

Income Hiding and Informal Redistribution

A Lab-in-the-field Experiment in Senegal

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Informal redistribution is prevalent in Sub-Saharan Africa

- In Sub-Saharan Africa (SSA), **transfers within the extended family**, and beyond, are **frequent** and represent **substantial amounts**
- This informal redistribution **responds to various motives**:
 - *Informal insurance mechanisms* (for a review, Cox and Fafchamps, 2008) in context with limited access to financial markets
 - *Social status seeking* (e.g. transfers for ceremonies),
 - *Well-internalized redistributive norms*,
 - *Pure altruism...*

Akin to an informal tax, informal redistribution may induce distortions in economic decisions

- **Disincentive effects on effort and resource accumulation** (Hadness et al., 2013, Boltz, 2015)
- **Distortions in resource allocation choices**, through strategies aimed at circumventing or lessening the redistributive pressure
 - Allocation of resources into **less easily shared assets**, but with potentially lower returns (Somville, 2011; Baland et al., 2011, Di Falco and Bulte, 2012)
 - Allocation of resources into **less visible assets** (Jakiela and Ozier, 2016)
 - Qualitative evidence of costly strategies to keep income hidden in Senegal (Boltz and Villar, 2014)

Research question: what are the costs of redistributive pressure?

1. *Who is trying to escape redistributive obligations and how much do they value being able to relax these obligations?*
2. *What are the distortions in resource allocation choices induced by the redistributive pressure?*
3. *From whom are people hiding? Their household members, their kin outside the household, or their neighbors?*

Methodology: the experiment uniquely combines a **lab-in-the field** and a **randomized controlled trial (RCT)**

1. *How much do they value being able to relax these obligations?*
 - In-the-lab estimation of the Willingness-To-Pay (WTP) to avoid redistributive pressure
2. *What are the distortions in resource allocation choices induced by the kin tax?*
 - Compare lottery-gain allocation choices outside the lab between public and private gain winners (follow-up survey one-week after the lab)
3. *From whom are people hiding?*
 - Exploit exogenous variations in the pool of observers
 - Information in follow-up survey on transfers within vs outside the household

Preview of the results

1. *How much do they value being able to relax these obligations?*

→ **2/3** of participants prefer income privacy, and are **ready to forgo 14%** of their gains to avoid redistributive pressure.

2. *What are the distortions in resource allocation choices induced by the kin tax?*

For people willing to hide, getting the opportunity to hide allows them to:

→ **decrease by 27% the share devoted to transfers to kin**,

→ reallocate this money in personal and health expenditures

3. *From whom are people hiding?*

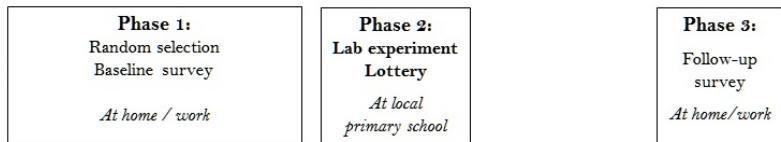
→ Mainly kin outside the household

Contributions to the literature

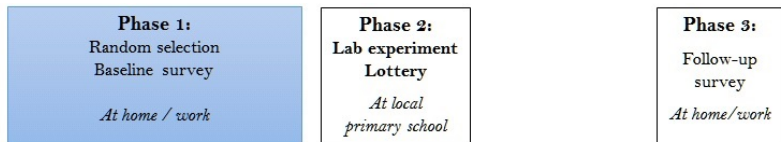
- Difficulty in this literature: **how to identify the causal effect of redistributive pressure?**
 - A useful tool: *lab experiments in the field*
 - Used in three closely related papers: Jakiela and Ozier (2016), Beekman et al (2015) and Squires (2016)
- **Main contribution:** first paper to estimate the impact of redistributive pressure on individual real-life allocation decisions and to relate it to elicited preferences for avoiding the kin tax
- **Methodological contributions:**
 - Direct elicitation of preferences for hidden income, for all participants
 - Random selection of participants within and between households → avoid selection in the pool of observers
 - Transfers and allocation decisions measured out of the lab
 - Disentangle redistribution within the household and outside the household

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Protocol: timeline of the experiment



1. Baseline survey



1. Baseline survey

The lab took place in 7 communities in Pikine, a densely populated suburb of Dakar

