

Cognition sociale et environnement



Air pollution and residential wood burning

Rita Abdel Sater, Mathieu Perona, Elise Huillery, Coralie Chevallier



Le chauffage au bois : une source majeure de pollution de l'air

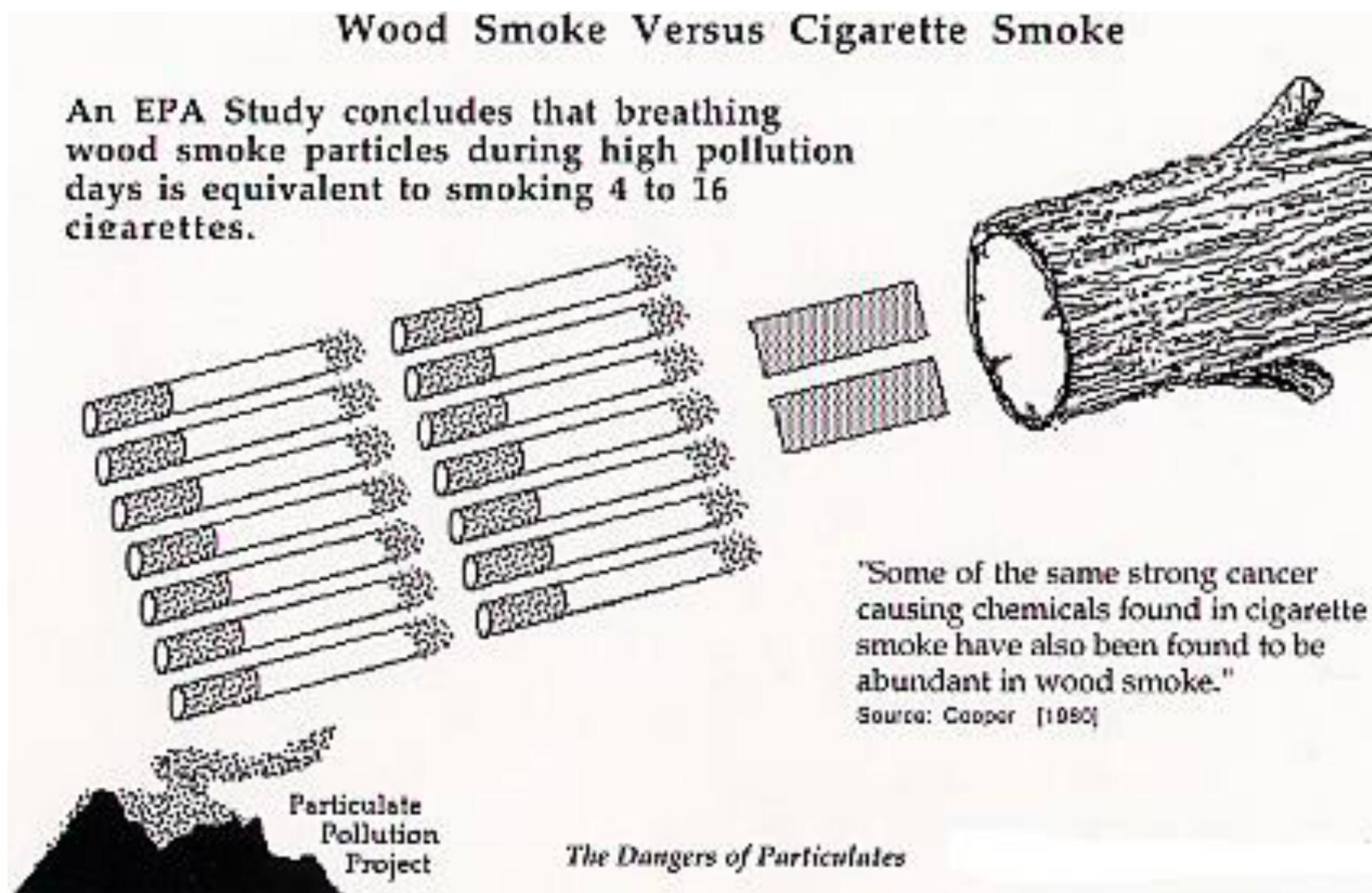
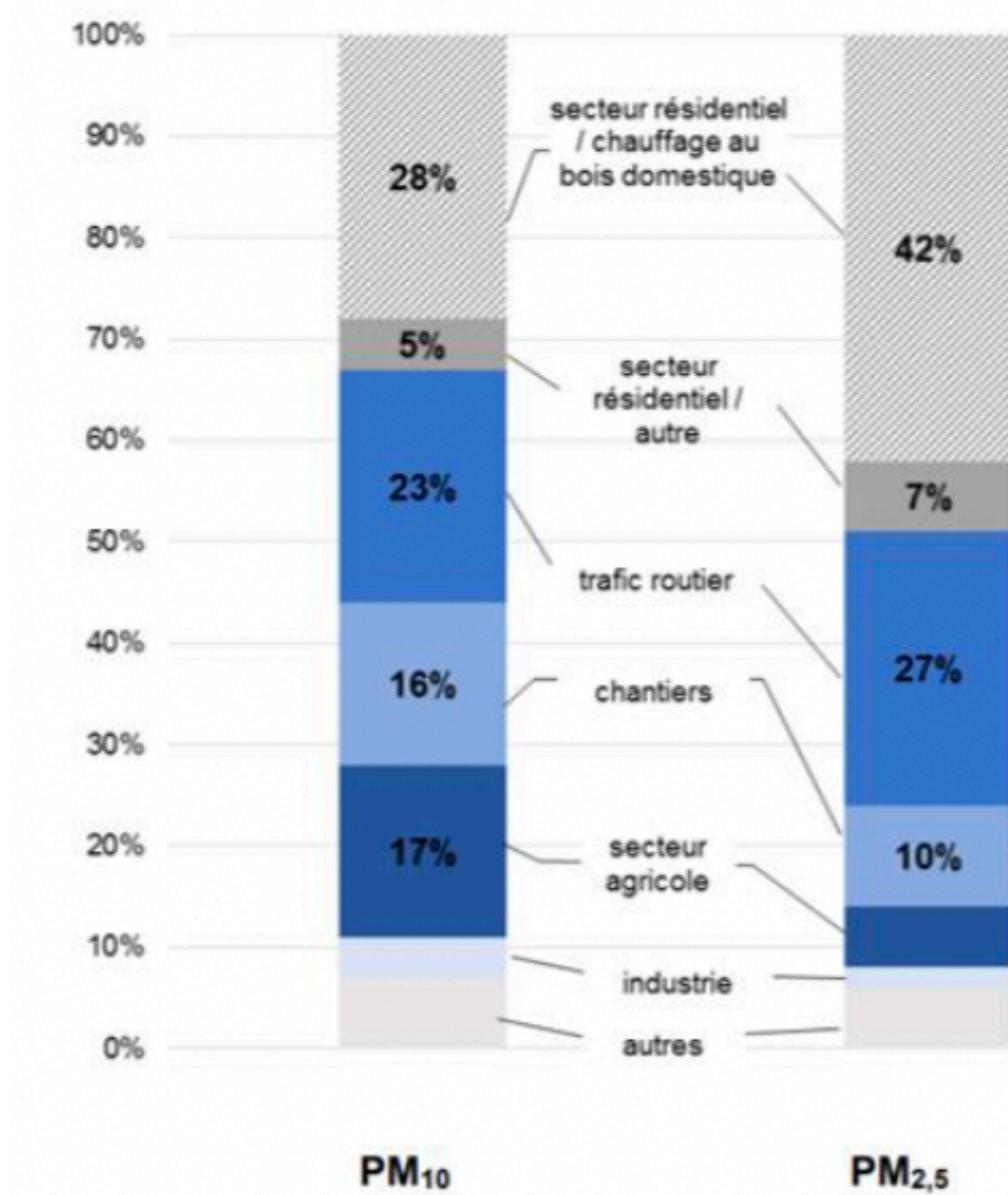


Fig. 1 - Contributions par secteur d'activité aux émissions de particules primaires (PM_{10} , $PM_{2,5}$) en Île-de-France en 2015



Source : Airparif (2)

Le chauffage au bois : une source majeure de pollution de l'air

... et évitable !

- La plupart des utilisateurs de chauffage au bois n'utilisent pas ce mode de chauffage comme chauffage principal
- Biais cognitifs et leviers comportementaux forts et activables

Barrières principales :

- Manque d'information
- Image positive du chauffage au bois

Interventions : messages faisant appel à la santé



LES PARTICULES FINES SONT PRÉSENTES DANS TOUTES LES FUMÉES :

Les particules fines sont présentes dans toutes les fumées : le feu de bois, la fumée de cigarette, les gaz d'échappement, la fumée de barbecue, etc. Les fumées de feu de bois respirées dans un espace fermé provoquent des effets sanitaires comparables au tabagisme passif.

La fumée de bois contient plus de 100 substances toxiques et cancérogènes également contenues dans la fumée de cigarette, telles que les particules fines, le monoxyde de carbone, le formaldéhyde, le benzène, le toluène, la dioxine, les métaux lourds et les hydrocarbures aromatiques polycycliques (HAP).

Un feu qui brûle pendant une heure génère 4 300 fois plus de HAP dans l'air qu'un paquet de cigarettes. Les HAP sont cancérogènes.

Le risque de cancer lié à la fumée de bois est 12 fois plus élevé que pour une quantité similaire de fumée de cigarette.

Si vous êtes fumeur

Les études scientifiques montrent que respirer de la fumée de bois réduit votre fonction pulmonaire encore davantage et augmente votre risque de développer des maladies liées au tabagisme telles que la bronchite chronique et la broncho-pneumopathie chronique obstructive (BPCO)

Pourquoi? Parce que les radicaux libres dangereux présents dans la fumée de bois sont chimiquement actifs 40 fois plus longtemps que ceux de la fumée de cigarette - une fois inhalés, ils sont donc nocifs pour l'organisme pendant une durée plus longue.

LES BONS GESTES

Pour réduire les particules fines dans votre logement

LIMITEZ AU MAXIMUM LE CHAUFFAGE AU BOIS. SI VOUS UTILISEZ CE MODE DE CHAUFFAGE, VOS ÉMISSIONS PEUVENT ÊTRE RÉDUITES PAR DES ACTIONS SIMPLES :

ALLUMAGE
Démarrez votre feu sans papier journal et par le haut.

UN BOIS SEC
Brûlez uniquement des bûches bien sèches (moins de 20 % d'humidité), et rien d'autre.

ENTRETIEN
Faites entretenir votre équipement chaque année par un professionnel.

LAISSEZ LE FEU DÉMARRER
Attendez 30 minutes après l'allumage avant de réduire le tirage.

SURVEILLEZ LE TIRAGE
Si la vitre se noircit, vos poumons aussi: augmentez le tirage.

ALLUMEZ PAR LE HAUT :
Contrairement à ce que l'on croit, il vaut mieux allumer le feu par le haut ! Lorsqu'un feu prend par le bas, les grosses bûches du dessus sont chauffées sans brûler et dégagent des particules nocives. Quand on allume par le haut, ces particules brûlent.

1 - Ouvrez toutes les arrivées d'air de l'appareil.

2 - Empilez les bûches, celles du plus petit diamètre en haut. Ne surchargez pas

3 - Placez des petits morceaux de résineux secs et un cube d'allumage (sans produit pétrolier) sur le dessus.

4 - Allumez le cube et fermez la porte.

5 - Baissez les apports d'air au bout de 30 à 40 minutes si votre foyer était froid à l'allumage et au bout de 10 minutes si le foyer était chaud.



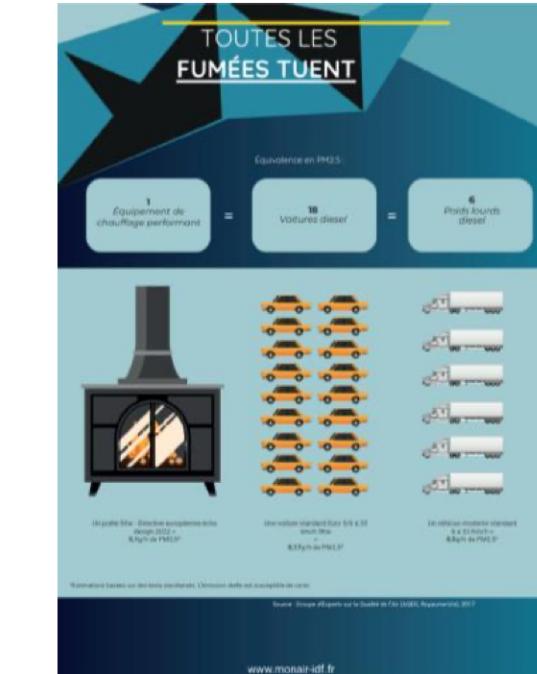
Message 1:

Les sources de pollution (en PM2.5) intérieures



Message 2 :

Les particules fines
nuisent à la santé



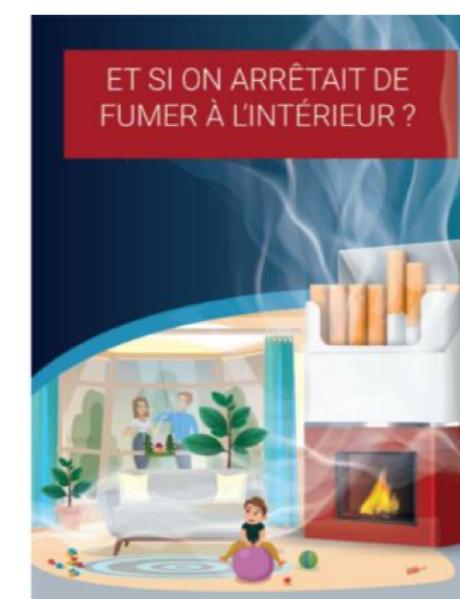
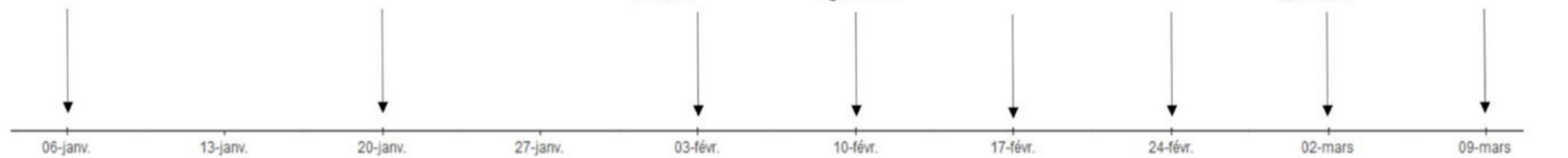
Message 4:

Comparaison chauffage au bois et cigarettes



Message 6 : Message 7 :

Les enfants, premières victimes	Chauffage au bois et pollution extérieure
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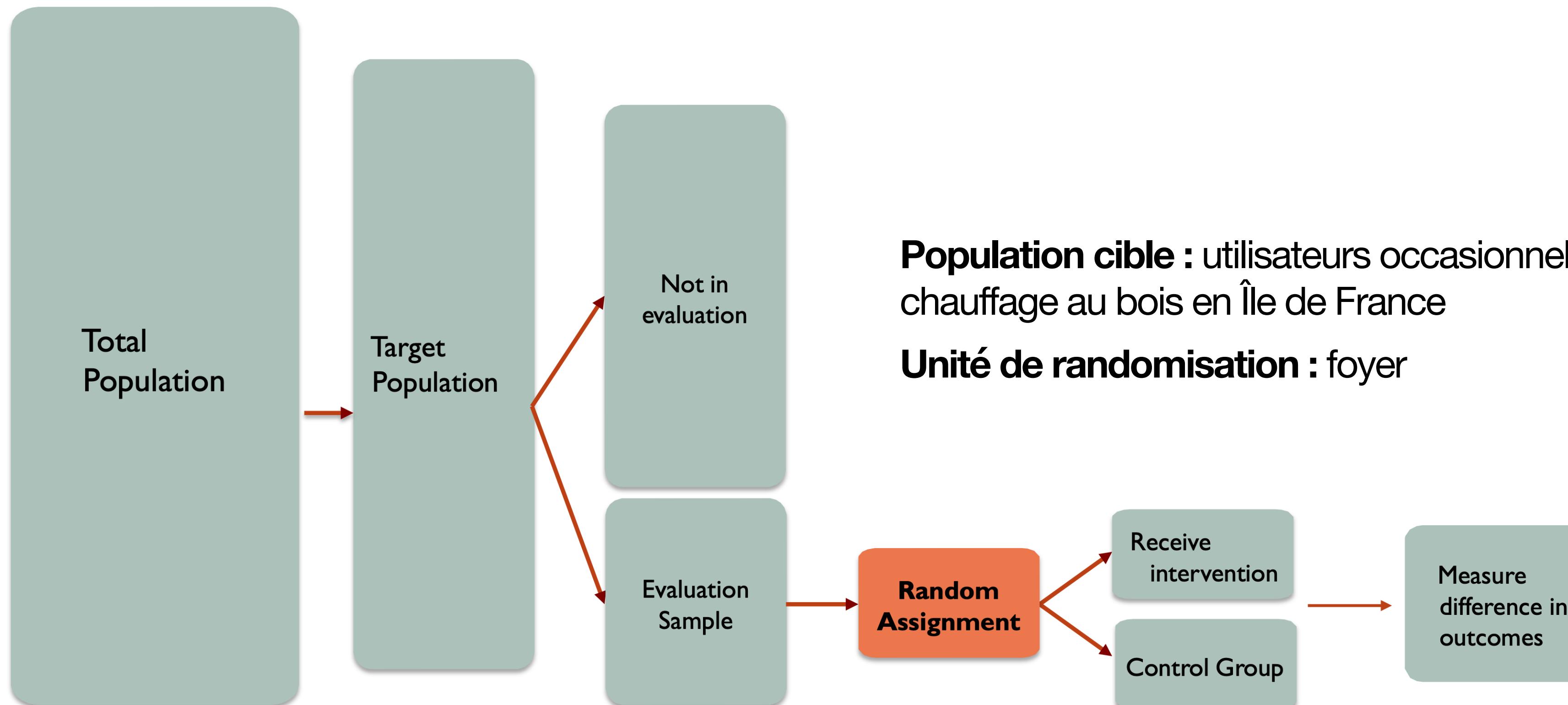
ET SI ON ARRÊTAIT DE
FUMER À L'INTÉRIEUR ?

