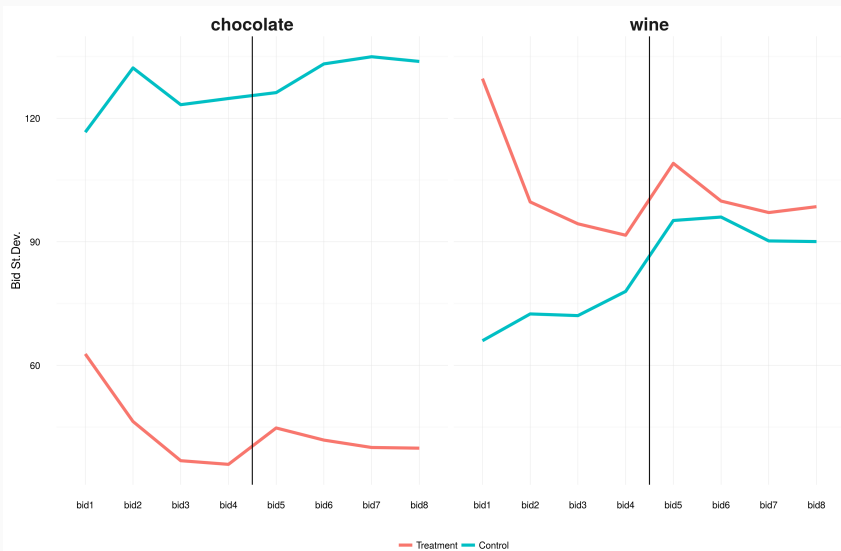
Results from the experiment

2018, Grenoble

Average mean group bid



Bid standard deviation



What do we learn?

- Peer effects occur when limited info
- As soon as info arrives, they stop
- Bio label has a positive value for subjects
- Conformism seems to be driven by info-acquisition
- No multiplier (in our setting and with our products)

Study 4:

ex-ante evaluation of labels: lab shopping

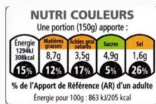
(with Anne Lacroix, Laurent Muller, Bernard Ruffieux – ERAE (2019))

Some context



Testing a labeling policy in the field can be **costly** and **ineffective**

- Labeling all products is costly
- Large samples required
- Lots of noise – special offers, discounts, availabilities...
- No control on population switching shops
- Little control on implementation
- Which reference period?



French Ministry of Health

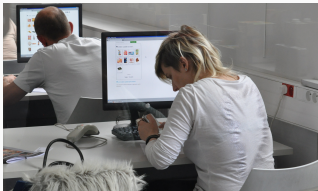
- Which FoPL to choose?
- How large is the effect?
- A RCT in 60 French supermarket
- A large lab experiment (**us!**)

Our setup

Paper catalog



Computer interface



Real products



- Preferences are back!
- Subjects shop for real in the lab

- $\sim \frac{1}{4}$ of product supply available
- chosen + we have it $\Rightarrow$ buy

A large and representative catalog

- 290 products
- 37 food categories
- custom e-shopping interface
- barcode scanners on the desk
- price, quantity, picture (label) up front
- nutritional table and ingredient list available upon clicking

1138

Chercher

 Votre caddie actuel :

Aucun produit dans ce panier.

Terminer

4,25 €
260 g
16,35 €/Kg

- 1 +

Ajouter au caddie

2 Steaks hachés pur boeuf 15% mg



Ingrédients

Valeurs nutritionnelles

Scannez un produit

Votre panier

Aucun produit dans votre panier

Terminer

2 Steaks hachés pur boeuf 15% mg

Ingrédients

100% Viande bovine.