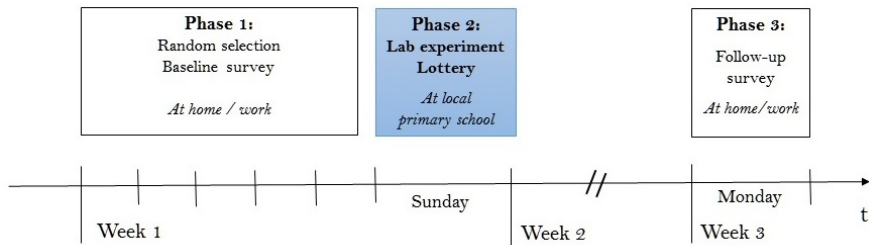
1. **Random selection of households**
2. **Within each household, random selection of participants**
3. **Individual baseline questionnaire:** Socio-demographic characteristics, personal income and expenses, transfers habits etc.
4. **Same appointment for the lab given in adjacent blocks**

NB: At this stage, individuals only know they are invited to participate in a game where they will be compensated for this effort by a small income.

Final experimental sample

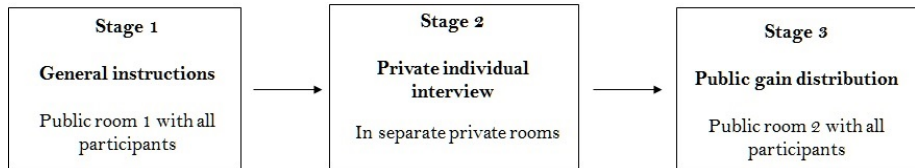
- Final sample of participants: 816 individuals (initial: 922)
- Attrition between baseline and lab: 11.5% [◀ Table](#)
- Characteristics of the sample of lab participants:
 - 2/3 of women,
 - 20% of household heads,
 - average household size : 11-12,
 - 78% of ever married players.

2. The lab phase



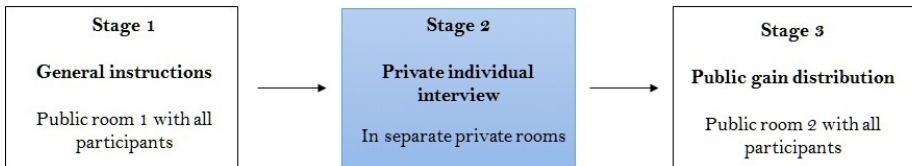
2. A lab session

- In each community, the lab took place on a Sunday in the primary school within the community (short walking distance)
- Each session is composed of 3 main stages, taking place in 3 different rooms:



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Private interview (1)

- **Same information** given to all participants
- **Stakes:** between 1,000 FCFA (1.5 EUR) and 9,000 FCFA (13.7 EUR)
530 FCFA = food expenditures /day/capita.
- **Gains:**
 - a. **Always a public part:** given and declared publicly to other players at the end of the session
 - b. **Potentially a private one:** given in the private room.
- **Elicitation of links between participants**

Private interview (2)

- **Lottery:** two types of cards in the lottery box
 - **No-choice cards:**
 - only 1,000 FCFA in public,
 - 9,000 FCFA all in public,
 - 1,000 FCFA in public & 8,000 FCFA in private
 - **choice-based cards:** pay-off depends on the player's ex ante choices.

Elicitation of the WTP to hide

How much are you ready to pay to have your gains in private?

Preference elicitation based on a multiple-choice list:

- Series of choice cards between options A or B

	p	Option A		Option B		Total
		Public	Private	Public	Private	
Choice card 1	0	9,000	0	1,000	8,000	9,000
Choice card 2	200	9,000	0	1,000	7,800	8,800
Choice card 3	500	9,000	0	1,000	7,500	8,500
Choice card 4	700	9,000	0	1,000	7,300	8,300
Choice card 5	1,000	9,000	0	1,000	7,000	8,000

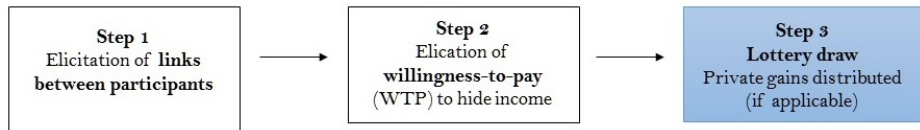
→ A player choosing option A for $p = 0$ has strong preference for *observability*

→ A player choosing option B for $p = 1000$ is asked what is her max price

- Choices are **definitive** and **incentivized** by implementing them in the lottery if an *choice card* is drawn