**COLLECTIVEMENT, NOUS AVONS
RÉUSSI À RELEVER DE NOMBREUX
DÉFIS DE SANTÉ PUBLIQUE.**

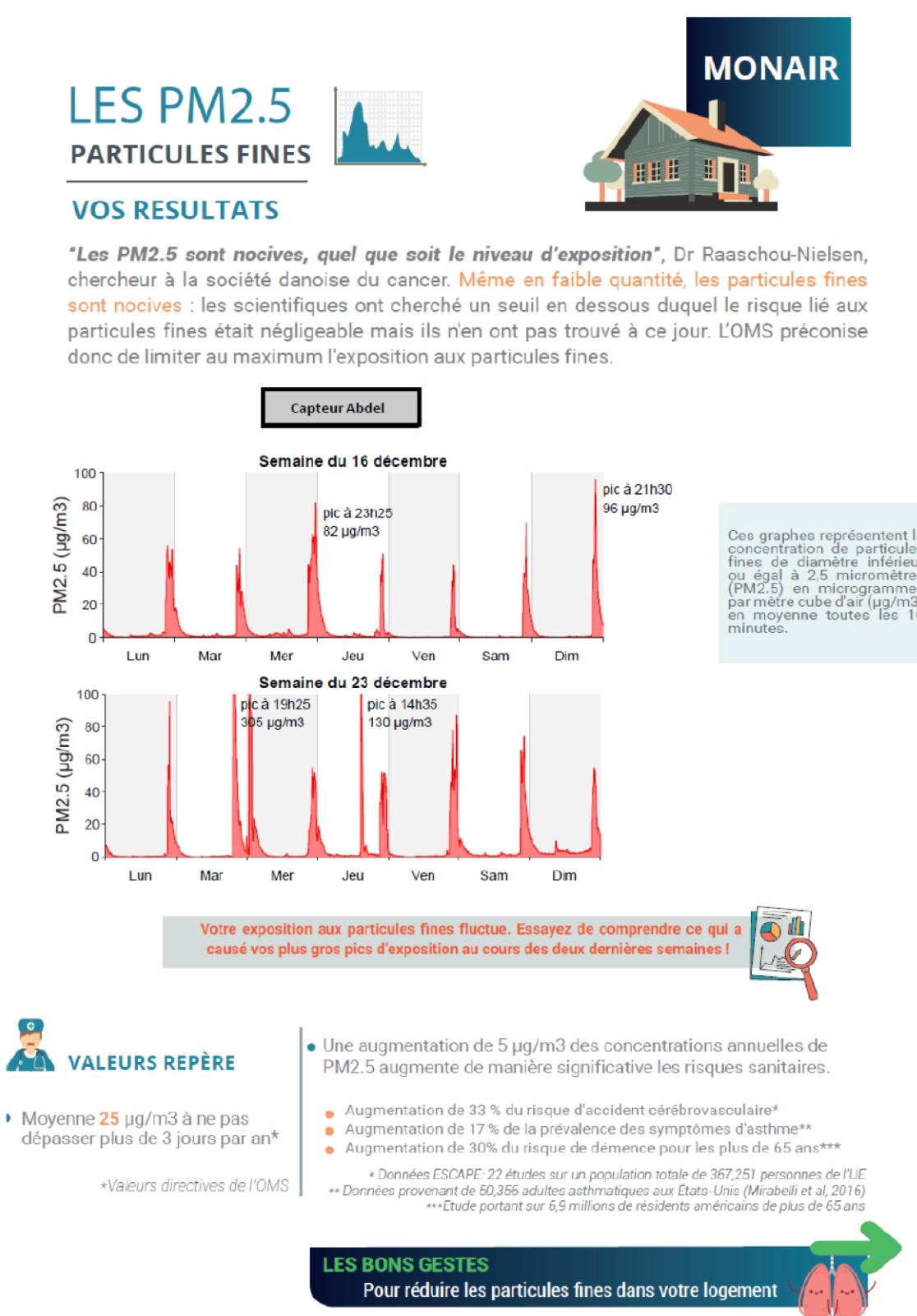
Le histoire montre que nous sommes capables de changer de comportement quand un nouveau risque sanitaire est identifié. Pour la pollution de l'air intérieur, c'est la¹ chance.



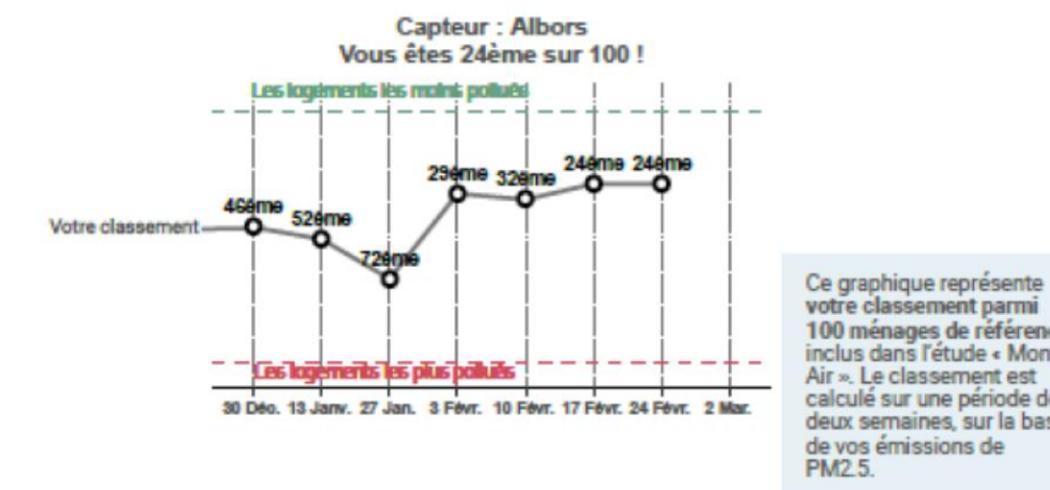
Basic set-up of a Randomized Evaluation



Intervention : messages personnalisés et sociaux



LE CLASSEMENT "MON AIR"



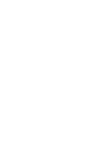
Echantillon : 300 ménages



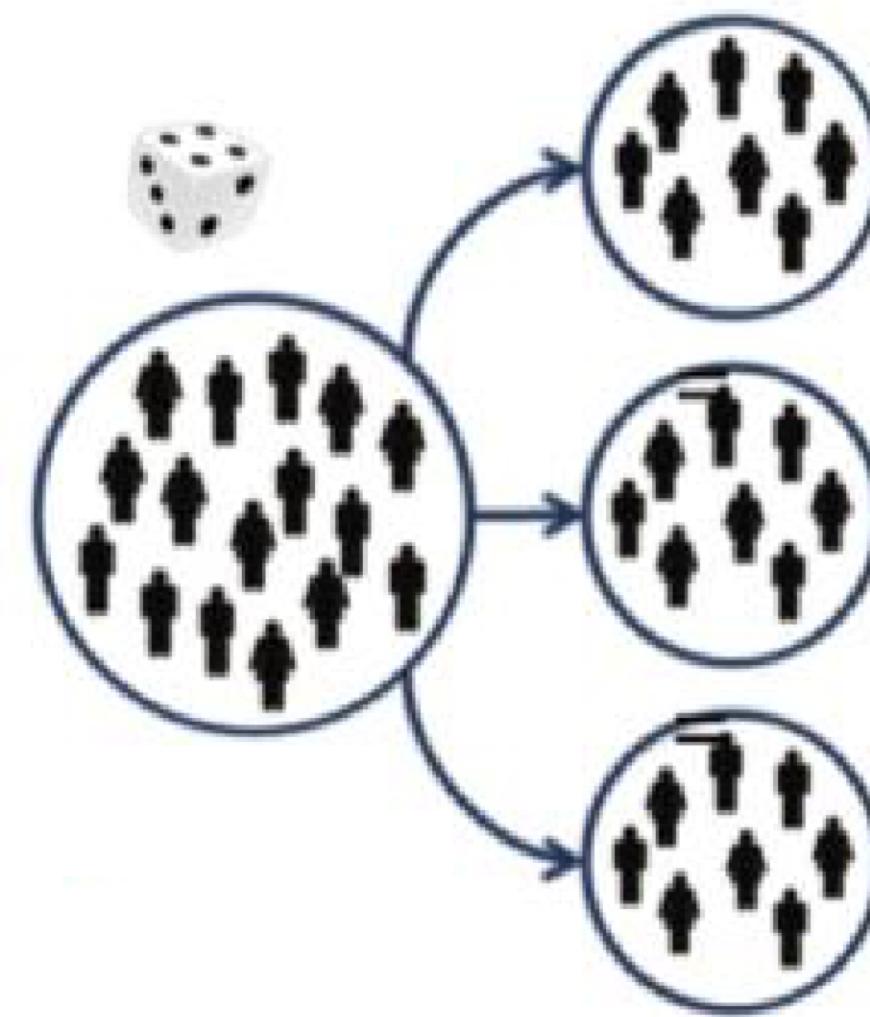
QUEL AIR RESPIREZ-VOUS?

L'air que vous respirez chez vous est-il de bonne qualité? Nous vous proposons de participer à une étude scientifique avec des micro capteurs de pollution pour le découvrir!

Rendez-vous sur: monair-idf.fr

                    <img alt="Logo of the French Ministry of the Digital Transition and the Future" data-bbox="65

Randomisation



Treatment 1 « Generic » :

Health framed information campaign

Treatment 2 « Personalised » :

Health framed information campaign +
personnalised feedback

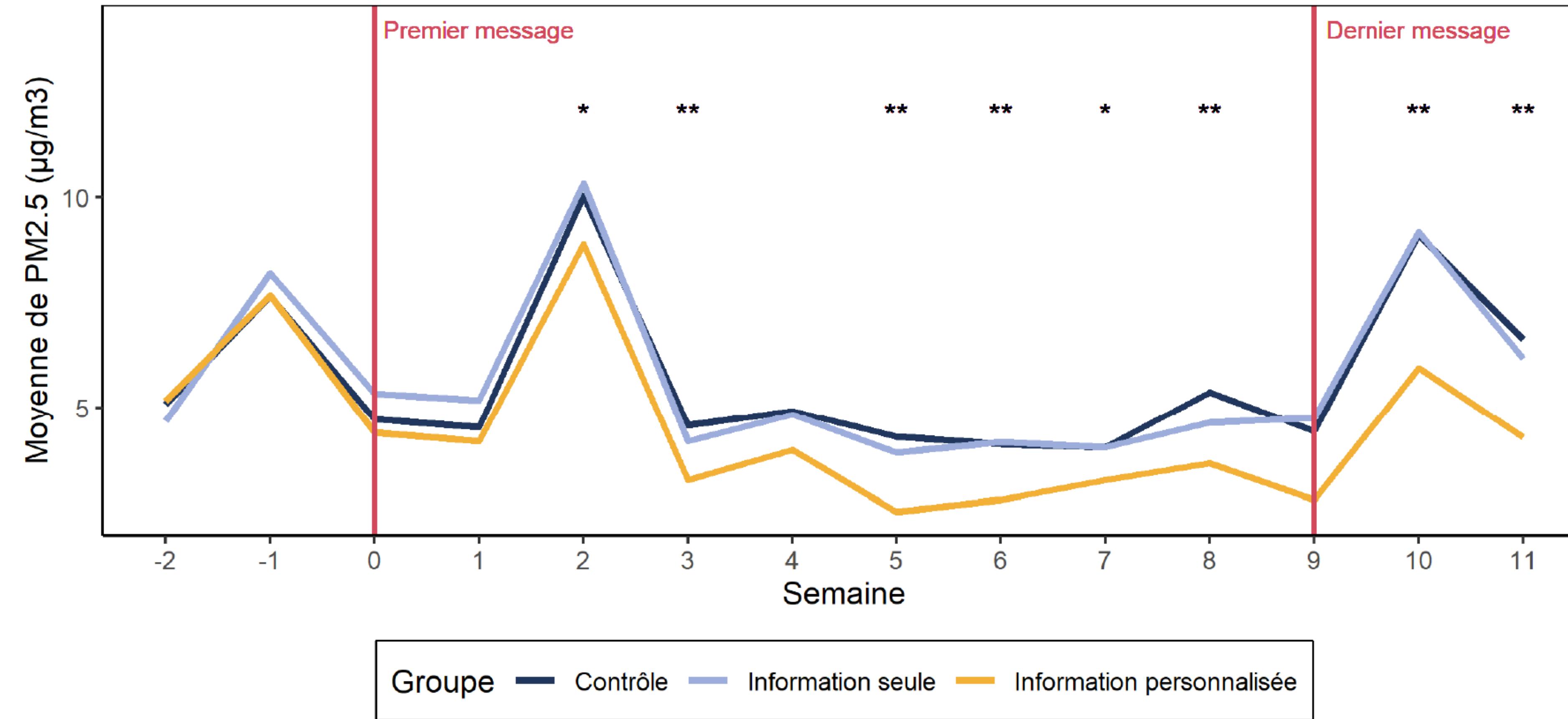
Control :

No information

Outcome : Niveau objectif de PM2.5 dans le foyer

Résultats

Mesures objectives de PM_{2.5}



Conclusions

Les ménages ont été sensibilisés à la pollution induite par le bois suite à la campagne d'information :

.... mais cela n'a pas suffi à modifier leur comportement réel

Seuls les participants ayant reçu des messages **personnalisés et sociaux** ont changé leur comportement

Designing an acceptable and fair carbon tax: The role of mental accounting

Mathilde Mus , Hugo Mercier , Coralie Chevallier 

Published: October 5, 2023 • <https://doi.org/10.1371/journal.pclm.0000227>

Article	Authors	Metrics	Comments	Media Coverage	Peer Review
					

Abstract

1. Introduction
2. Study 1
3. Study 2
4. Study 3
5. Study 4
6. Conclusion and discussion

Supporting information

Acknowledgments

References

Reader Comments

Figures

Abstract

Despite its potential for curbing greenhouse gas emissions, carbon taxation encounters strong public resistance. However, acceptability depends on how tax revenues are used. We test the hypothesis that mental accounting theory can both explain systematic patterns in citizens' preferences, such as the support for environmental earmarking, and help design a carbon tax scheme that is both acceptable and fair. Across six experiments conducted in the United Kingdom and in France ($N_{\text{total}} = 7100$), we show that: (a) There is an acceptability boost when the use of tax revenues matches the tax domain thematically (e.g., allocating carbon tax revenues to green projects), as demonstrated by an interaction effect between the tax domain and the expenditure domain on the level of tax support. This result is consistent with the use of a mental accounting heuristic, by which people create mental budgets where the origin of revenues is matched thematically with their domain of use. (b) Carbon tax acceptability varies with the proportion of tax revenues earmarked for green projects. (c) A mixed carbon tax scheme, in which most revenues are earmarked for green projects and the rest is redistributed to low-income households to be spent on sustainable expenses, receives most support among the tested options. We also demonstrate the robustness of the mental accounting heuristic in two ways: by showing that the preference for environmental earmarking of carbon taxes is observed across all relevant subsections of the population, and that mental accounting also appears to shape preferences for health-related earmarking of tobacco taxes, and social-related earmarking of inheritance taxes.