Les ingrédients en majuscules sont susceptibles d'entraîner des intolérances ou des allergies

Valeurs nutritionnelles

Fermer

x2 portions individuelles

15% de matières grasses

250g e (2x125g)

Ingrédients

Valeurs nutritionnelles

Scannez un produit

 Votre panier

Aucun produit dans le panier

Terminer

2 Steaks hachés pur boeuf 15% mg

Valeurs nutritionnelles

Pour 100g de produit :

Energie :	129 Kcal
Lipides :	5,00 g
dont Acides Gras Saturés :	2,30 g
Glucides :	0,00 g
dont sucres :	0,00 g
Protéines :	21,00 g
Sel :	0,23 mg

Ingrédients

Fermer

Ingrédients

Valeurs nutritionnelles

Scannez un produit

Chercher

 Votre caddie actuel :



x 1 = 4.25 €

1 Articles

Total = 4.25 €

Terminer



1



Modifier la quantité

Enlever du caddie

2 Steaks hachés pur boeuf 15% mg

4,25 €

260 g

16,35 €/Kg



Ingrédients

Valeurs nutritionnelles

1814

Chercher

1814

Votre caddie actuel :



x 1 = 4.25 €



x 1 = 3.95 €



x 1 = 1.17 €



x 1 = 2.83 €



x 3 = 1.83 €

5 Articles

Total = 14.03 €

Terminer

- 1 +

Ajouter au caddie

Frites surgelées pour micro-ondes



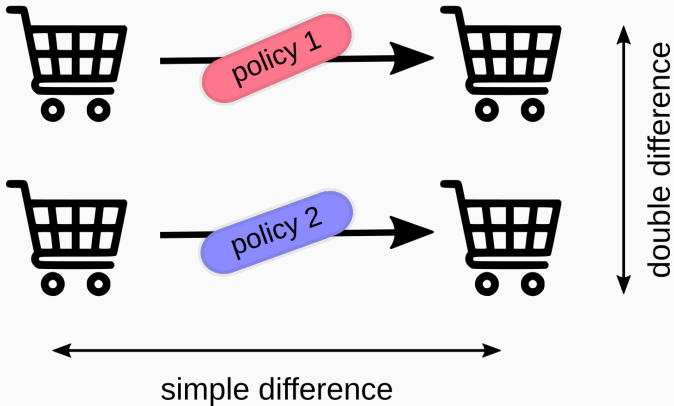
Ingrédients

Valeurs nutritionnelles

Experimental design: difference-in-difference

Shopping 1

Shopping 2



Snacks

Cacahuètes grillées
très pauvres en sel



Cacahuètes délicatement salées



Chips de maïs nature



Chips paysannes nature



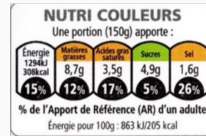
Soufflés de maïs goût cacahuète



Biscuits apéritif à l'emmental



Then, we apply (no or) one of five labels



- plus a Neutral (benchmark) treatment (no labels)

Snacks

Cacahuètes grillées
très pauvres en sel



NUTRI-SCORE



Cacahuètes délicatement salées



NUTRI-SCORE



Chips de maïs nature



NUTRI-SCORE



Chips paysannes nature



NUTRI-SCORE



Soufflés de maïs goût cacahuète



NUTRI-SCORE



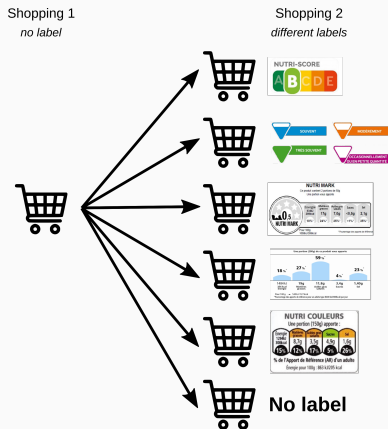
Biscuits apéritif à l'emental



NUTRI-SCORE



Treatments



Metrics: nutrition

We use the **scoreFSA** normalized by **caloric content**.

For each shopping cart i , for each subject j , for each product p :

$$scoreFSA_{ij} = \frac{\sum_p Kcal_{pij} \cdot FSA_{pij}}{\sum_p Kcal_{pij}},$$

We focus on ΔFSA , the *difference* between carts 1 and 2.