3. The RCT component: lottery and follow-up survey

1. The lottery



5 different cards in the lottery box

Table: Cards in the ballot box and their associated pay-offs

	Type of cards	Options	Public gain	Private gain	Total
<i>Pref.-based cards</i>	$T_{p200, P}$	A	9000	0	9000
		B	1000	7800	8800
	$T_{p700, P}$	A	9000	0	9000
		B	1000	7300	8300
<i>Non-Pref. based cards</i>	$C_{1000, NP}$	-	1000	0	1000
	$C_{9000, NP}$	-	9000	0	9000
	$T_{p0, NP}$	-	1000	8000	9000

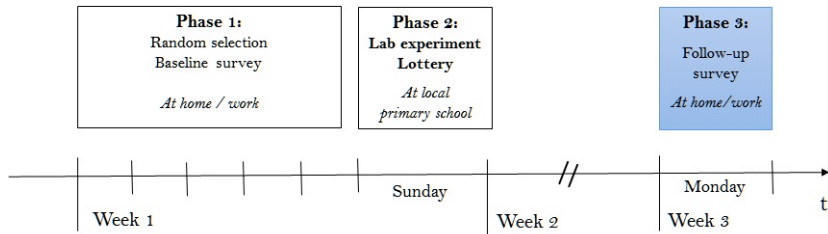
● **Lottery result:**

▶ [Table](#)

- 66% got the opportunity to hide out of total
- 44% actually hide out of total

3. The RCT component: lottery and follow-up survey

2. Follow-up survey:



- 7 days after the lottery
- Low attrition between lab and follow-up survey: 3%
- Questions on past week activities, transfers, income
- At the end of survey: open questions on how gains were used

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1/ How much people value escaping redistributive pressure?

→ Estimation of the WTP to hide income

Table: Descriptive statistics of the WTP to hide income

	Whole sample			Sample with WTP ≥ 0		
	All players	Women	Men	All players	Women	Men
N	788	534	254	512	345	167
Mean (in FCFA)	708	643	845	1089	994	1285
% of potential private gains	8.9	8.0	10.6	13.6	12.4	16.1
Median (in FCFA)	600	500	1000	1000	1000	1000
Std. Dev.	874	783	1026	871	774	1019

1000 FCFA = 1.52 EUR; median daily household food expenditure per capita = 420 FCFA.

- 2/3 prefer privacy and are ready to forgo **14%** of their private gains
- Close to the lit: Jakiela and Ozier (2015) find that people ready to forgo 15% of their lab gains.

▶ Graph

2/ Effect of income hiding: Identification strategy

$$Y_{ij} = a \text{PrivateCard}_i + X_i' b + \mu_c + \mu_s + u_i \quad (1)$$

Y_{ij} : share of the lottery gains spent in expense j by player i .

PrivateCard = 1 if i draws a card giving him or her the opportunity to hide, = 0 otherwise.

X_i : set of individual and household level controls.

μ_c, μ_s respectively community and sessions fixed effects

Sample: all lottery gains except 1000 FCFA gains (= 8300, 8700 or 9000 FCFA).

Subsamples: condition on being willing to pay to hide or not

Hiding income allows people to transfer less to kin, and spend more personal expenses

► All outcomes

<i>Dependant var:</i> <i>Commodity shares</i>	Expenditures		Transfers	
	Personal (1)	Health (2)	To kin (3)	To non-kin (4)
Panel A (N=654): Whole sample				
Card with opportunity to hide	3.966* (2.101)	1.446 (1.327)	-2.655 (2.257)	0.386 (0.971)
Panel B (N=433): Sample with WTP to hide[†] ≥ 0				
Card with opportunity to hide	4.989* (2.711)	2.727* (1.560)	-6.720** (2.795)	1.456 (1.273)
Panel C (N=221): Sample with WTP to hide[†] < 0				
Card with opportunity to hide	1.965 (3.396)	0.074 (2.523)	4.531 (3.934)	-1.655 (1.475)
Mean for public cards & WTP ≥ 0 (N=104)	10.989	1.784	24.713	2.556

3/ From whom are people hiding?

1. Effect of the composition of the pool of observers on the WTP to hide income

- Having a kin in the same session increases the WTP
- Effect driven by the women sample : increase by 450 F (=5.6%)

▶ Table

2. Disentangle transfers to kin within and outside the household

- Decrease in transfers mainly driven by decrease in transfers to kin outside hh

Conclusion: What did we learn?