The efficiency-acceptability gap

- Efficiency in theory vs. Efficiency in practice
- The carbon tax: an efficient tool... but low acceptability

Cognition and the carbon tax

- Reactions to the carbon tax are more or less negative depending on the way it is implemented.
- The way the revenues of the tax are used is a key factor of acceptability
 - Earmarking taxes vs. revenue pooling
 - Earmarking is inefficient -> risk of unbalanced budget + budgetary rigidities
 - Systematic preference in the general population for earmarking that is linked thematically to the origin of the tax.
 - Tax on tobacco => health
 - Inheritance tax => social justice / equal opportunities programs
 - Carbon tax => environmental domain

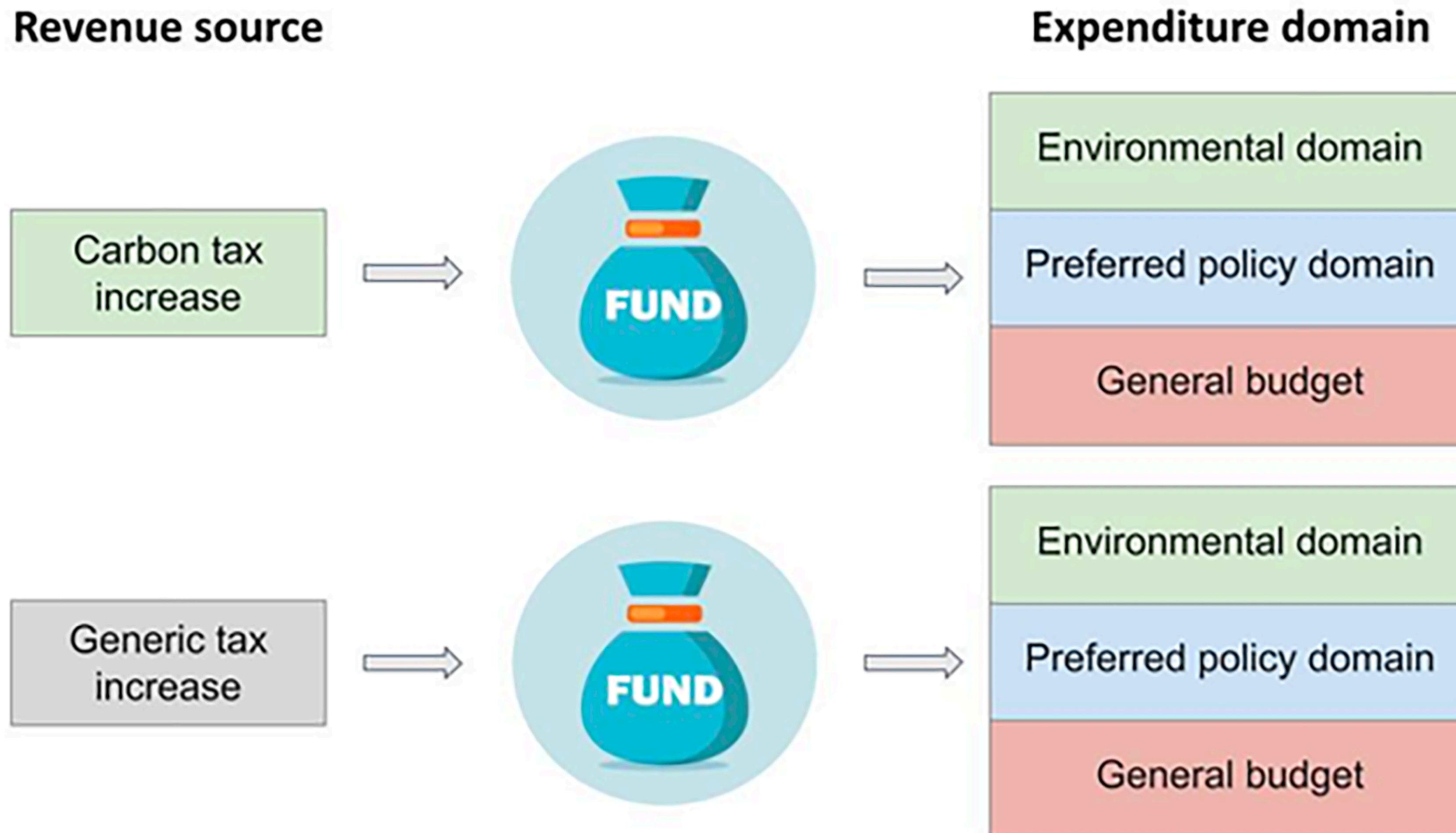
The mental accounting hypothesis

- Mental accounting: people organize and keep track of their expenses by creating mental budgets that match the origin of revenues with the domain in which they are meant to be used, e.g. food, clothing, savings, etc. (Thaler, 1985, 1999)
- Labeled subsidy for « drinks » => increased in beverage consumption
 - The composition of income is treated as relevant for consumption
 - Violation of the economic principle of fungibility stating that any unit of money is substitutable for another.

Mental accounting applied to the State's budget

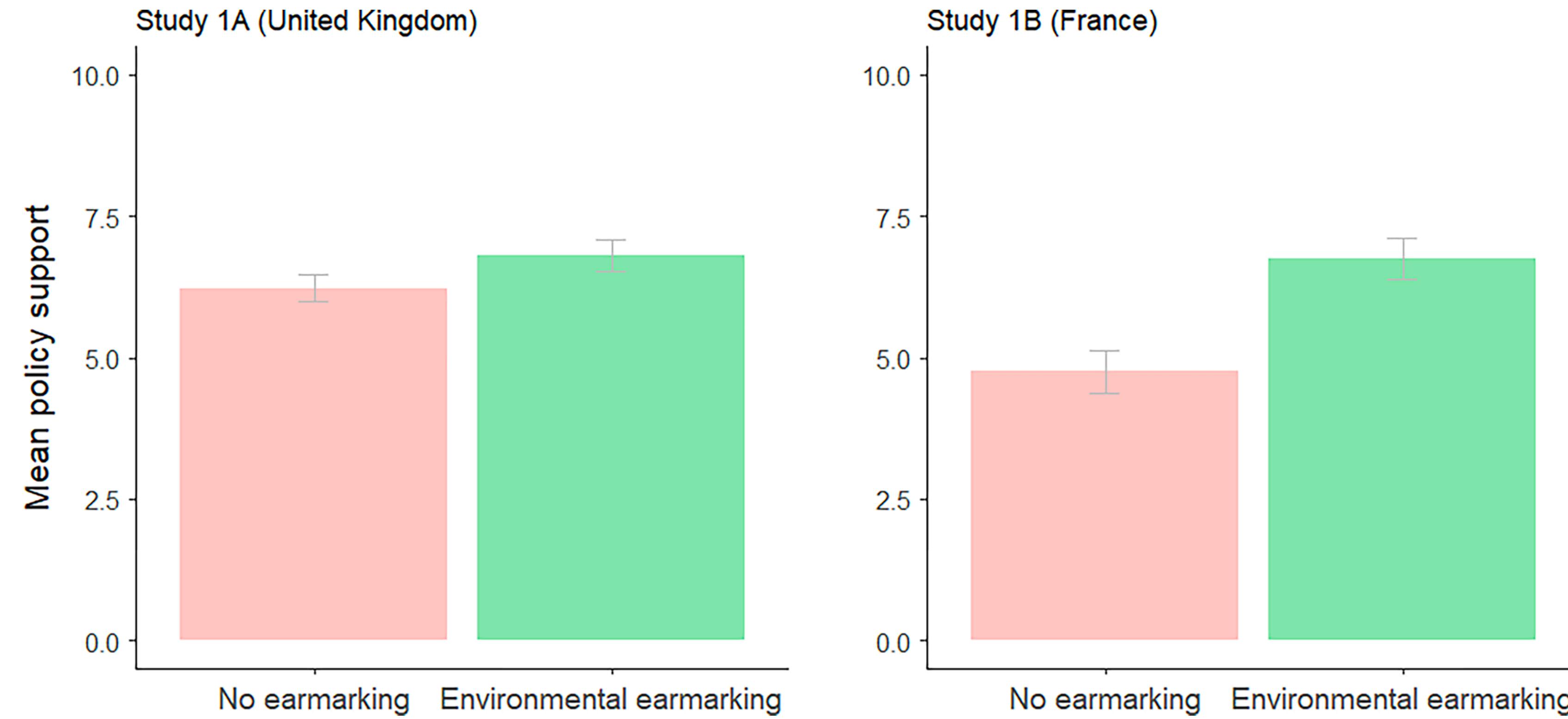
- Citizens apply mental accounting mechanisms to their personal budgets AND to the state budget
- Creation of a thematic link between the source of governmental revenues and their domain of allocation.
- «Deroubaix and Lévèque (2006) on samples of the French population showed that participants viewed it as “nonsensical” to use revenues from an energy tax to reduce labour taxes.

Our study



Results

- Replication of the preference for earmarking the revenues of the carbon tax vs. no earmarking



N = 289

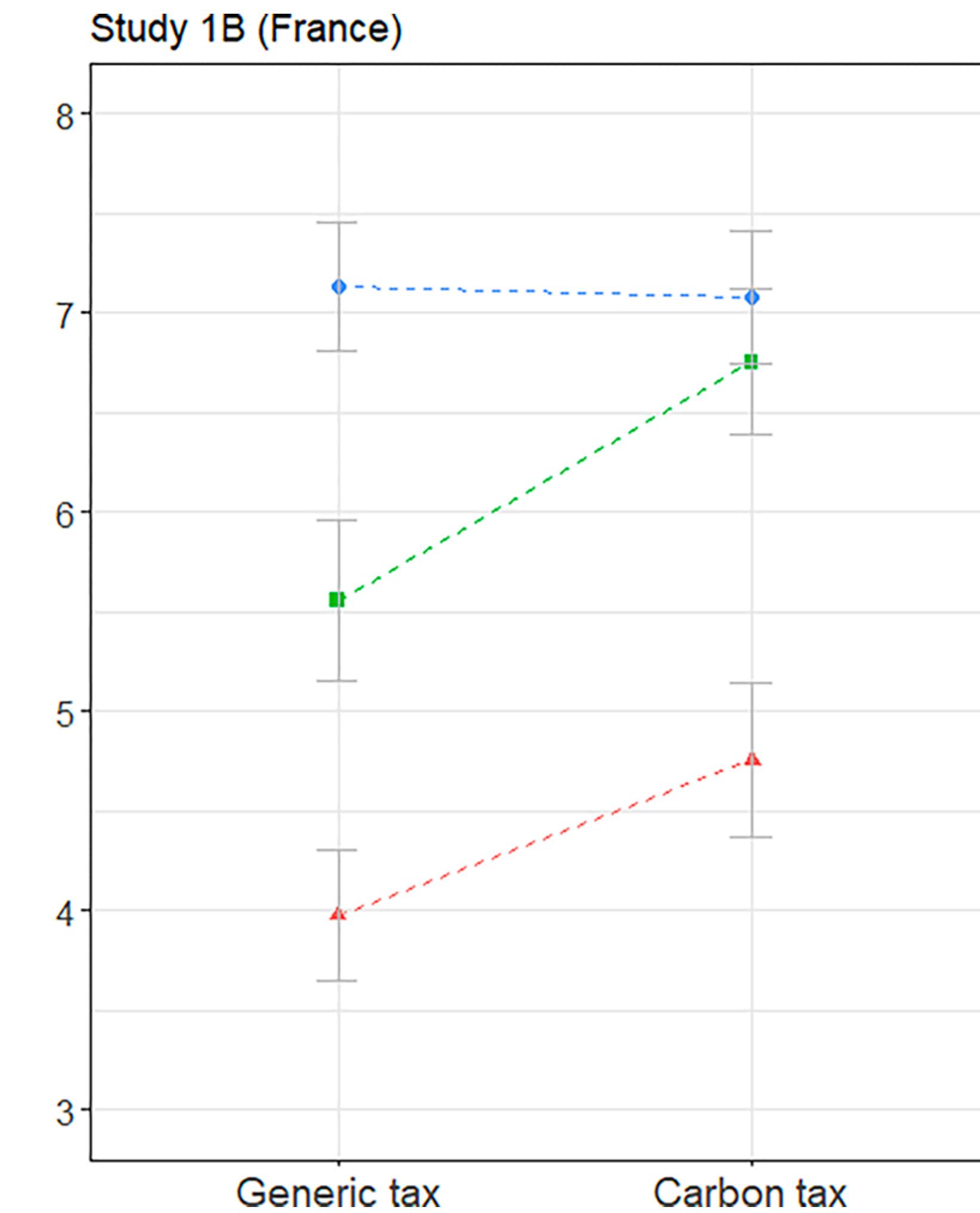
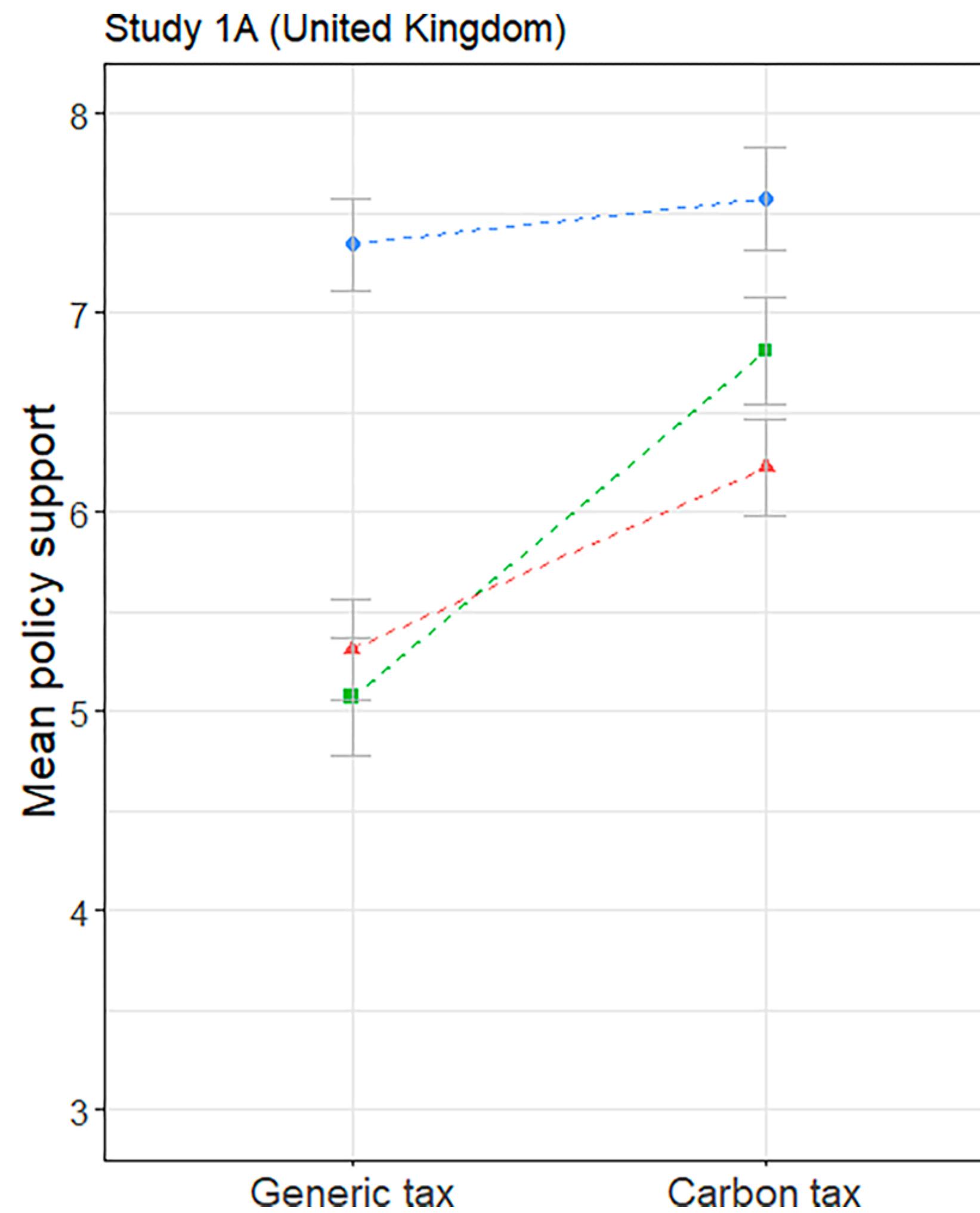
N = 418

Results



- Specific predictions of the mental accounting hypothesis:
 - Preference for a carbon tax whose revenues are earmarked towards environmental actions (matched earmarking) over a generic tax whose revenues are earmarked towards environmental actions (unmatched earmarking).

Results



Expenditure domain

- Preferred policy domain
- Environmental domain
- ▲ General budget

Results



- Specific predictions of the mental accounting hypothesis:
 - Preference for a carbon tax whose revenues are earmarked towards environmental actions over a generic tax whose revenues are earmarked towards environmental actions.
 - Overall preference to allocate revenues for people's preferred public action domain compared to the environmental domain
 - This relative advantage disappears when the revenues are generated by a carbon tax (vs. a generic tax).
 - .

Conclusion

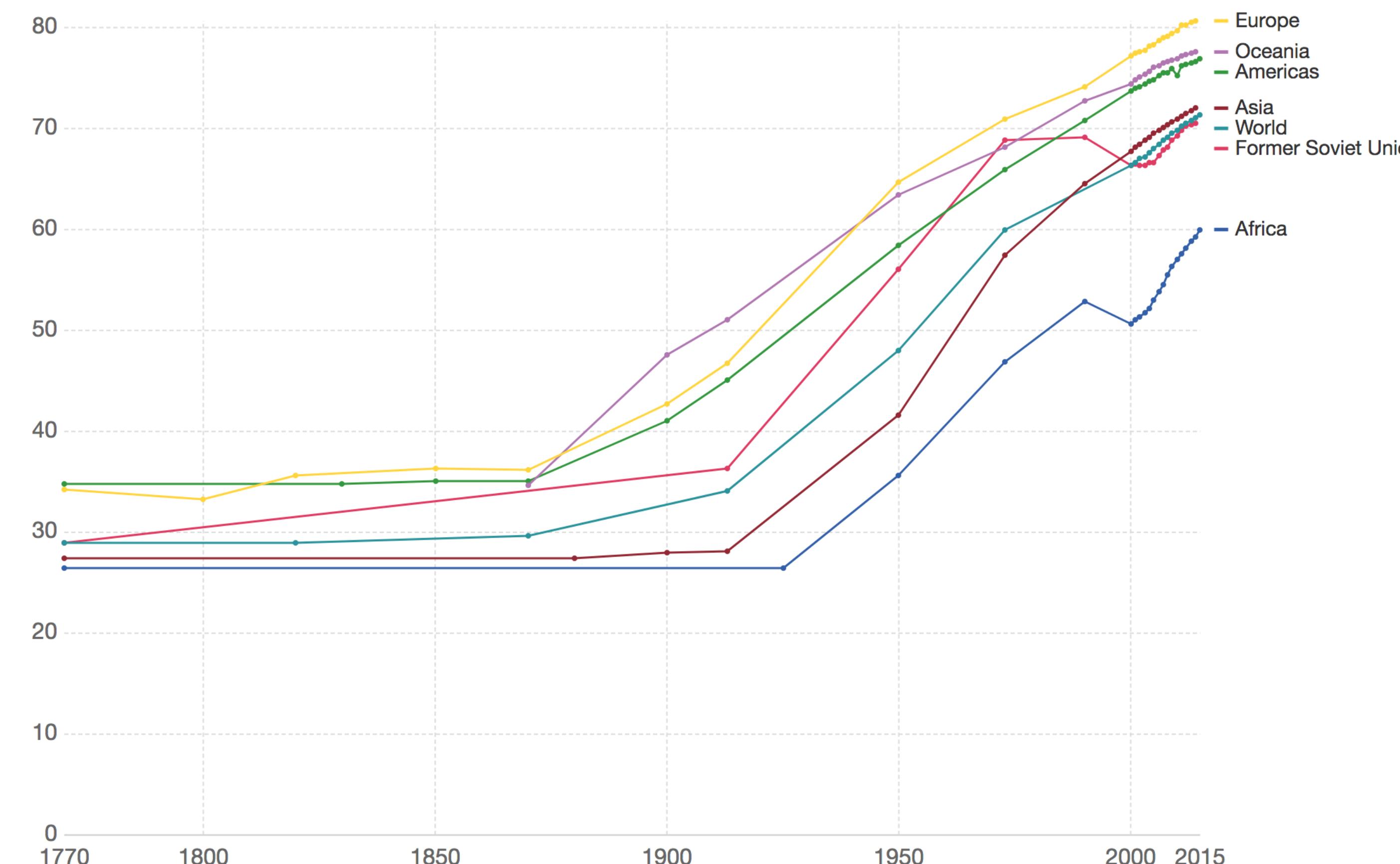
- Mental accounting heuristic => specific preference for the earmarking of revenues that matches the source of the tax and the domain in which it is used
- Earmarking is an inefficient practice and it is contrary to some of the fundamental rules in budgetary law
- ... but it is powerful psychologically.