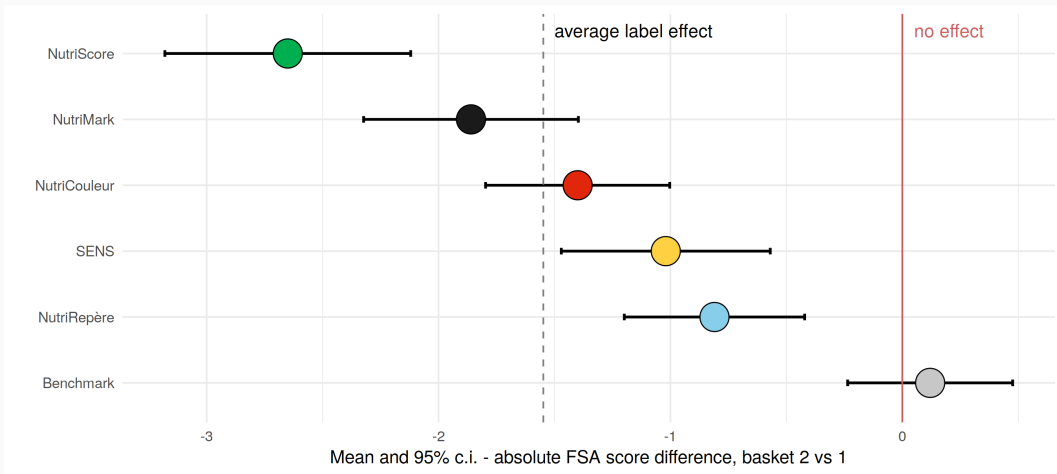
A large and representative subject pool

- 691 subjects
- ~ 110 for each of 6 treatments
- sample issued from the general population
- (recruiting agency boosted our reach into all socio-economic statuses)
- roughly representative

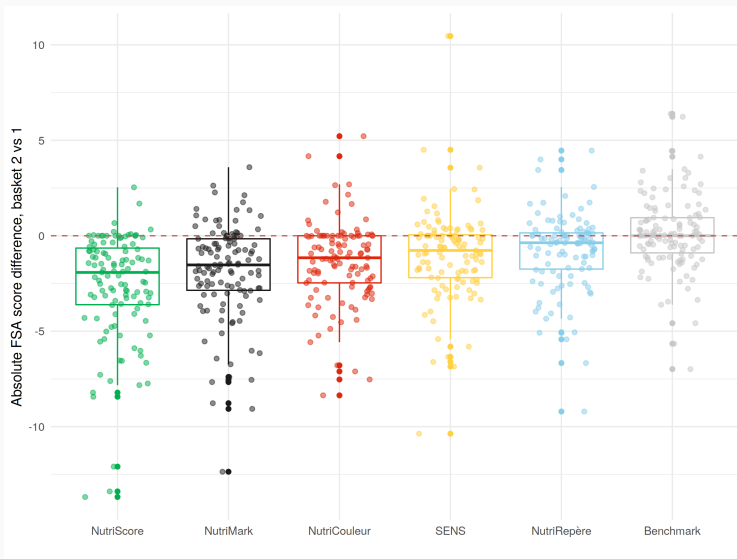
Results from the experiment

2019, Grenoble

NutriScore leads, by far



But there is heterogeneity



What do we learn?

- Color-coded, summary labels perform best
- (but only if they directly relate to quality – not SENS)
- Number-based, analytic labels perform worse

Policy implications

- NutriScore officially selected in FR (and ES, BE, DE...)
- Adopted by Auchan, Fleury Michon, Leclerc, Casino, Nestlé...
- The very idea of FOP labels validated
- NutriScore is being proposed by France as EU standard
- Even though *some countries* really do **not** like it



PRESENTI	311
VOTANTI	299
ASTENUTI	12
MAGGIORANZA	150
FAVOREVOLI	299
CONTRARI	0

APPROVATO

MARTEDI
10
OTTOBRE

Study 5:

Lab vs. Field RCTs

(Dubois et al., Jo. Ac. Mark. Sci. 2020,)