High costs of redistributive pressure from kin, especially for the most vulnerable

- Quantify the cost of pressure to redistribute
→ **Estimation of a cost of 14% of the gains for people willing to hide.**
 - Having hidden income enables not only **to decrease transfers to kin** but also **to gain control over how to spend the income** with higher personal and health expenses
 - For women, the results are **driven by the women in the poorest households.**
- ⇒ Call for the design of adequate financial products, e.g. savings, offering more control over resources to individuals

2 option cards and 3 no-option cards in the lottery box

Table: Types of cards in the lottery box and their associated pay-offs

Type of cards	Cards	Option	Public gain	Private gain	Total
<i>No-choice cards (NC)</i>	<i>LowPublic_{NC}</i>	-	1000	0	1000
	<i>HighPublic_{NC}</i>	-	9000	0	9000
	<i>Private_{free, NC}</i>	-	1000	8000	9000
<i>Choice-based cards (C)</i>	<i>Private_{p200, C}</i>	A: Public	9000	0	9000
		B: Private	1000	7800	8800
	<i>Private_{p700, C}</i>	A: Public	9000	0	9000
		B: Private	1000	7300	8300

All gains are given in FCFA. 1000 FCFA \approx 1.5 EUR.

[◀ Back to protocol](#)

[◀ Back to specification](#)

Lottery and treatment distribution [← Return](#)

Table: Distribution of cards in the lottery

	Public cards			Private cards		Total
	<i>LowPublic_{NO}</i>	<i>HighPublic_{NO}</i>	<i>Private_{free, NO}</i>	<i>Private_{p200, O}</i>	<i>Private_{p700, O}</i>	
Option cards (<i>O</i>)	No	No	No	Yes	Yes	
<i>Draws from lottery:</i>						
Frequency	106	166	155	186	184	797
Percentage	13.3%	20.8%	19.5 %	23.3%	23.1%	100%

Card	Price	Choice made at given price		Total
		Option A (All public)	Option B (Partly private)	
<i>Private_{p200, O}</i>	200 FCFA			
Frequency		80	106	186
Percentage*		43.0%	57.0%	100%
<hr style="border-top: 1px dashed black;"/>				
<i>Private_{p700, O}</i>	700 FCFA			
Frequency		93	91	184
Percentage*		50.5%	49.5%	100%

Attrition between baseline and lab

[← Return](#)

<i>Samples</i>	Baseline		Lab		Attrited		Diff.
	N	Mean	N	Mean	N	Mean	P-values
Selected with another mbr of hh	922	0.64	816	0.65	106	0.55	0.03
Male	922	0.35	816	0.33	106	0.48	0.00
Age	932	37.07	826	37.44	106	34.15	0.01
Hh head	921	0.19	815	0.20	106	0.18	0.70
Spouse of hh head	921	0.24	815	0.25	106	0.20	0.25
Muslim	922	0.96	816	0.96	106	0.95	0.79
Wolof	922	0.46	816	0.46	106	0.48	0.66
Edu.: French/Arabic education	947	0.60	841	0.59	106	0.68	0.09
Married- Monogamous	922	0.48	816	0.48	106	0.49	0.86
Single	922	0.25	816	0.23	106	0.38	0.00
Has always lived in the community	922	0.35	816	0.35	106	0.32	0.51
Has a resp. in the community	922	0.09	816	0.09	106	0.06	0.23
Eldest in same parent sibship	922	0.25	816	0.25	106	0.23	0.54
Father alive	922	0.44	816	0.43	106	0.51	0.12
Informal sector	947	0.82	841	0.83	106	0.74	0.01
Contributes to hh's food exp.	924	0.41	821	0.42	103	0.37	0.34
N. hh members	930	11.49	825	11.73	105	9.60	0.00
Share of adult mbr in the hh	929	0.63	825	0.63	104	0.68	0.01
Hh daily food cons. p.c. (in log)	926	6.12	822	6.10	104	6.28	0.00
Expenses only funded by labor/capital	907	0.32	803	0.30	104	0.46	0.00
Expenses only funded by private transfers	907	0.21	803	0.21	104	0.25	0.34

Balanceness checks across treatments

[← Return](#)