Cognition sociale et santé



La psychologie peut-elle sauver des vies ?

L'espérance de vie a doublé au cours du 20ème siècle



Source: Life expectancy – James Riley for data 1990 and earlier; WHO and World Bank for later data (by Max Roser)

OurWorldInData.org/life-expectancy/ • CC BY-SA

Quelles sont les nouvelles menaces pour la santé ?



L'Organisation Mondiale de la Santé estime que plus de la moitié des années de vie en bonne santé dans les pays de l'OCDE sont perdues pour des raisons comportementales (tabagisme, alcool, alimentation trop riche, accidents de voitures, etc.)

Psychologie et santé, quel rapport ?

En amont

- Tabagisme
 - Consommation d'alcool
 - Sédentarité
 - Mauvaise alimentation
- ...

Psychologie et santé, quel rapport ?

En amont

- Tabagisme
 - Consommation d'alcool
 - Sédentarité
 - Mauvaise alimentation
- ...

En aval

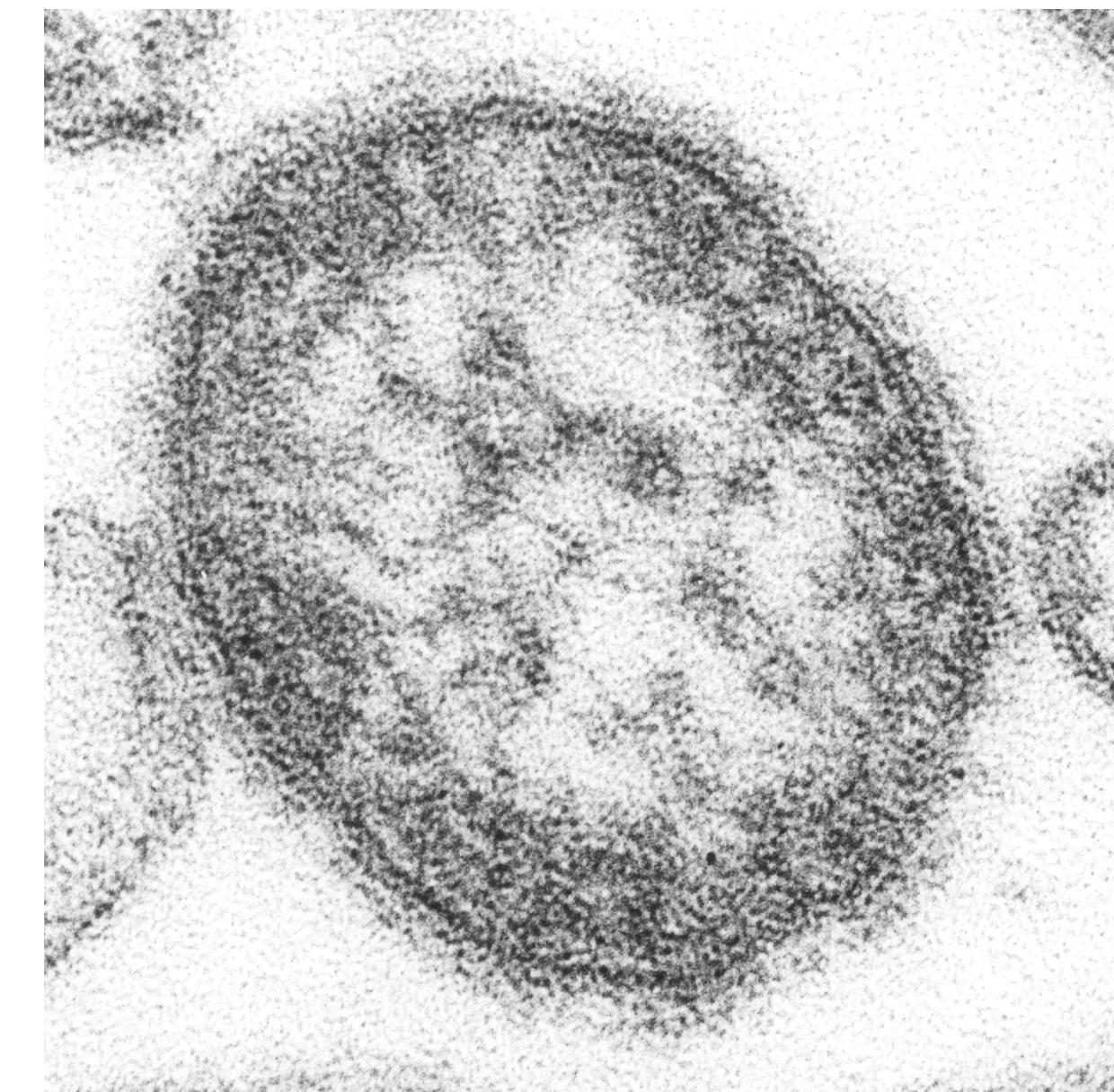
- Acceptabilité du traitement
 - Respect des posologies
 - Respect des durées de traitements
(en particulier pour les antibiotiques)
- ...

L'exemple de la vaccination

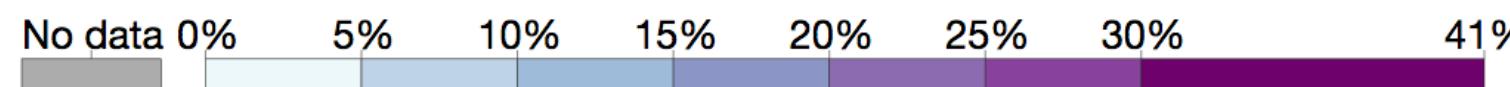
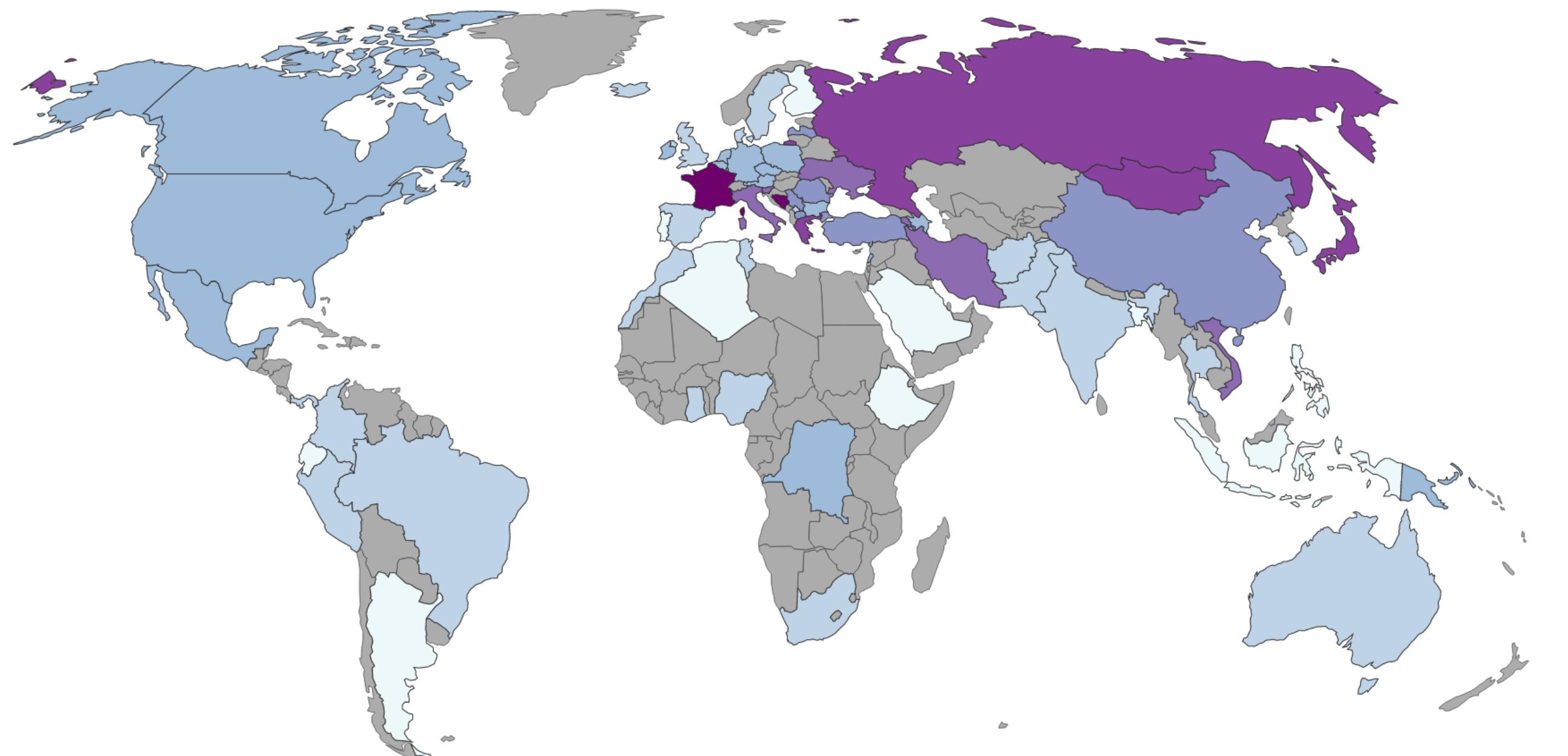
Virus de la rougeole :

- plusieurs milliers de morts par an sur le seul continent américain dans les années 1970 vs. zéro aujourd'hui.

Le **succès sanitaire de la vaccination** de masse est donc remarquable, à la fois par sa rapidité et par son ampleur.



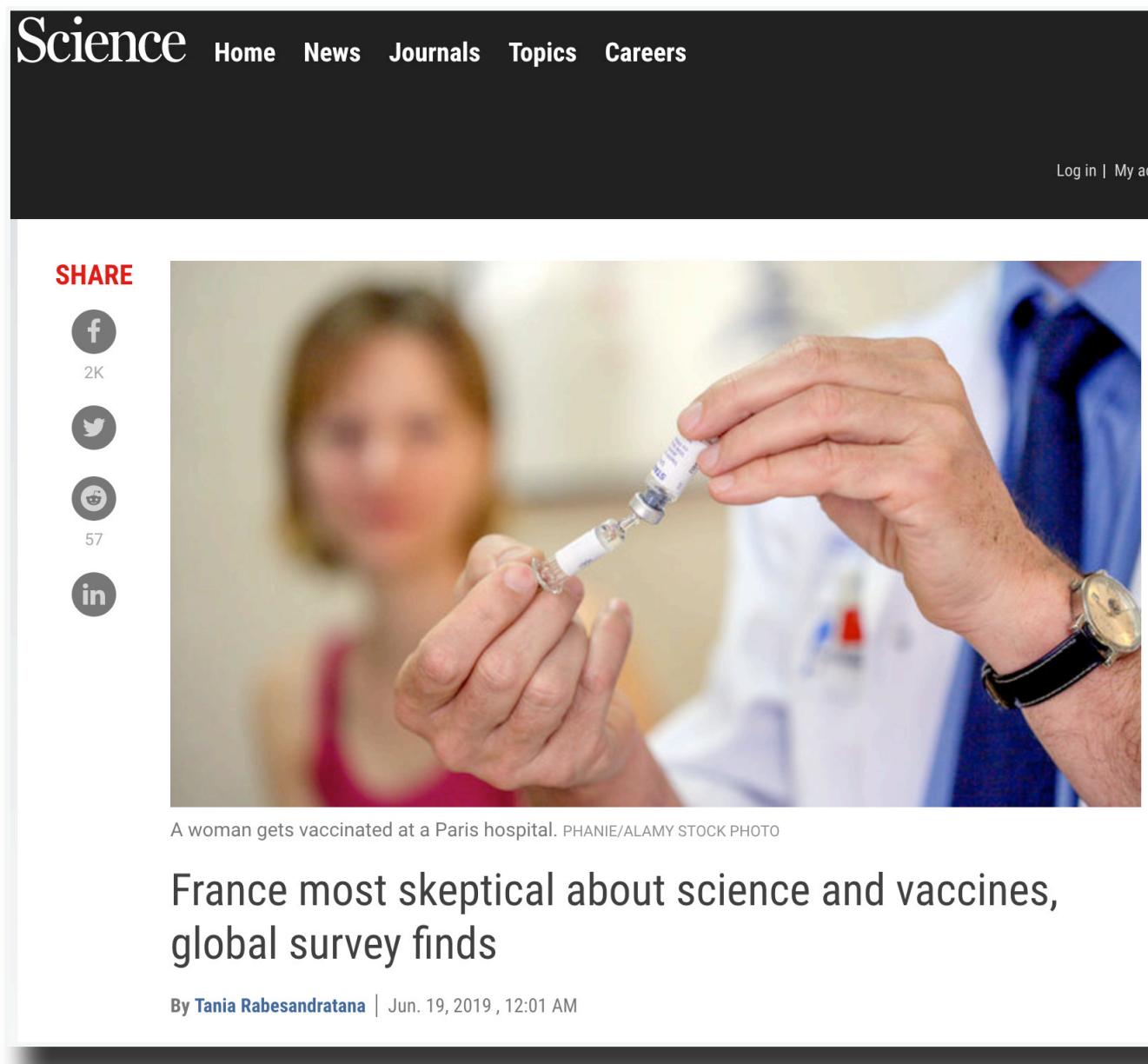
% de répondants qui pensent que les vaccins ne sont pas sûrs.



Source: Vaccine Confidence Project, Larson et al (2016)

OurWorldInData.org/vaccination/ • CC BY-SA

% de répondants qui pensent que les vaccins ne sont pas sûrs.



Premier kilomètre

Identifier la meilleure solution
Le « quoi faire »



Dernier kilomètre

Identifier la meilleure stratégie pour atteindre la cible
Le « comment faire »

Qu'est-ce qui rend un traitement acceptable ?
Comment faire en sorte que les gens passent de l'intention à l'action ?
Comment rendre les traitements accessibles ?

Premier kilomètre

VACCIN

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VACCINATION

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GÉNÉRALITÉS SUR LES
VACCINATIONS

LES MALADIES ET
LEURS VACCINS

LA VACCINATION AU
COURS DE LA VIE

VACCINATION ET MALADIES
CHRONIQUES

QUESTIONS
FRÉQUENTES

LES VACCINS
EXISTANTS EN FRANCE

[Accueil](#) > [Questions fréquentes](#) > Questions générales > Composition des vaccins > L'aluminium des vaccins est-il dangereux ?

L'ALUMINIUM DES VACCINS EST-IL DANGEREUX ?

PARTAGER SUR



Mis à jour le 22.01.2018

La plupart des **vaccins inactivés** dans le monde contiennent des adjuvants qui permettent au **système immunitaire** de répondre de manière efficace et donc de défendre l'organisme contre les infections ciblées par le vaccin. Les sels d'**aluminium** (phosphate et surtout hydroxyde d'aluminium) figurent parmi les adjuvants les plus utilisés dans le monde avec un recul d'utilisation de 90 ans et des centaines de millions de doses injectées.

Des interrogations sur le caractère inoffensif de l'aluminium des vaccins ont été maintes fois soulevées durant ces quinze dernières années ; mais compte-tenu des données disponibles à ce jour à l'échelle internationale, l'**innocuité** des sels d'aluminium contenus dans les vaccins ne peut être remise en cause.