OPERATIONAL SETTINGS OF THE TRIAL

OPERATIONAL COORDINATOR
Link 6 people

Mobilised team



Technical settings

4 PRODUCT CATEGORIES



↘ Nutritional value collection from participating food industries and resellers ↘

1266 PRODUCTS



↘ Web base application to calculate the nutritional score and produce label pictures Getiq ↘

4 SYSTEMS EVALUATED / 10 STORES PER SYSTEM



↘

~1.9 MILLIONS OF PRODUCTS LABELLED OVER 10 WEEKS



FOLLOW-UP PROCEDURES AND QUALITY CONTROL

FOLLOW-UP PROCEDURES

- Daily feedbacks from people in charge of labeling
- Weekly photo reporting by dietitians
- Routine



CONTROL OF THE ACCURACY OF LABELING

- 24 DIETITIANS 2 random controls per week
- 7 AUDITORS 2 audits per week and store over 10 weeks
- FRENCH MINISTRY FOR ECONOMY AND FINANCE unannounced controls in each store

The two studies at a glance

	Lab	Field
Location	Grenoble	Paris couronne, Nord, Lyon
Supermarkets	"1"	60
Task	shop for two days' worth	shop
Real purchases	"yes"	yes
Measure	FSA score for 2000Kcal	FSA score for 2000Kcal
Design	Diff-in-diff	Diff-in-diff
Time frame	2x, same session	5 weeks, 1 year apart
Participants	691	171.827
Products (of which labeled)	290 (all)	3586 (1266)
Food categories	37	4
Purchases	27.882	1.668.301
Manpower needed	8	~ 100
Cost	~100k	~4 million

Field study: "instructions"



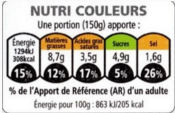
Field study: product display



Field study: alerting the subject



Results: the lab as a magnifying glass

Label	Field	Δ score FSA Lab	Corr	Zoom
	-0.142*	-2.766***		19x
	-0.115	-1.513*	0.88	13x
	-0.062	-1.140		18x
	-0.024	-0.924		38x

Which one is the *correct* estimate?

Demand effect	similar in both experiments
Strategic behavior	
Social desirability bias	
Game form misconception & complexity	mostly same simple everyday task
Incentive compatibility	same in both experiments
Subject pool differences	not really
Self-selection	not much, but our lab sample is selected
Focality and attention	stark difference
Time contraction	stark difference and generates focality

Study 6:

Environmental labels

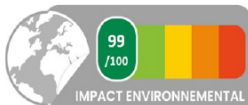
(WIP, P. De Lattre, L. Muller)

The design can be used for **environmental** labels too

Référence



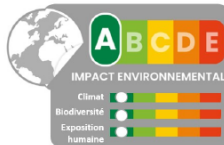
Note



Multiplicateur



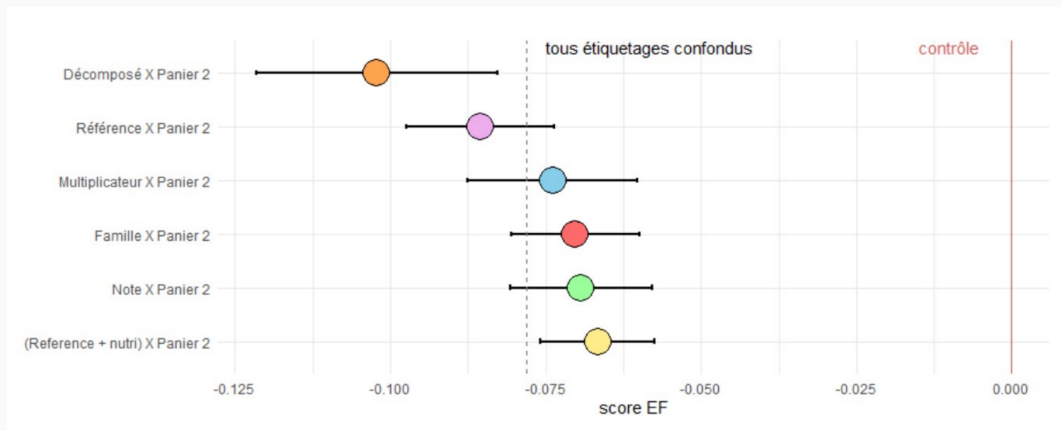
Décomposé



Famille



The design can be used for **environmental** labels too



What do we **learn**?