	All	Public cards	Private cards	Diff			
	N	mean	N	mean	N	mean	pvalues
Household size	794	11.78	271	11.48	523	11.93	0.35
% adults in hh	794	0.63	271	0.63	523	0.63	0.98
Daily food cons. p.c.	791	513.82	269	501.80	522	520.02	0.62
HH head responsibility in community	783	0.09	267	0.09	516	0.09	0.69
HH pays rents for house	794	0.26	271	0.22	523	0.28	0.06
Male	795	0.32	272	0.34	523	0.31	0.39
Age	795	37.39	272	36.90	523	37.64	0.39
HH head	794	0.19	272	0.17	522	0.20	0.30
Spouse of hh head	794	0.25	272	0.25	522	0.25	0.93
No education	795	0.23	272	0.21	523	0.23	0.52
Only Koranic education	795	0.16	272	0.14	523	0.18	0.17
Only French/Arabic education	795	0.41	272	0.43	523	0.40	0.47
Both Koranic and French/Arabic edu.	795	0.20	272	0.22	523	0.19	0.29
Single	795	0.24	272	0.20	523	0.25	0.08
Always lived in this community	795	0.35	272	0.32	523	0.37	0.17
Responsibility in community	795	0.09	272	0.07	523	0.10	0.10
Nb. same-parent siblings	782	4.87	269	4.66	513	4.99	0.15
Intra-hh pair	795	0.66	272	0.63	523	0.67	0.25
Eldest in same-parent sibship	795	0.25	272	0.24	523	0.26	0.52
Father alive	795	0.43	272	0.43	523	0.43	0.96
Contributes to hh daily food expenses	790	0.41	270	0.39	520	0.43	0.24
Earned a revenue in last 7days	790	0.64	272	0.64	518	0.64	0.98
Private informal non-agr. sect.	790	0.86	271	0.87	519	0.86	0.71

Q.2/ Who is willing to pay to hide?

Table: The effects of the exogenous group composition on the WTP to hide
Interval-censored estimation on the WTP to hide (in FCFA)[†]

	All (1)	Women (1w)	Men (1m)
Male	192.4* (105.4)		
Selected in household pair	-17.9 (110.7)	-122.4 (120.5)	110.1 (211.0)
Any known non-kin in the session	-16.0 (150.2)	-94.3 (131.2)	89.5 (335.4)
Any kin in the session (excl. household pairs)	271.1** (134.8)	444.7*** (132.5)	-265.3 (301.0)
.....			
Mean of the WTP to hide (in FCFA)	732.4	651.2	902.7
Number of observations	771	524	247
Test Chi-2 p-value	0.00	0.00	0.00

[†] Dependant variable: maximum price p willing to pay to hide. It is observed in intervals for a price $p \leq 1000$ FCFA: $\{]-\infty; 0[; [0; 200[; [200; 500[; [500; 700[; [700; 1000[\}$. The exact price is observed for prices above 1000 FCFA (specific question)

Q.2/ Estimating the determinants to the WTP to hide income

$$wtp_i = a + \gamma_1 R_i + \gamma_2 Z_i + \mu_c + \mu_s + \epsilon_i$$

With:

wtp_i is the price at which the player switches from preferring unobservability (option B) to observability (option A)

$$wtp \in \{]-\infty; 0[; [0; 200[; [200; 500[; [500; 700[; [700; 1000[; [1000; +\infty[\}$$

R_i exogenous experimental variations: selected in household pair, having kin in the same session

Z_i set of controls for demographic, socio-economic individual and household characteristics, position in the extended family and community.

μ_c, μ_s resp. community and sessions fixed effects

Estimated with an interval-censored-data regression model.

[Return](#)

Effect of the composition of the pool of observers on WTP to hide

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Q2./ Different determinants across gender

Women: stronger position in extended family → higher WTP

← Return

	Women (1)	Men (2)
Household head	867.7* (470.8)	1377.3* (704.7)
Spouse of hh head	641.6** (303.5)	
Single	500.6 (378.9)	1466.8** (671.9)
<i>Ref: is/was married</i>		
Household size	57.7** (23.7)	47.8 (48.5)
HH doesn't own house	138.9 (257.1)	-1220.1** (584.5)
Always lived in this community	646.9** (269.1)	-856.6+ (548.4)
Responsibility in community	-207.2 (385.0)	-2873.9*** (799.0)
Known neighbor in same session	-342.2 (262.0)	1215.0** (586.8)
Kin in same session	478.2* (277.7)	314.4 (547.6)
Can rely on so out of neighborhood	391.1+ (250.8)	-76.1 (459.2)
<i>Ref: Can rely on nobody</i>		
So. in hh rely on <i>i</i>	305.2 (221.0)	-1336.7** (542.9)
So. In neighborhood rely on <i>i</i>	-693.8** (321.9)	-1087.3+ (672.2)
<i>Ref: Nobody can rely on i</i>		
Borrower	62.1 (221.8)	-768.6* (451.3)
Owens cattle and/or poultry	400.3 (311.3)	1330.6** (612.0)
Lab-session fixed effects	X	X
N	511	236
AIC	1418.3	599.8