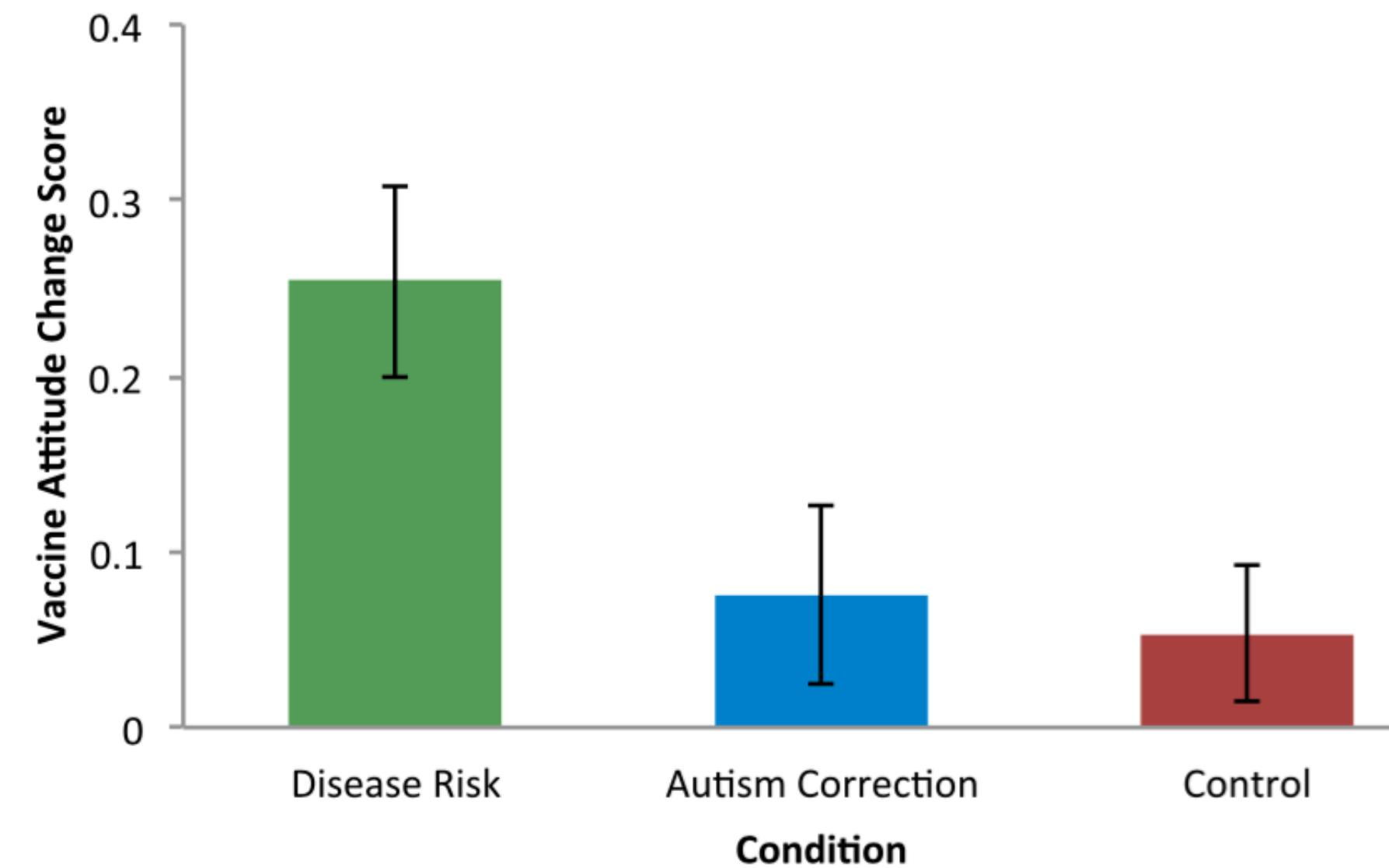
Des études, issues essentiellement d'une seule équipe dans le monde, ont investigué le lien entre la lésion au site d'injection contenant de l'aluminium dénommée « myofasciite à macrophage » et l'existence de symptômes à type de fatigue, douleurs musculaires ou articulaires ou de **troubles cognitifs**. L'analyse des résultats de ces études n'a pas permis de démontrer l'existence d'un lien.

Campagnes de communication pour le grand public : leviers et limites

- Effets modestes (voire nuls) des campagnes de communication (Mercier, 2020)
- Leviers dont l'efficacité a été prouvée pour favoriser la vaccination :
 - Motivation à être altruiste (Shim et al., 2012)
 - Activer le regret que chacun aura à ne pas s'être fait vacciné s'il tombe malade ou contamine quelqu'un (Brewer et al., 2016)
 - Mettre l'accent sur les dangers de la maladie (Horne et al., 2015)

Informez sur les **risques de la maladie** plutôt que
rassurer sur les effets secondaires du vaccin

Informer sur les **risques de la maladie** plutôt que rassurer sur les effets secondaires du vaccin



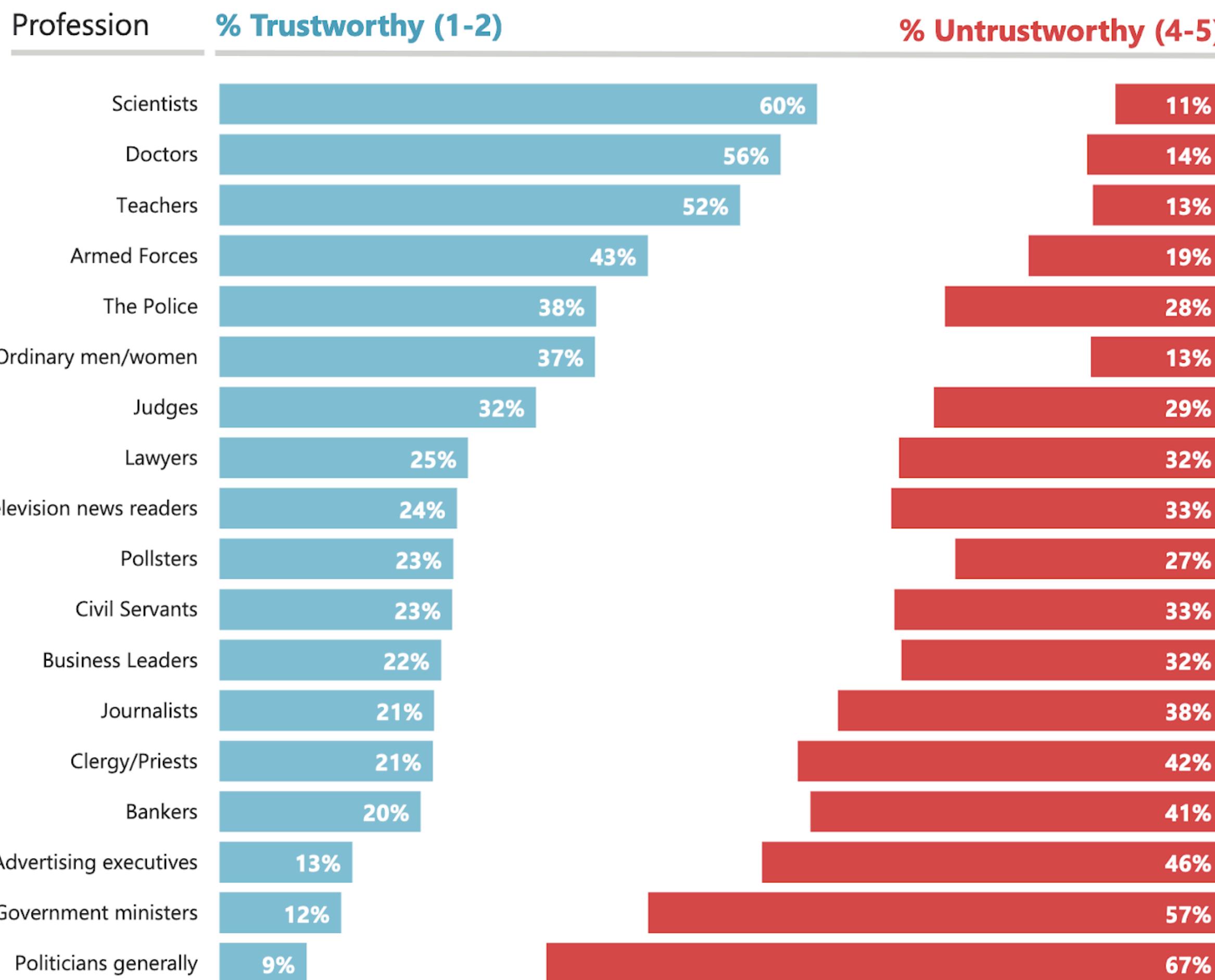
Horne, Z., Powell, D., Hummel, J. E., & Holyoak, K. J. (2015). Countering antivaccination attitudes. *PNAS*

Quand rassurer... inquiète

Les participants qui craignent les effets secondaires du vaccin contre la grippe ont moins de chance de se faire vacciner après avoir lu des informations rassurantes sur le vaccin !

Nyhan B, Reifler J (2015) Does correcting myths about the flu vaccine work? An experimental evaluation of the effects of corrective information. *Vaccine* 33(3):459–464

Les personnels de santé et les chercheurs comme tiers de confiance



Base: 19,587 online adults aged 16-74 across 23 countries

Communication vers le grand public : leviers et limites

- La discussion avec des tiers de confiance est plus efficace
- Le taux de vaccination contre le papillomavirus humain passe de 2% à 38% chez les garçons dont les parents ont reçu une recommandation par un professionnel de santé (Reiter et al. 2013)
- Les pourcentage de personnes déclarant qu'elles ne se feraient pas vacciner contre le H1N1 est passé de 75% à 55% grâce à une conversation avec un expert (Chanel et al. 2011).
- Problème : difficile de passer à l'échelle et de garantir à toutes les personnes de pouvoir avoir une conversation individuelle avec un médecin pour chaque vaccin...



Information Delivered by a Chatbot Has a Positive Impact on COVID-19 Vaccines Attitudes and Intentions

Sacha Altay¹, Anne-Sophie Hacquin¹, Coralie Chevallier², and Hugo Mercier¹

¹ Institut Jean Nicod, Département d'études cognitives, ENS, EHESS, PSL University, CNRS

² LNC, Département d'études cognitives, Ecole normale supérieure, Université PSL, INSERM

The Coronavirus disease; COVID-19 vaccines will not end the pandemic if they stay in freezers. In many countries, such as France, COVID-19 vaccines hesitancy is high. It is crucial that governments make it as easy as possible for people who want to be vaccinated to do so, but also that they devise communication strategies to address the concerns of vaccine hesitant individuals. We introduce and test on 701 French participants a novel messaging strategy: A chatbot that answers people's questions about COVID-19 vaccines. We find that interacting with this chatbot for a few minutes significantly increases people's intentions to get vaccinated ($\beta = 0.12$) and has a positive impact on their attitudes toward COVID-19 vaccination ($\beta = 0.23$). Our results suggest that a properly scripted and regularly updated chatbot could offer a powerful resource to help fight hesitancy toward COVID-19 vaccines.

Public Significance Statement

Interacting a few minutes with a chatbot answering the most common questions about COVID-19 vaccines increased people's intention to get vaccinated and had a positive impact on their attitudes toward the vaccines. Chatbots could be a powerful resource to fight COVID-19 vaccines hesitancy.

09:51
◀ Messages

4G

AA

Non sécurisé — 51.210.106.163



Vaccin COVID



Bonjour, je suis un chatbot.

Avez-vous des questions sur le futur
vaccin pour la COVID-19 ?

15/12/2020 09:50

Sera-t-il efficace ?

15/12/2020 09:50



Bonjour, je suis un chatbot.

Avez-vous des questions sur le futur
vaccin pour la COVID-19 ?

15/12/2020 09:51

Sera-t-il efficace ?

15/12/2020 09:51



Les scientifiques du monde entier se
mobilisent pour créer et tester un
vaccin sûr et efficace contre le Sars-
CoV-2. De nombreux vaccins sont à
l'étude dans les laboratoires du
monde entier, à différentes étapes
de développement.

Veuillez choisir parmi les choix ci-dessus

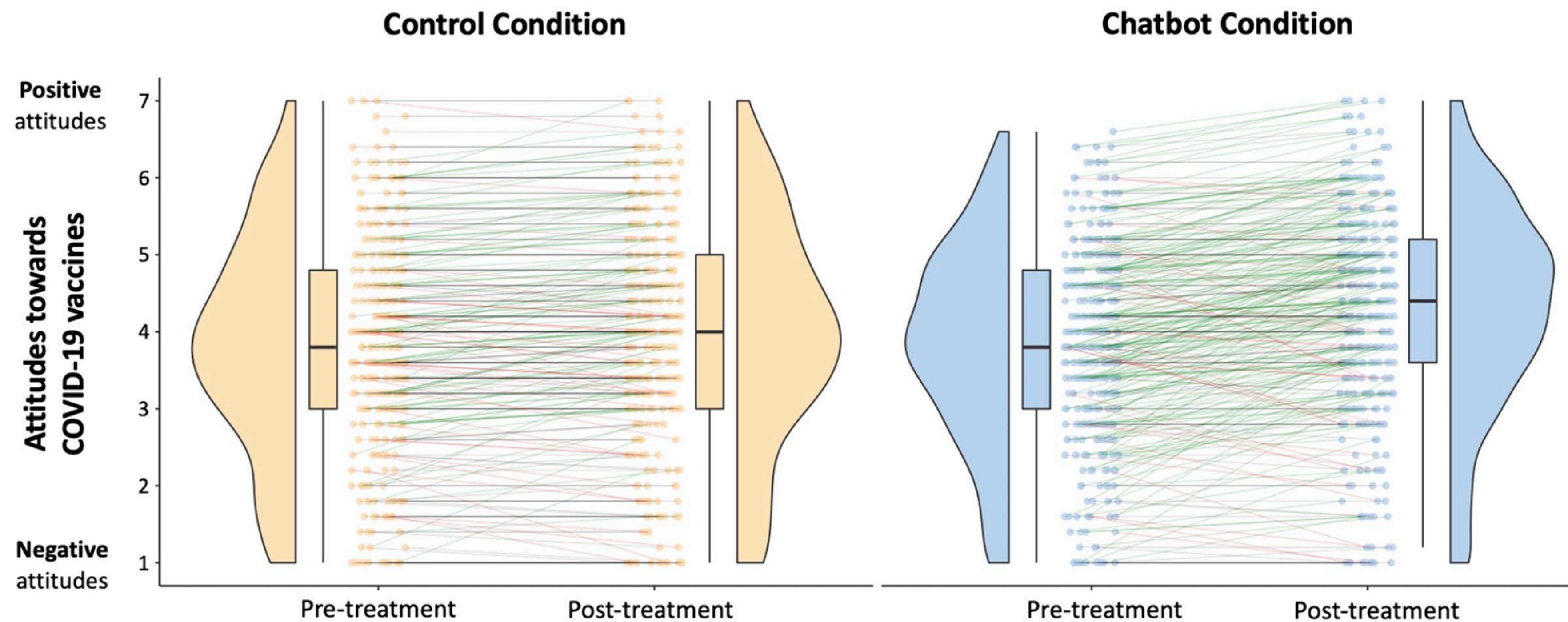


Résultats

- N = 338 dans le groupe chatbot
- N = 305 dans le groupe contrôle (lecture d'un court paragraphe d'information sur les vaccins contre le Covid-19)
 - le nombre de participants ayant une opinion positive des vaccins a augmenté de 37 % parmi ceux qui ont échangé quelques minutes avec le chatbot.
 - 20% de refus vaccinal en moins dans le groupe chatbot
 - 50% des personnes ayant interagi avec le chatbot a ensuite essayé de convaincre des proches de se faire vacciner ; et parmi ces participants, les trois-quarts ont déclaré avoir utilisé des informations fournies par le chatbot.

Figure 3

Evolution of Participants' Attitudes Toward the COVID-19 Vaccines in the Chatbot Condition and the Control Condition (Wave 1)



Note. Gray lines represent participants whose attitude toward the COVID-19 vaccines was similar after the treatment and before (i.e. a change of at most of a point on the COVID-19 vaccines attitude scale). Among the other participants, green (resp. red) lines represent participants whose attitude toward the COVID-19 vaccines was more positive (resp. negative) after the treatment than before. See the online article for the color version of this figure.

Interventions to reduce vaccine hesitancy among adolescents: a randomized controlled trial

Noëmon Baudouin, (Institut Jean Nicod)

Sophie de Rouilhan (Institut Jean Nicod)

Elise Huillery, (LEDa, Université Paris-Dauphine)

Elena Pasquinelli (Institut Jean Nicod, Fondation La main à la pâte.)

Hugo Mercier & Coralie Chevallier (Institut Jean Nicod, CNRS)

Motivations

Why should we care about adolescents' attitudes?

Research gap: adolescents' attitudes towards vaccines

- Most studies only focus on HPV vaccination (Cadeddu et al., 2021 ; Mitchell et al., 2022).

Research gap: adolescents' attitudes towards vaccines

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- Adolescents
 - want to participate in decision-making (Wang et al., 2016 ; Pelullo & Guiseppe 2018)

Research gap: adolescents' attitudes towards vaccines

- Most studies only focus on HPV vaccination (Cadeddu et al., 2021 ; Mitchell et al., 2022).
- Adolescents
 - want to participate in decision-making (Wang et al., 2016 ; Pelullo & Guiseppe 2018)
 - want more information(Griffin et al., 2018 ; Mitchell et al., 2022).

Adolescence is a pertinent intervention window

- A pre-bunking opportunity? (Bruns et al., 2024 ; Vivon et al., 2022)

Adolescence is a pertinent intervention window

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- Once adult, some attitudes are very stable (Algan et al., 2021)

Adolescence is a pertinent intervention window

- A pre-bunking opportunity? (Bruns et al., 2024 ; Vivon et al., 2022)
- Once adult, some attitudes are very stable (Algan et al., 2021)
- School context makes it easy to implement interventions

Our approach

Our approach

Pedagogical activities



Chatbot



Pedagogical activities

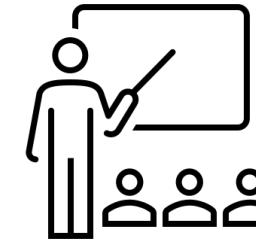


- Intervention built by *La main à la pâte*
- Based on **guided inquiry**
(Lazonder et al., 2016)
- Highlight **scientific consensus** and the scientific method.



Contenu des activités

Séquences d'enseignement



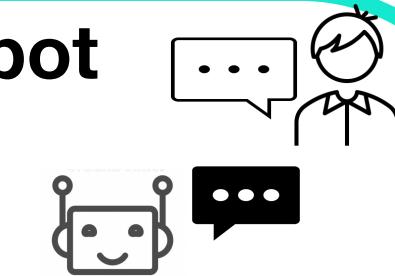
Vaccins – comment sont-ils testés?