- Consumer seem to take environmental labels into account
- Small effects
- Different formats do not make different impacts

Study 7:

ex-ante evaluation: labels or prices?

(with Laurent Muller, Bernard Ruffieux)

A bit of context

- World Bank: strongly tax unhealthy foods (Shekar and Popkin 2020)
- WHO: introduce dietary taxes on unhealthy food of minimum 20%
- India and Mexico tax unhealthy food & beverages (India : tax of 28%).

Existing evidence suggests that taxes are likely to shift consumption in the desired direction, although policy makers need to be wary of changes in other important nutrients. However, the tax would need to be at least 20% to have a significant effect on population health.’ (Mytton, Clarke, and Rayner 2012)

Question and design

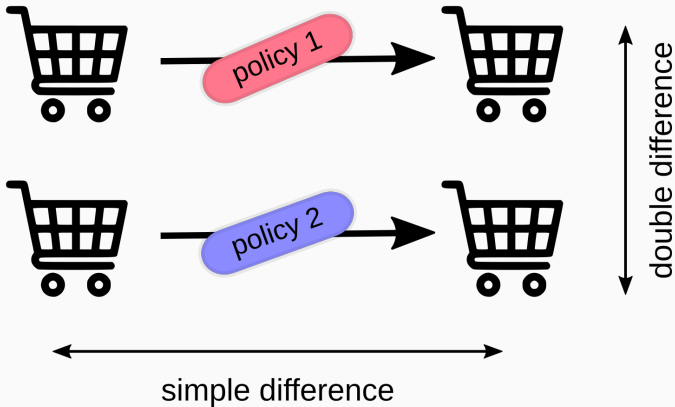
- Suppose we want to couple a **label** with an **incentive** scheme
- e.g. tax unhealthy (soda tax) and subsidize healthy food.
- Does it work? How?
- Will the intervention be (sub/super)additive?
- i.e. label **or** price $\geq$ label **plus** price?

Exact same design as Study 3

Experimental design: difference-in-difference

Shopping 1

Shopping 2



Metrics: expenditure

We use the **expenditure** on a basket, normalized by **2000Kcal**.

For each shopping cart i , for each subject j , for each product p :

$$expenditure_{ij} = 2000 * \frac{\sum_p Price_{p_{ij}}}{\sum_p Kcal_{p_{ij}}},$$

We focus on Δ **Expenditure**, the *difference* between carts 1 and 2.

Metrics: state investment

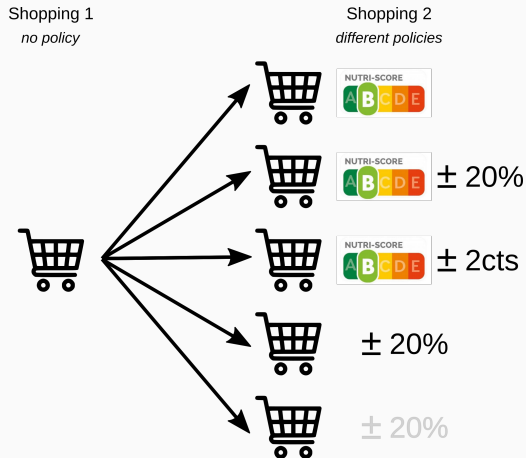
We use the total amount of subsidies minus the total amount of tax revenue, per consumer.