Q2./ Men: having more responsibilities or being poorer → lower WTP

[← Return](#)

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Q.3/ Effect of hidden income on resource allocation choices out of the lab

Table: Distribution of cards in the lottery

	Public cards		Private cards			Total
	<i>LowPublic_{NC}</i>	<i>HighPublic_{NC}</i>	<i>Private_{free,NC}</i>	<i>Private_{p200,C}</i>	<i>Private_{p700,C}</i>	
Choice-based cards (<i>C</i>)	No	No	No	Yes	Yes	
<i>Draws from lottery:</i>						
Frequency	106	166	155	186	184	797
Percentage	13.3%	20.8%	19.5 %	23.3%	23.1%	100%

◀ Return

Identification assumption test [Return](#)

Table: Correlation between preferences and lottery outcome

	(1)	(2)	(3)	(4)	(5)
$WTP \leq 0$	0.042 (0.235)	0.044 (0.225)	0.044 (0.225)	0.043 (0.245)	0.043 (0.245)
N	795	795	795	795	795
AIC	1073.1	1120.3	1120.3	1156.5	1156.5
R2	0.0018	0.010	0.010	0.049	0.049
Community & Session-time f.e.		X		X	
Session f.e.			X		X
Interviewer f.e.				X	X

Dependant var: Dummy, drawing a private card versus a control public card. OLS estimates.
 p-values in (); ⁺0.11, * 0.1, ** 0.05, *** 0.01

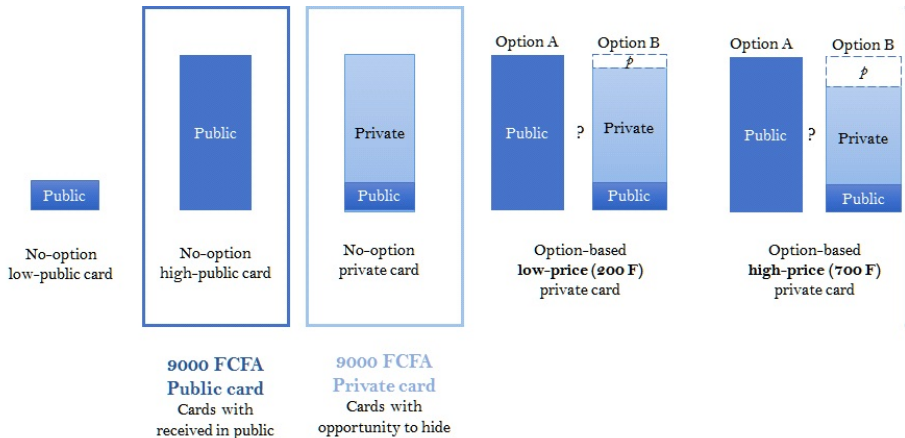
Q.3/ Results with all outcomes - [◀ Back](#)

Table: Effect of the opportunity to hide on allocation choices of the lottery gains *Sample: all individuals*

<i>Dependant var:</i>	Expenditures				Transfers			
	Personal (1)	Health (2)	Hh non-food (3)	Hh food (4)	To kin (5)	To non-kin (6)	Investment (7)	Saved gains (8)
<i>Panel A (N=654): Whole sample</i>								
Card with opportunity to hide	3.966* (2.101)	1.446 (1.327)	-1.389 (2.139)	-0.704 (3.030)	-2.655 (2.257)	0.386 (0.971)	-1.895 (2.711)	0.302 (1.473)
<i>Panel B (N=433): Sample with WTP to hide[†] ≥ 0</i>								
Card with opportunity to hide	4.989* (2.711)	2.727* (1.560)	-3.394 (2.568)	1.766 (3.642)	-6.720** (2.795)	1.456 (1.273)	-2.873 (3.383)	0.607 (1.845)
<i>Panel C (N=221): Sample with WTP to hide[†] < 0</i>								
Card with opportunity to hide	1.965 (3.396)	0.074 (2.523)	-0.012 (3.936)	-5.033 (5.462)	4.531 (3.934)	-1.655 (1.475)	2.223 (4.572)	-0.692 (2.482)
<i>Panel E: Unconditional means</i>								
Public cards (N=164)	10.754	2.724	11.495	26.445	20.7	3.144	17.344	6.525
Public cards & WTP ≥ 0 (N=104)	10.989	1.784	12.042	24.047	24.713	2.556	17.361	8.935
Public cards & WTP < 0 (N=60)	10.347	4.352	10.548	30.601	13.742	4.164	17.314	7.394

Income effect test:

Comparing outcomes outside the lab between public vs private **9000-FCFA** cards



Income effect test - Sample: no-option cards, all with lottery gains = 9000 FCFA

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Dependant var: Commodity shares	Expenditures				Transfers			
	Personal (1)	Health (2)	Hh non-food (3)	Hh food (4)	To kin (5)	To non-kin (6)	Investment (7)	Saved gains (8)
Panel A (N=304): Whole sample								
Card with opportunity to hide	3.710 (2.526)	0.910 (1.473)	-0.423 (2.714)	-3.292 (3.784)	-1.898 (2.776)	0.666 (1.291)	-1.503 (3.490)	0.917 (1.827)
R ²	0.12	0.07	0.13	0.15	0.17	0.12	0.10	0.09
Chi-2 (p-value)	0.02	0.82	0.03	0.00	0.00	0.02	0.15	0.14
Panel B (N=210): WTP to hide[†] ≥ 0								
Card with opportunity to hide	5.276* (3.134)	0.680 (1.516)	-2.353 (3.238)	-0.580 (4.411)	-6.245* (3.335)	2.174 (1.555)	-2.069 (4.077)	0.812 (2.154)
R ²	0.14	0.11	0.14	0.22	0.24	0.16	0.16	0.11
Chi-2 (p-value)	0.10	0.35	0.12	0.00	0.00	0.03	0.03	0.39
Panel D: Unconditional means								
Public cards (N=164)	10.754	2.724	11.495	26.445	20.7	3.144	17.344	5.599
Public cards & WTP ≥ 0 (N=104)	10.989	1.784	12.042	24.047	24.713	2.556	17.361	5.599
Public cards & WTP < 0 (N=60)	10.347	4.352	10.548	30.601	13.742	4.164	17.314	5.599

Fungibility between lottery gains and other income sources?

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- **Lottery gains are not fungible in our setting if:**

An increase in the expenses in a given item using lottery gains is compensated by a decrease in the expenses in this item using other income sources.

→ If so, our previous results could hide general equilibrium effects that may cancel out our estimated impact.

- **To test for this fungibility issue:** we exploit information about:

- the total income perceived between lottery and re-survey
- the 5 largest transfers done during this time

- The test is as follows:

- *If lottery gains are fungible:* we should find similar results on transfer share for *total income*, as for lottery gains

Testing the fungibility of the gains relative to *total* income[← Back](#)

Commodity shares	Non-transfer consumption	Transfers	
		To kin	To non-kin
Panel A (N=669): Whole sample			
Card with opportunity to hide	3.870* (2.155)	-4.158** (1.934)	0.156 (0.988)
R ²	0.07	0.08	0.04
Chi-2 (p-value)	0.00	0.00	0.33
Panel B (N=439): WTP to hide[†] ≥ 0			
Card with opportunity to hide	4.364* (2.574)	-5.866*** (2.268)	1.736 (1.272)
R ²	0.07	0.09	0.06
Chi-2 (p-value)	0.14	0.01	0.38
Panel C (N=230): WTP to hide[†] < 0			
Card with opportunity to hide	3.610 (3.928)	-2.327 (3.568)	-2.113 (1.584)
R ²	0.16	0.17	0.09
Chi-2 (p-value)	0.01	0.01	0.69
Panel E: Unconditional means			
Public cards (N=164)	78.576	18.279	3.399
Public cards & WTP ≥ 0 (N=104)	78.76	18.655	2.585

S.e. in (). [†] p ≤ 0.12, * p ≤ 0.1, ** p ≤ 0.05, *** p ≤ 0.01

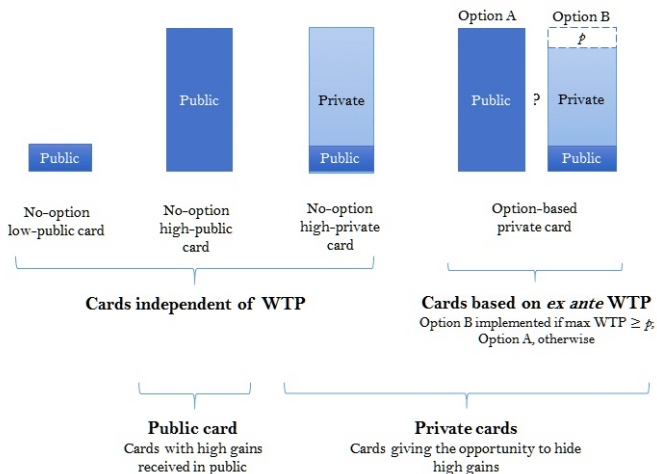
Community fixed effects included in all panels.