- Les tests auxquels sont soumis les vaccins (vidéo)
- Activité d'élaboration d'un protocole d'essai clinique
- Quelle confiance donner à une information?

Comprendre les enjeux de la vaccination

- Le rôle de la vaccination pour prévenir des maladies (vidéo, graphiques)
- Comment identifier des sources fiables en matière de santé ?
- Activité d'enquête sur une mystérieuse flambée épidémique

Chatbot



- Un vaccin, c'est quoi?
- Les vaccins sont-ils efficaces?
- Les vaccins sont-ils dangereux?
- Et les vaccins contre le Covid-19?
- Comment trouver des informations fiables sur les vaccins?



Exemple : « Mystère à Disneyland »

Activité en groupe
Enquête sur une
épidémie de rougeole,
avec un livret
d'enquête et des
cartes pour « simuler »
l'épidémie



Chatbot



- Content is similar to pedagogical activities
- Discussion and argument exchange are effective information transmission methods
(Brand et al., 2022 ; Altay et al., 2023 ; Costello et al., 2024)



2022

2022



Kidivax

Voir toutes les informations

Accessibilité visuelle

Conformité →



Bonjour, aujourd'hui nous allons discuter de la vaccination. As-tu des questions au sujet de la vaccination ?

Un vaccin, c'est quoi?

Les vaccins sont-ils efficaces?

Les vaccins sont-ils dangereux ?

Et les vaccins contre le Covid-19 ?

Comment trouver des informations fiables sur les vaccins ?

Pourquoi devrais-je vous faire confiance ?

30/11/2022 11:32

Conçu et développé par la [Fabrique Numérique](#)



Mentions légales

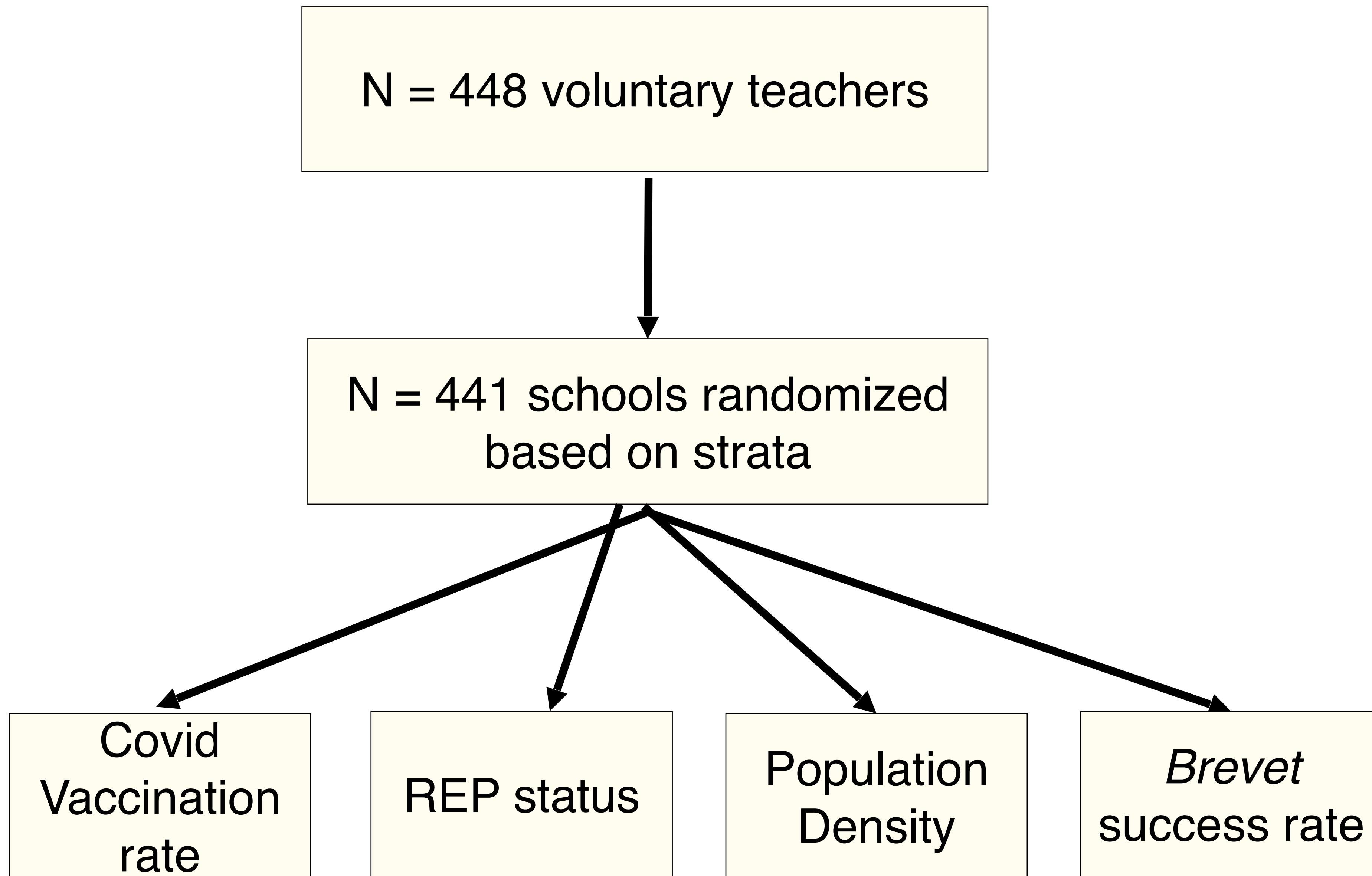
Our sample

N = 448 voluntary teachers



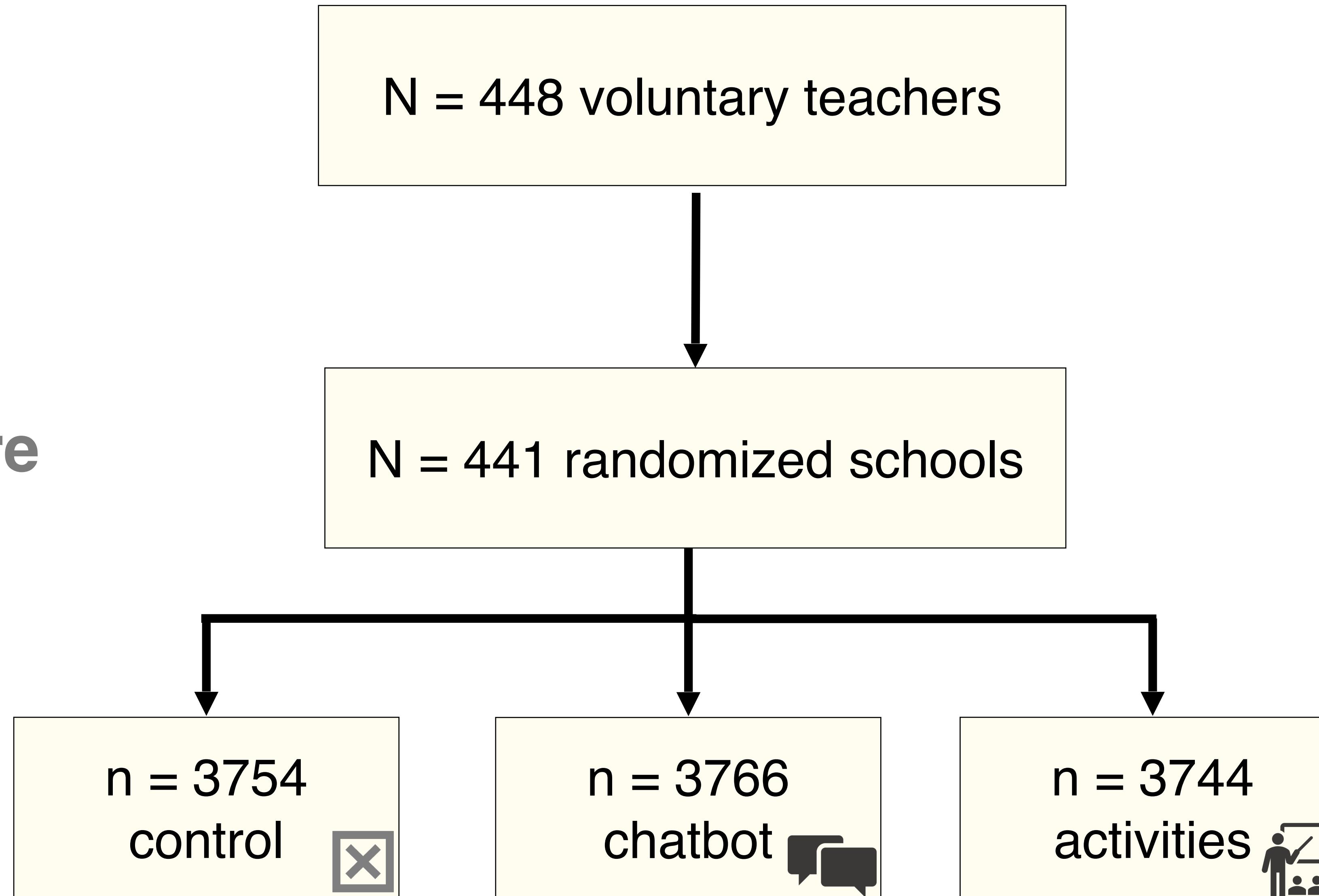
N = 441 schools randomized
based on strata

Our sample



Our sample

Novembre





Main hypotheses: treatments are effective

Both intervention improve **vaccination knowledge**

Both intervention improve **attitudes towards vaccines**

Both intervention improve **intention to get future vaccines**

Results

Main model

		
Knowledge		
Attitudes		
Intention		

Résultats – Interactions

				
Science curiosity				

~

Résultats – Interactions

						
Science curiosity						

Résultats – Interactions

Initial Attitudes						
Trust in Science						
Academic level						

Conclusions:

- Both interventions have a **sizeable effect** on **knowledge** and **attitudes**.
- All pupils benefit equally from the intervention
- Pedagogical activities have a more robust effect than chatbot.

Cognition sociale et immigration





SciencesPo



DEC
DÉPARTEMENT
D'ÉTUDES
COGNITIVES

Information About Immigrants' Deservingness Reduces Misperceptions and Opposition to Immigration

Amine Sijilmassi¹, Hugo Mercier¹, Lou Safra^{2*}, Coralie Chevallier^{2*}

Why are negative attitudes towards immigration so prevalent?

- People have **misperceptions** about immigrants. In particular, people overestimate...
 - their number and flow
 - their unemployment rate
 - their welfare dependency
 - Etc.
- A growing literature seeks to **correct these misperceptions** about the economic characteristics of immigrants, with limited results

The deservingness heuristic

- Humans help people in need (they do not only cooperate only with the most well-off)
- Helping behavior probably evolved as a strategy to buffer against risks: a form of social insurance (Petersen, 2012).
- But helping is only adaptive if individuals target their help at reciprocators and avoid cheaters (Axelrod 1984; Trivers 1971; Cosmides and Tooby 2005)
- Our social cognition attends to cues of cooperative motivations and capacity to reciprocate in the future in deciding whether to help (« the deservingness heuristic »)

Objectives

- Information provision intervention that aimed to reduce negative attitudes towards immigrant groups by leveraging the « deservingness heuristic »
- Instead of showing the *average socio-economic contribution* of immigrants...
- ...we highlighted the *cooperative motivations* and *positive social trajectories over time* as a cue of immigrants' deservingness

- We shared information about the fact that:
 - « Immigrants are primarily motivated by job opportunities and not by access to welfare »
 - « Non-French-speaking immigrants learn French rapidly »
 - « Unemployed immigrants find jobs quickly »
 - « Immigrants' children catch up with natives' children »

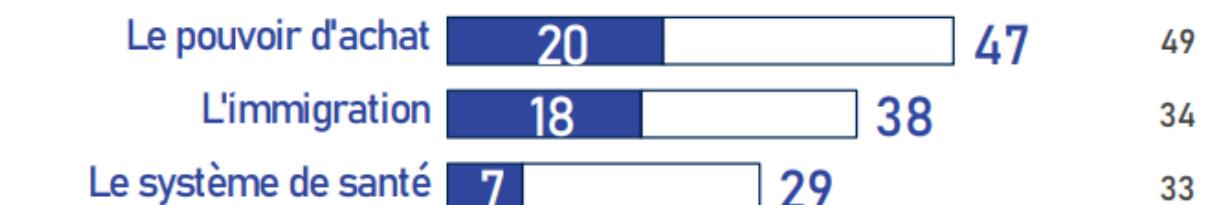
Study 2a: Information provision experiment



- Study 2a~1,506 French participants recruited online
- Highly salient political context: **the European election** (June 9th 2024)
 - Immigration was highly salient
 - Allowed us to measure voting behavior: we collected data right before and after the election (average time b/waves: 1 week)
 - Low attrition rate (15,6%)
- Participants randomly assigned to
 - **Treatment** => Information from public administrative sources showing that 1) Welfare is not an important motivation for immigrants who come to France 2) Immigrants learn French quickly 3) Immigrants find jobs quickly 4) Immigrants' children experience social mobility
 - **Control** => Information about French people' cultural and sports practices

Les sujets déterminants dans le choix du vote

Question : « Parmi les sujets suivants, quels sont les trois dont vous tiendrez le plus compte dans votre choix de vote pour les élections européennes du 9 juin prochain ? En 1er ? Et ensuite ? » (Base : Ensemble de l'échantillon) – Trois réponses possibles, résultats supérieurs à 100%
Au total « Avril 2024 »

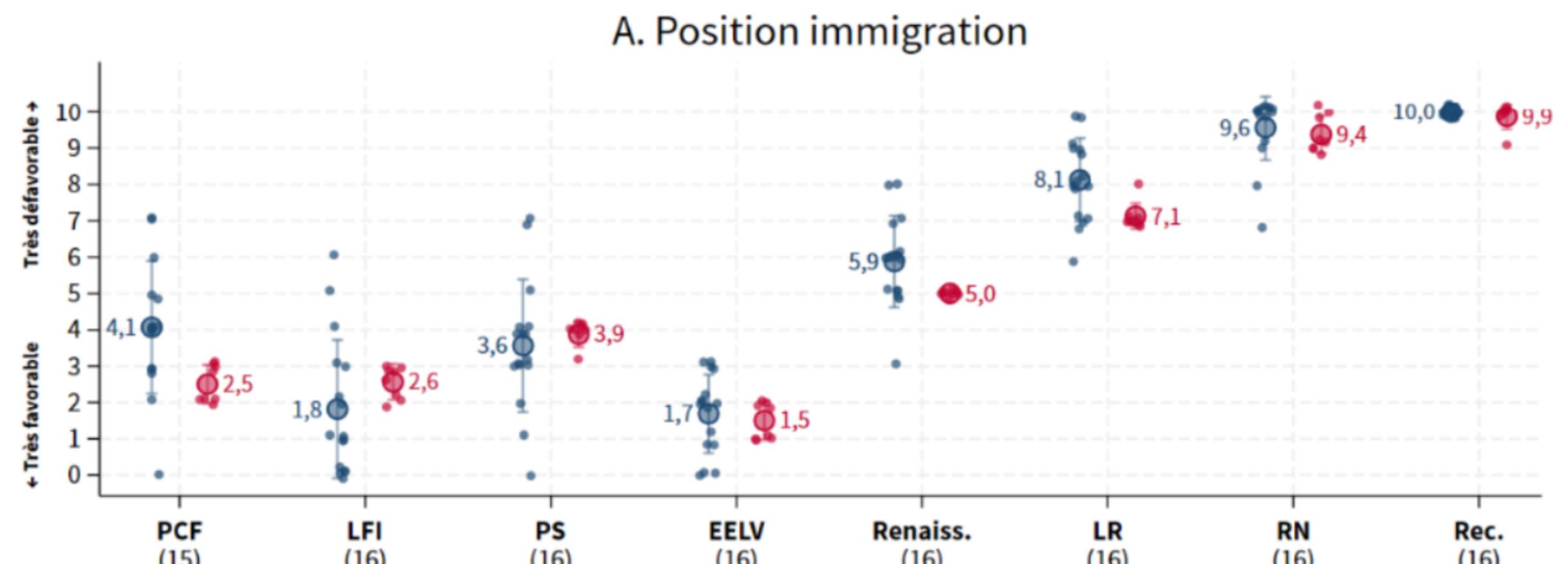


On arrival in France, immigrants tend to be unaware of and under-utilize the social benefits to which they are entitled. For example, almost half of all immigrants eligible for Aide Médicale d'Etat—which gives access to free medical care—do not apply for it. This figure is even higher among immigrants in poor health (source: IRDES, 2019). More generally, immigrants are less aware of the public assistance to which they are entitled than non-immigrant French citizens (source: DREES, 2023). The extent of unawareness and non-use of public assistance suggests that access to it is not one of the major motivations for immigrants choosing to settle in France.