Since consumers had to buy for 2 days, we divide by 2 to get a daily cost.

for each subject j , for each product p :

$$stateaid_j = \frac{\sum_p (tax_{pj} - subsidy_{pj})}{2},$$

Treatments



A large price change: $\pm 10\%$ or 20%

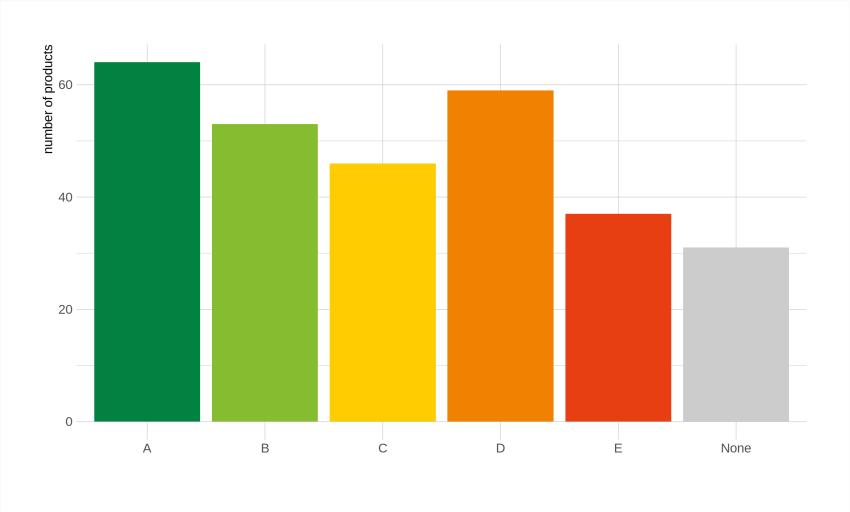


A small price change: ± 1 or 2cents

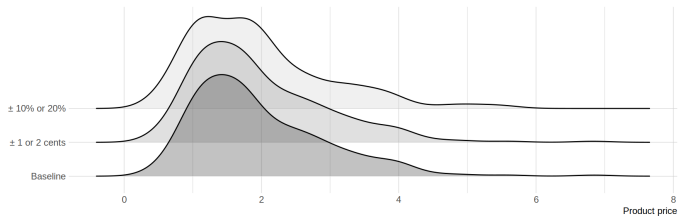


Référence Sans Nutri-Score sans Bonus-Malus Cacahuètes grillées très pauvres en sel  200g 5.00€/kg 1,00€	Traitement 1 Nutri-Score sans Bonus-Malus Cacahuètes grillées très pauvres en sel  200g 5.00€/kg 1,00€	Traitement 2 Nutri-Score avec Bonus-Malus explicite <i>ad valorem</i> de niveau élevé Cacahuètes grillées très pauvres en sel  200g 4.00€/kg 1,00€ 0,80€
Traitement 3 Nutri-Score avec Bonus-Malus explicite par unité de niveau symbolique Cacahuètes grillées très pauvres en sel  200g 4.50€/kg 1,00€ 0,98€	Traitement 4 Bonus-Malus implicite <i>ad valorem</i> de niveau élevé Cacahuètes grillées très pauvres en sel  200g 4.00€/kg 0,80€	Traitement 5 Bonus-Malus explicite <i>ad valorem</i> de niveau élevé Cacahuètes grillées très pauvres en sel  200g 4.00€/kg 1,00€ 0,80€

Catalog: NutriScore

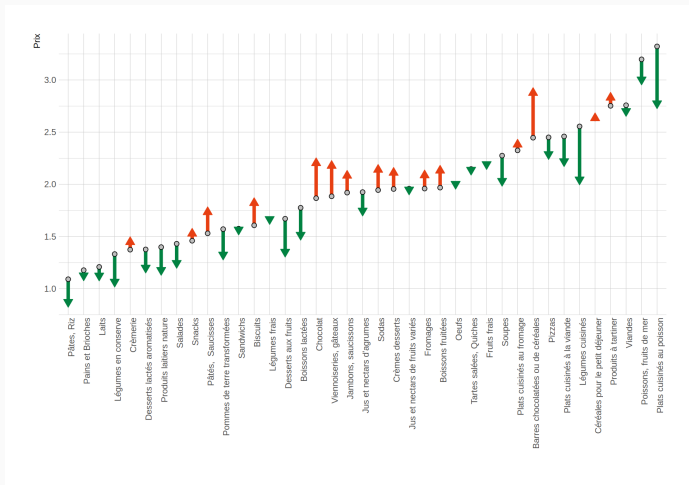


Catalog: Price distribution



	price	p-value
baseline	1.96 (0.96)	
cents	1.96 (0.96)	0.841
percent	1.94 (1)	