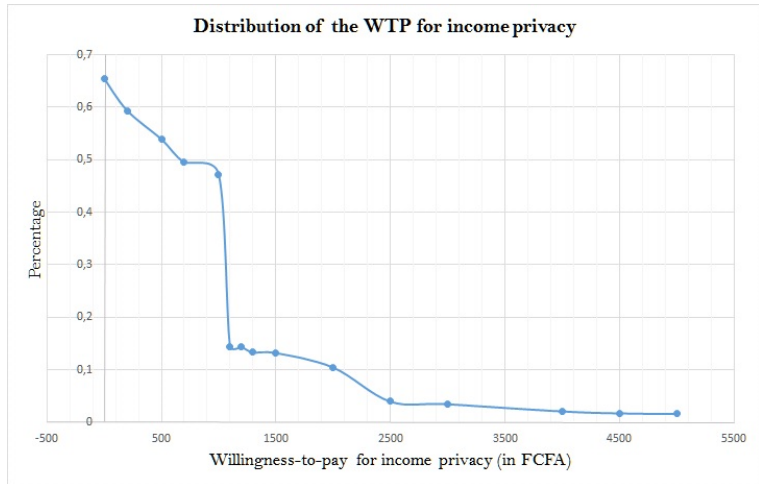
Table: Distribution of cards in the lottery

	Public cards			Private cards		Total
	<i>LowPublic_{NC}</i>	<i>HighPublic_{NC}</i>	<i>Private_{free,NC}</i>	<i>Private_{p200,C}</i>	<i>Private_{p700,C}</i>	
Choice cards (<i>O</i>)	No	No	No	Yes	Yes	
<i>Draws from lottery:</i>						
Frequency	106	166	155	186	184	797
Total gains earned	1000	9000	9000	8800 / 9000	8300 / 9000	

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Schema on lottery cards



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Fungibility between lottery gains and other income sources?

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- **Lottery gains are not fungible** in our setting *if* an *increase* in the expenses in 1 item using lottery gains is compensated by a *decrease* in the expenses in this item using other income sources.
- Then our previous results would hide general equilibrium that would cancel out our estimated impact.
- We have information between lottery and re-survey about:
 - the total income perceived during this period
 - the 5 largest transfers done during this time
- The test is as follows:
 - if lottery gains are fungible: similar results as for lottery gains
 - if lottery gains are not fungible: no effect or of opposite sign

Testing the fungibility of the gains relative to *total* income[← Back](#)

Commodity shares	Non-transfer consumption	Transfers	
		To kin	To non-kin
Panel A (N=669): Whole sample			
Card with opportunity to hide	3.870* (2.155)	-4.158** (1.934)	0.156 (0.988)
R ²	0.07	0.08	0.04
Chi-2 (p-value)	0.00	0.00	0.33
Panel B (N=439): WTP to hide[†] ≥ 0			
Card with opportunity to hide	4.364* (2.574)	-5.866*** (2.268)	1.736 (1.272)
R ²	0.07	0.09	0.06
Chi-2 (p-value)	0.14	0.01	0.38
Panel C (N=230): WTP to hide[†] < 0			
Card with opportunity to hide	3.610 (3.928)	-2.327 (3.568)	-2.113 (1.584)
R ²	0.16	0.17	0.09
Chi-2 (p-value)	0.01	0.01	0.69
Panel E: Unconditional means			
Public cards (N=164)	78.576	18.279	3.399
Public cards & WTP ≥ 0 (N=104)	78.76	18.655	2.585

S.e. in (). [†] p ≤ 0.12, * p ≤ 0.1, ** p ≤ 0.05, *** p ≤ 0.01

Community fixed effects included in all panels.

Results are also robust to:

- **Income effect:** the results are not driven by the small differences in income level between some participants (max 700 FCFA).
- **Changes in specifications:** with or without controls, SUR estimation or other specifications,...
- **Exploiting the different level of prices of the WTP to hide** (rather than willing to hide Yes/No)
- **Fungibility issue** : no substitution effect between lottery gains and other income source for transfers.

Additional results: gender heterogeneity

With the opportunity to hide,

- **Women: only the poorest** (below median of household food consumption).
 - **decrease the transfers to kin out of the household**
 - **decrease** significantly the share devoted to **productive investment**
 - + increase household food consumption and personal expenditures (weak evidence)

- **Men:**
 - **decrease drastically their transfers to kin** (mainly out of household)
 - + **increase their personal expenditures and investment shares.**