Outcome variables

- Misperception about immigration: 4 items (Welfare; Language; Employment; Children's success): coded 1 if the participant held the negative belief and 0 if they did not
- Opposition to immigration (1-5 Likert scale): « Would you like the number of immigrants who come to France every year to... » [1: Increase a lot; 2: Increase; 3: Remain the same; 4: Decrease; 5: Decrease a lot]
- « Far-right vote »: coded 1 if intention to vote for RN or R!
- « Anti-immigration ideology score » attributed to the most important parties based on an expert survey (n=20) (CEVIPOF, 2024) (we took the score in blue)

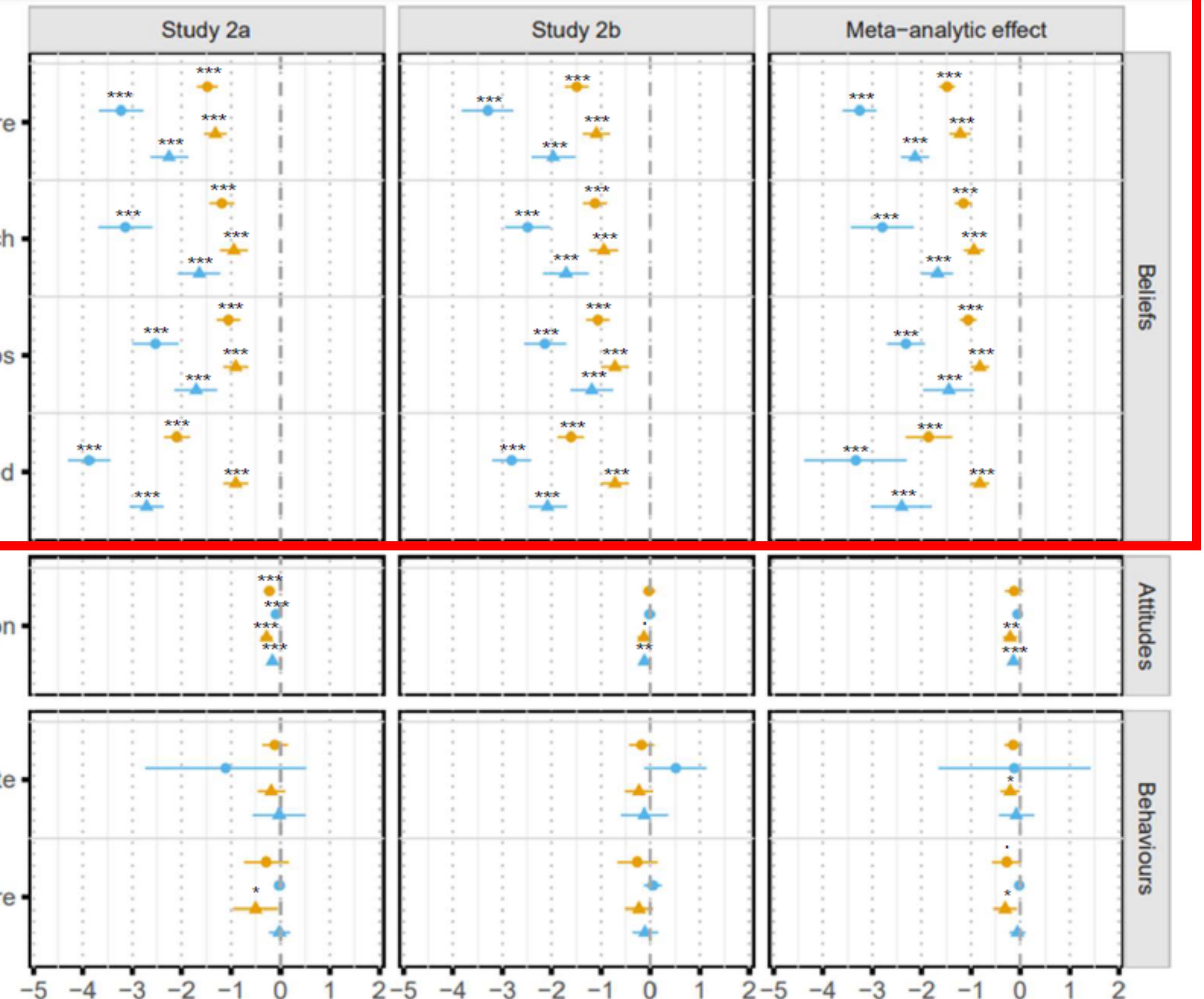
Figure 3 : Positionnement des partis sur les enjeux précis



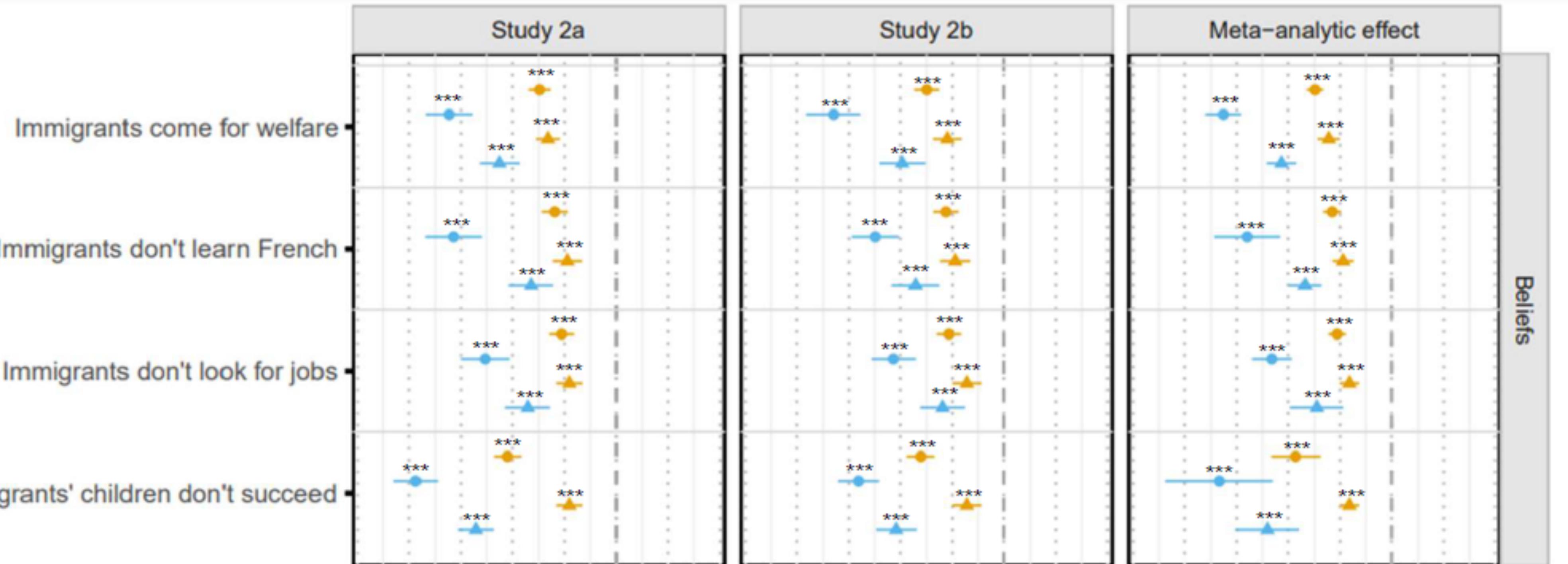
Replication (Study 2b)



- Unexpectedly, we could replicate our study 3 weeks after Study 2a, with the anticipated parliamentary election that took place in late June/early July 2024
- N = 1,255
- We used exactly the same design, right before and right after the 1st round of the election (June 30th) (average time between waves: 1 week)
- Attrition rate = 30%

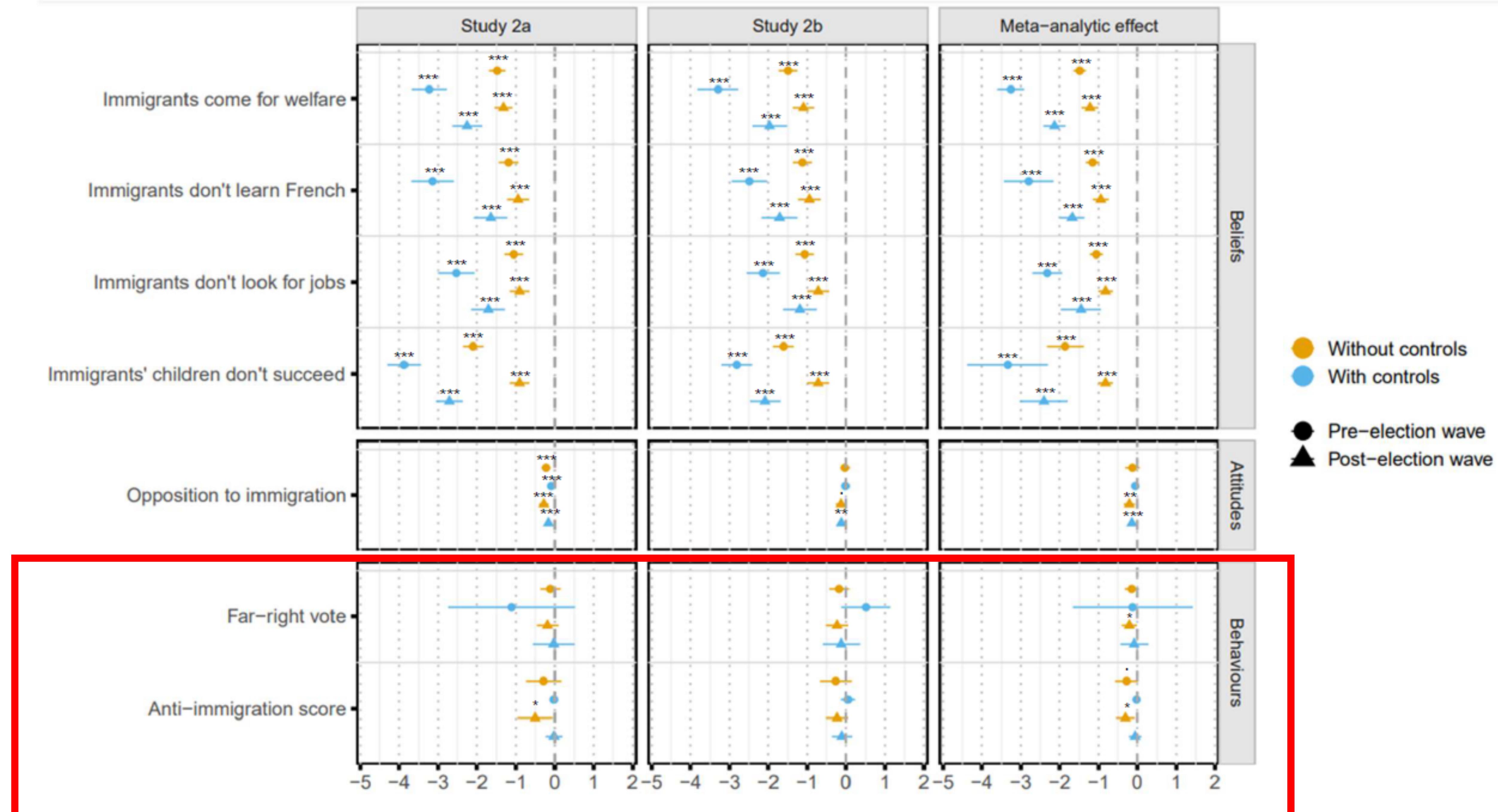


- Without controls
- With controls
- Pre-election wave
- ▲ Post-election wave



- Without controls
- With controls
- Pre-election wave
- ▲ Post-election wave





Cognition sociale et éducation



Mélusine Boon-Falleur



Elise Huillary



Understanding the socioeconomic gradient in patience: evidence from higher-education choices

Mélusine Boon-Falleur, Elise Huillery, Coralie Chevallier

Submitted as registered report. Available at: <https://osf.io/zxa6g>

Motivation

- Poverty is associated with less patient behaviours in experimental contexts.
- Recent meta-analysis: 248 effects collected from 70 independent studies involving more than 35,000 people
=> confirmed that people who grew up in an adverse environment were more likely to favour immediate rewards in laboratory experiments (Wu, Guo, Gao, & Kou, 2020).
- Yet, evidence for this phenomenon is mainly drawn from behavioural lab experiments

Waiting behavior in the field

- Many life outcomes present a trade-off between an immediate smaller reward and a potential larger reward in the future
 - cheaper credit, a higher paying job, a better located house, a place at a more selective university
- Small waiting decisions can ultimately have large effects on people's lives because of compounding effects
 - e.g. peoples' first salary has a long-lasting effect on their earnings (« wage scarring »)
- Small differences in the selectivity of the university students attend can have long lasting effects on their earnings

Investing in education: benefits

Private benefits:

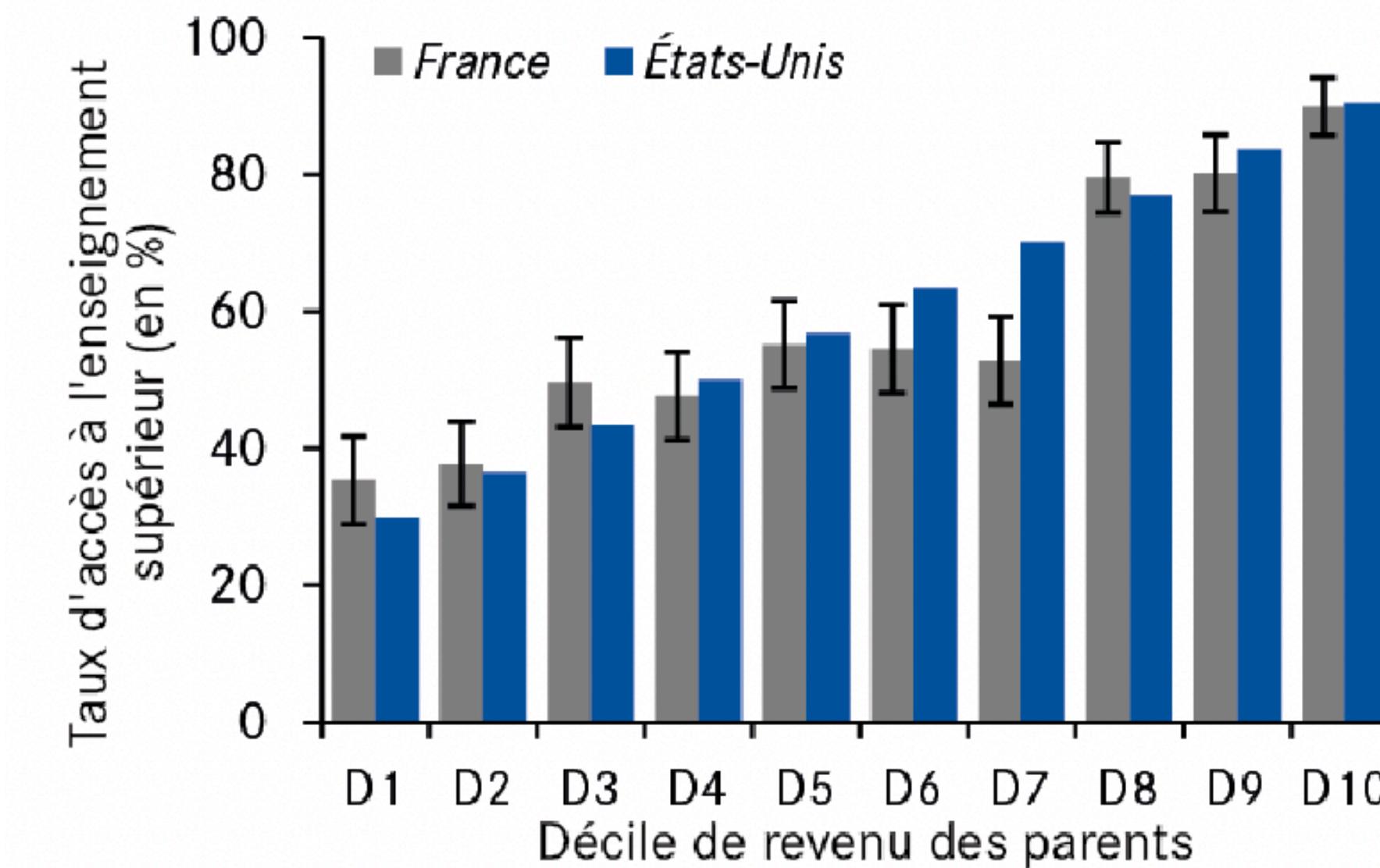
- Returns to higher education are important.
 - In France, one extra year of higher education yields +14% of salary (ie +50% for a master degree, Fack & Huillery, 2021)
- Decreased unemployment
- Increased life satisfaction and well-being.