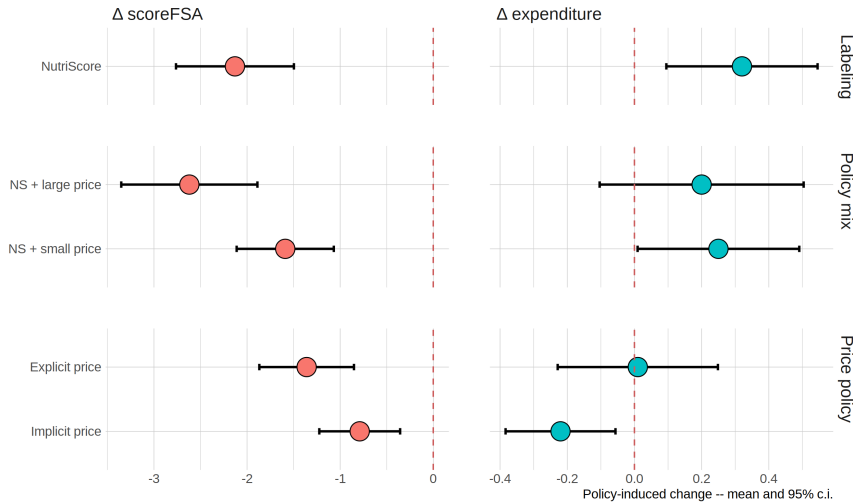
Catalog: price changes by microcategory



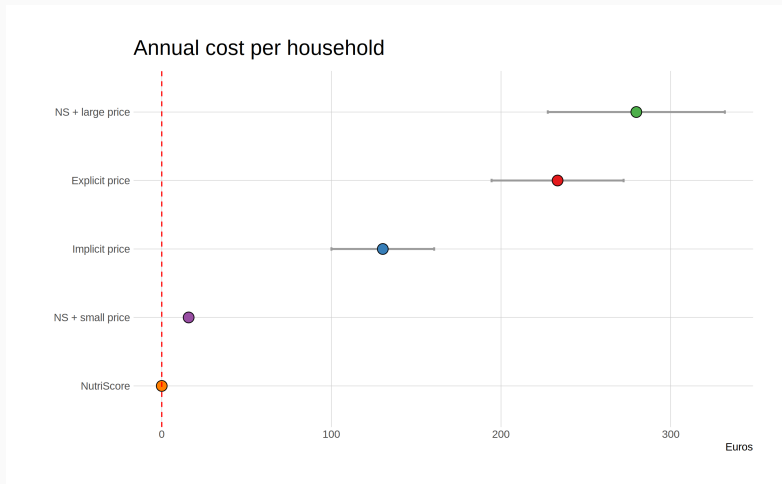
A large(ish) and representative subject pool

- 386 subjects
- ~ 75 for each of the 5 treatments
- sample issued from the general population
- roughly representative (++women, ++educated)

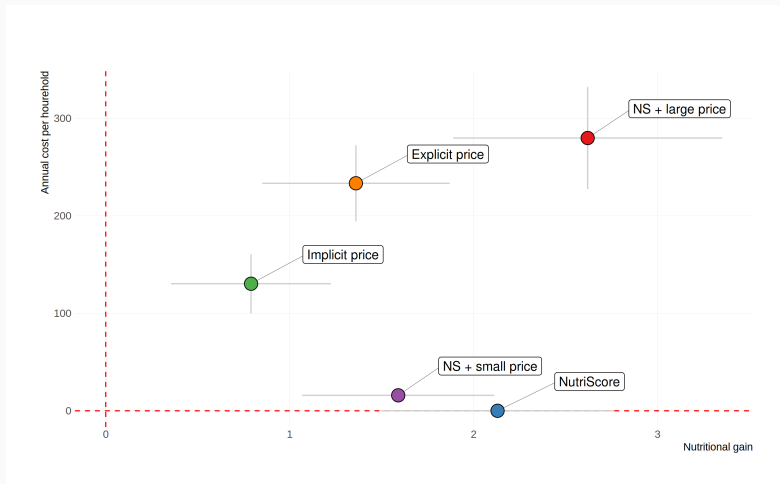
Results



Welfare analysis: cost for the state



Welfare analysis: trade-offs



What do we learn?