Public benefits:

- A 10% increase in a region's number of universities per capita is associated with 0.4% higher future GDP per capita in that region (Valero & Van Reenen, 2019)
- Direct investments in low-income children's health and education have the highest marginal value of public funds (Hendren & Sprung-Keyser, 2020)
Many **education policies pay for themselves.**

Social gradient in access to higher education

- Youths from the top income decile are 2.5 times more likely to access higher education than youths from the bottom decile.
- The gap is identical in the US and in France despite vastly different university systems (high-tuition, high-aid vs. low-tuition, low-aid model)

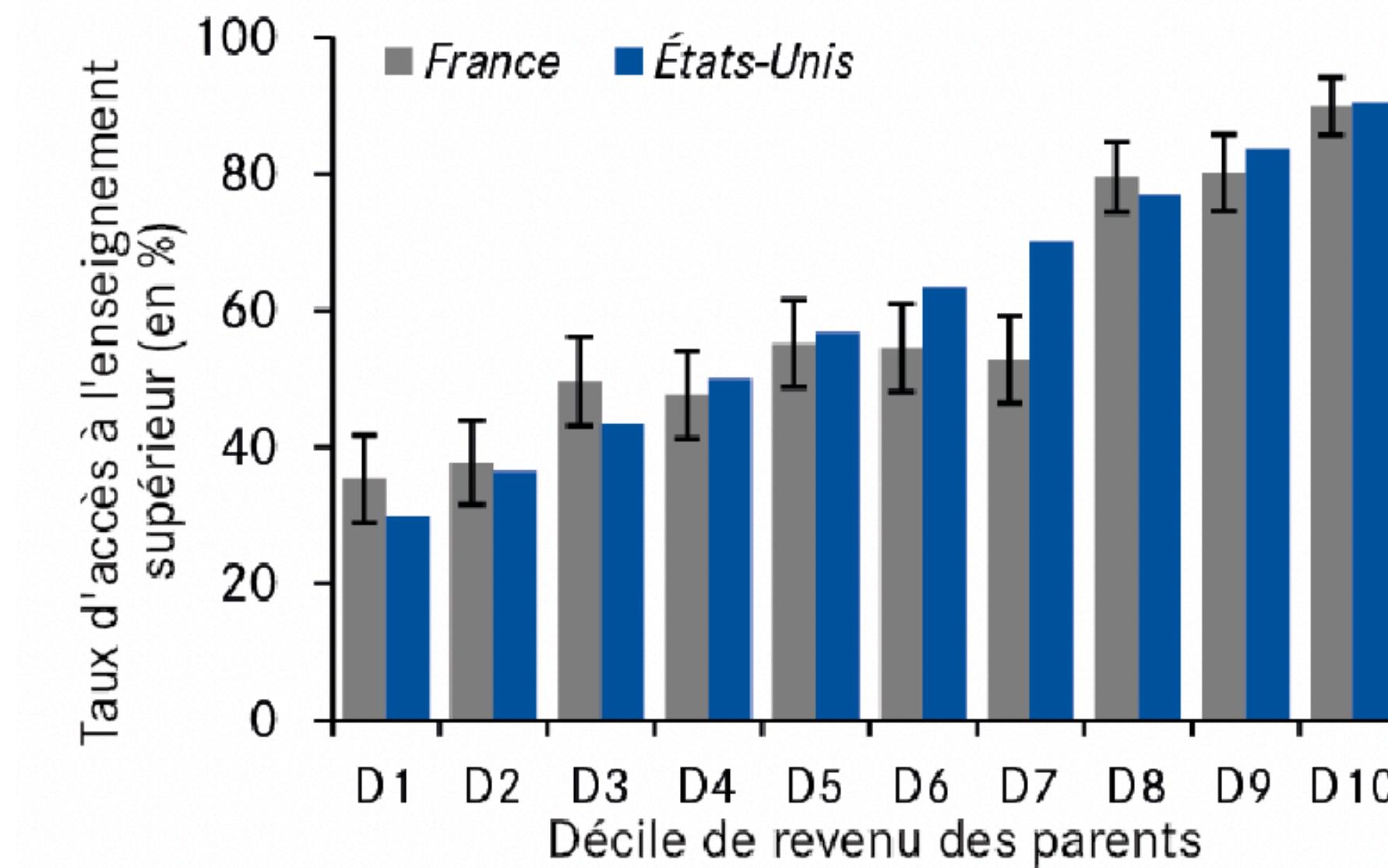


Lecture : Près de 90 % des individus dont les parents appartiennent au décile supérieur des revenus ont accès aux études supérieures, en France comme aux États-Unis. Les intervalles de confiance calculés dans le cas français sont représentés par les barres noires.

Sources : Bonneau et Grobon (2021) *op. cit.* pour la France, et Chetty et al. (2014) *op. cit.* pour les États-Unis.

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- Maximum of 180€ tuition fees / year



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Our study

- Goal: Test socioeconomic differences in patience in a large-scale real-life setting involving higher-education decisions.
- An ideal test case in France: A single **centralised higher-education platform**, “Admission post-bac”, is used to match every pupil to higher-education programmes in the entire country.
- During the admission process, students face **a trade-off**: they can either accept an offer during the first admission round, or they can wait in the hope of receiving a preferred offer in a subsequent round.
- **Overall hypothesis:** if lower SES students are less patient, this will have observable and detrimental consequences in this specific decision-making process

A word about the French higher-education system

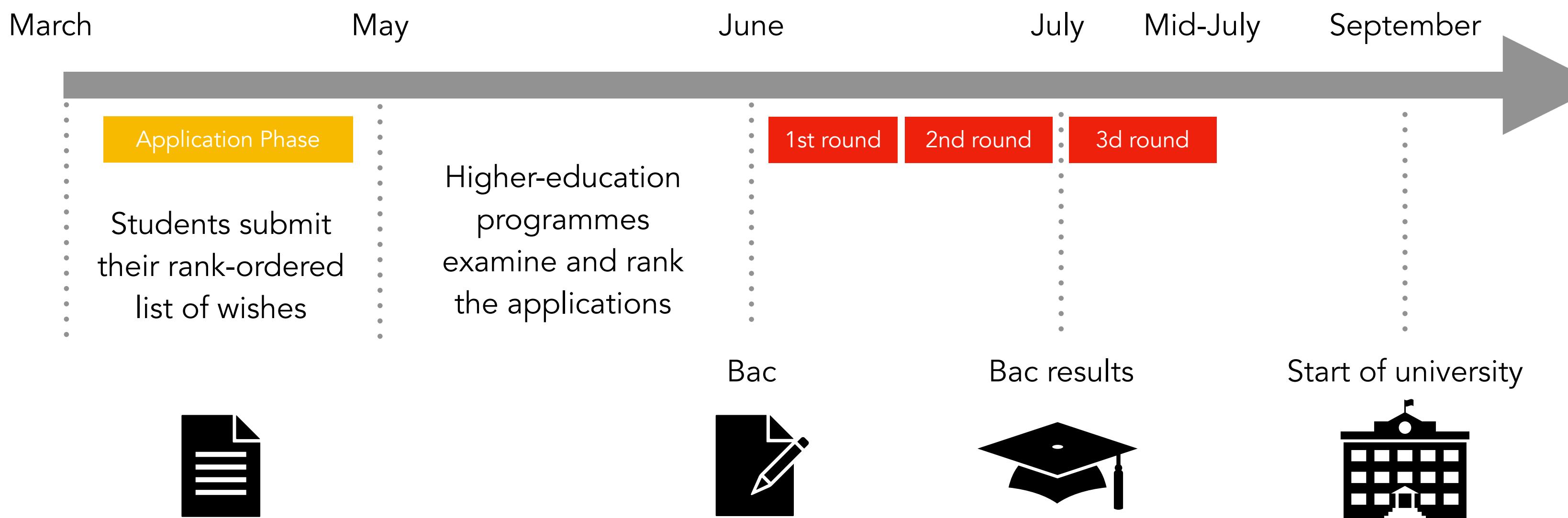
- School is compulsory until the age of 16. Children aged 15-18 go to high school and choose between 3 types of tracks:
 - 'General track' typically prepares for university education
 - 'Technological track' typically prepares for short higher-education programmes
 - 'Professional track' typically prepares for a vocational career
- At the end of high school, all students take a centralised final exam called the **Baccalaureate (aka « Bac »)**, whose content varies according to the student's track.

The « Admission post-bac » platform

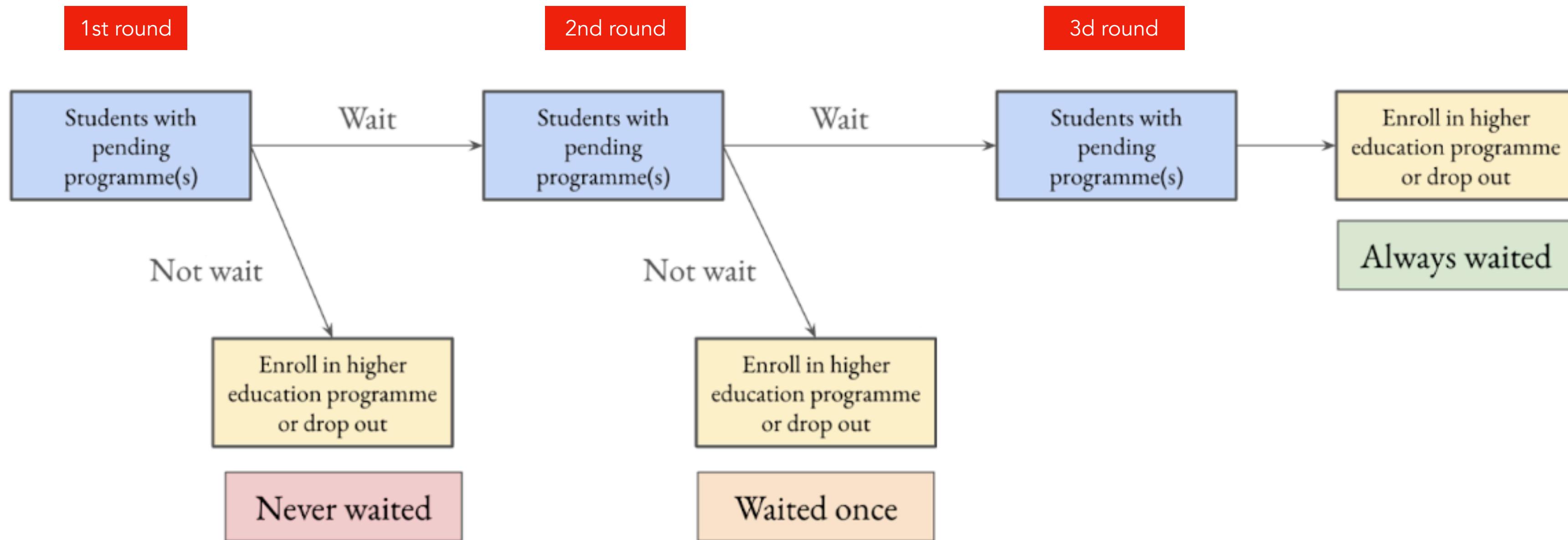
- 12,000 higher-education programmes
- 800,000 applicants every year
- Phased matching algorithm following a national timeline:

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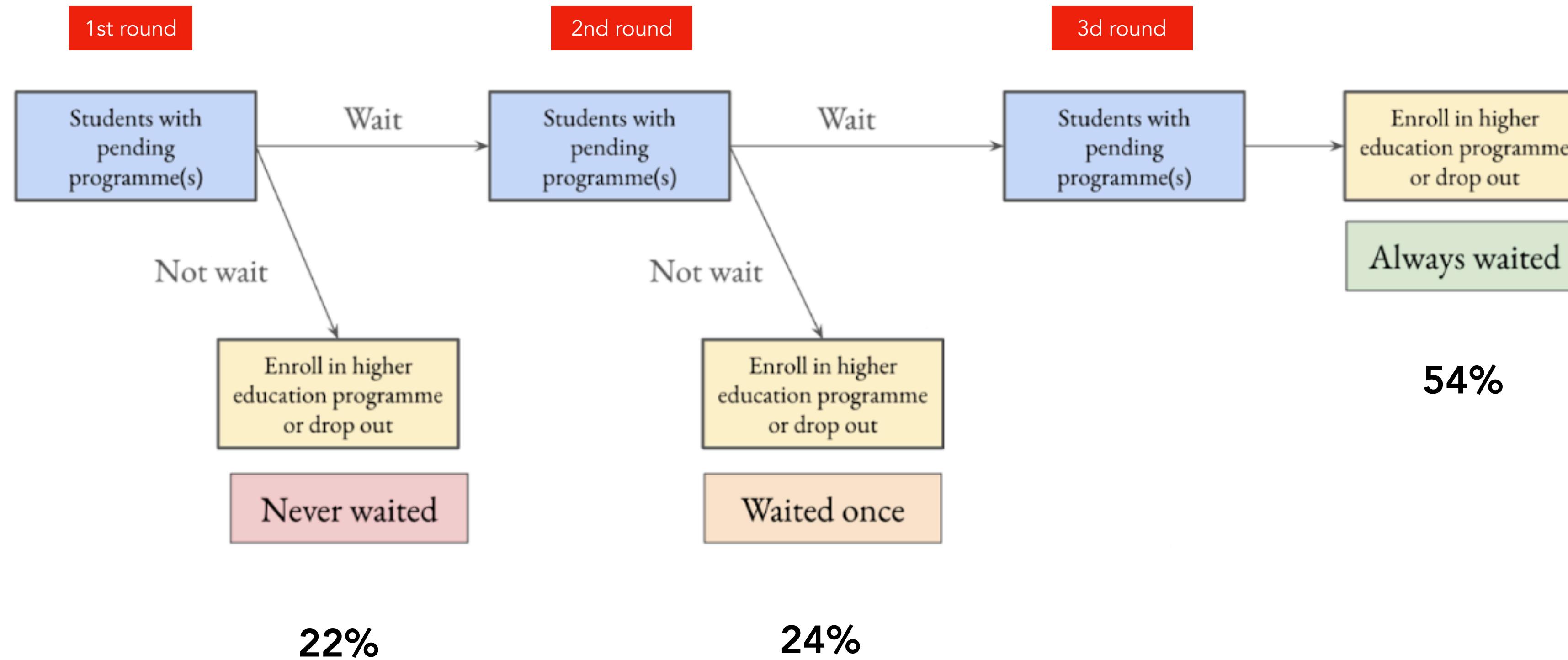


The « Admission post-bac » process



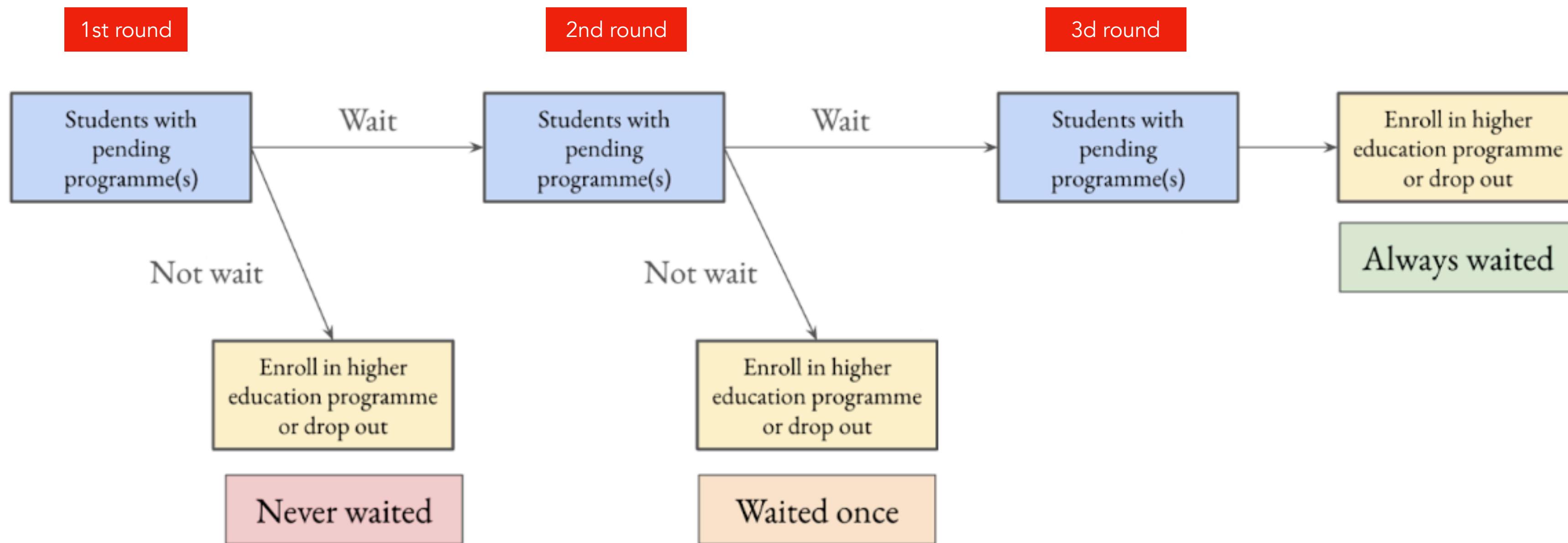
- 2015 Admission Post-Bac database
- Sample of 89,263 students who had the opportunity to wait
 - 18.1% receive financial aid (N=16,165)
 - 81.9% do not receive financial aid (N=73,09)

The « Admission post-bac » process



When presented with the opportunity to wait for a better outcome, some students decide not to wait to get an offer from a preferred programme in their wishlist.

The « Admission post-bac » platform



- Financial-aid students are less likely to always wait than non financial-aid students: 7pp difference.
- **55% of non financial-aid beneficiaries** always wait
- **48% of financial aid beneficiaries** always wait

Hypotheses and results

- **H1:** Financial aid beneficiaries wait less than non-financial aid beneficiaries when presented with the opportunity to wait.
- **H2:** Students who always wait gain in terms of objective prestige and subjective preference
- **H3:** Financial aid beneficiaries wait less than non-financial aid beneficiaries when presented with the opportunity to wait, **even after controlling for differences in the probability of receiving an offer from a programme** (captured by their baccalaureate grade).
- **H4:** Financial aid beneficiaries wait less than non-financial aid beneficiaries when presented with the opportunity to wait, **even after controlling for additional differences in aspirations** (captured by the prestige and preference gain they can hope to obtain by waiting).
- **H5:** Financial aid beneficiaries wait less than non-financial aid beneficiaries when presented with the opportunity to wait, **even after controlling for additional differences in the cost of waiting**.
- **H6:** This socioeconomic gap in waiting persists **even after taking into account additional differences in the local social and educational environment**, which can be captured by high-school fixed effects.

Socio-economic differences in waiting, controlling for highschool fixed effects

	Always wait	
	(1)	(2)
Financial aid beneficiary	-0.08 *** (0.01)	-0.06 *** (0.01)
Mean non-financial aid beneficiaries	0.55	0.55
Control for academic performance	Yes	Yes
Control for aspirations	No	Yes
Control for waiting cost	No	Yes
High school fixed effect	No	Yes
Observations	80,821	80,821
Adjusted R ²	0.04	0.06

Conclusions

- First test of whether individuals differ in their waiting behaviour in the real-life situation of producing a decision that has life-long implications.
- Next step: Replication to come with the 2016 and 2017 cohorts (the registered report only includes the 2015 cohort).
- These results help us better understand how socioeconomic status shapes people's waiting behaviours.
- From an applied point of view, these results provide a rationale for reducing waiting times in higher education admission processes (and other matching markets, such as job markets).
- Algorithmic fairness: Algorithms can be biased not simply because of the data they are trained on or the decisions they produce, but also because of their very design.
- **If allocation algorithms reward patience, they may accidentally reinforce socioeconomic inequalities.**