- Nutritional policies are subadditive
- *Too small* an incentive reduces the effect (Gneezy & Rustichini)
- Price policies have better be explicit (Chetty et al.)
- Labeling appears as more cost-effective than the policy mix
- ...still, it's just the lab!

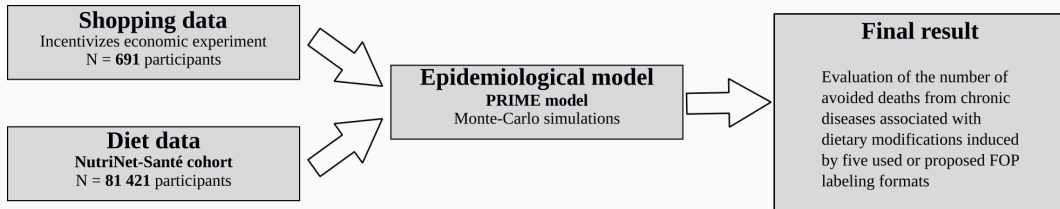
Part 3: does it matter?

Study 8:

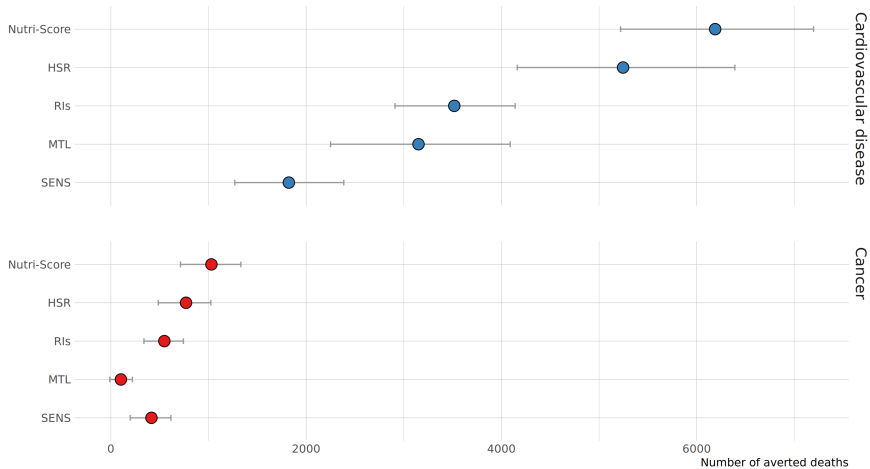
epidemiological consequences of labels

(with Egnell, d'Almeida, Kesse-Guyot, Muller, Ruffieux, Hercberg, Julia)

From micro to macro



Estimated number of averted deaths, France



What do we learn?

- Labels have non-negligible impacts on mortality
- Results from the lab can be used to feed macro models
- Better, intuitive labels are used and save lives.

What next

for behavioral label research?

Some open questions: **consumers**

How **externally valid** are our results?

- Integration: can all the effects just be summed up?
- Label proliferation
- Information overload

What **other** forces are at play?

- Cultural arena: the battle for label perception
- Nutrition vs tradition
- A contrarian view from Italy

Some open questions: **firms**

Firms react **strategically**

- Price discrimination
- Multiple labeling
- Labels as anti-competitive devices

Interaction firm/consumers

- Labels working for the *wrong* reasons
- Normative messages
- "*Bisogna che tutto cambi, affinché tutto resti uguale*"

Some open questions: AI

Everybody **delegates** everything to AIs

- All of the above, with an extra layer
- Processing power might end being scarce
- All sort of agency and control problems
- More rationality? Less?

Thank you