Income Hiding and Informal Redistribution: A Lab-in-the-Field Experiment in Senegal

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Abstract

This paper estimates the hidden cost of informal redistribution in economies where people heavily rely on their social networks and have limited access to financial markets. It is based on a lab-in-the-field experiment conducted in Senegal which uniquely combines a small-scale randomized controlled trial (RCT) and a lab experiment. The lab component allows us to estimate the cost of this informal redistribution, by eliciting the willingness-to-pay to hide income, and to identify the relevant population: two-thirds of the experiment participants are ready to forgo up to 14% of their gains to keep them private. Based on the RCT component, we find that giving people fearing the redistributive pressure the opportunity to hide allows them to decrease by 27% the share of gains they to kin as measured out of the lab. They reallocate this extra money to health and personal expenses. This is the first paper to both identify the individual cost of this informal redistribution and to relate it to real-life resource-allocation decisions in a controlled setting.

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1 Introduction

In developing countries, and especially in sub-Saharan Africa, social norms of redistribution are particularly prevalent. Individuals frequently transfer a substantial share of their income to members of their social networks, i.e. members of the household or extended family, friends, and neighbors, (Baland et al., 2015; di Falco and Bulte, 2011). This informal redistribution shape the social and economic lives of individuals: people make resource-allocation choices accounting not only for their personal socioeconomic condition but also for their standing relative to members of their social networks (Platteau, 2000, 2006, 2014).

The economic literature has long focused on the risk-sharing dimension of informal redistribution in economies, where people have limited access to financial markets and to formal redistribution, and are structurally vulnerable to income shocks.[1] Informal insurance mechanisms help people protect against certain risks, in particular idiosyncratic ones, although full risk-sharing is almost never achieved due to moral hazard and limited commitment issues (e.g., Coate and Ravallion, 1993; Dercon and Krishnan, 2000; Fafchamps, 1992; Kimball, 1988). However, interpersonal transfers are also linked to other motives, according to anthropological and sociological literature: they can be driven by traditions, social prestige seeking (transfers for ceremonies), pure altruism, or well-internalized norms (e.g. Wright, 1994).

The potential adverse effects of this informal redistribution have found a growing recent interest in the economic literature. Akin to a taxation system, informal redistribution can lead to distortions in economic decisions. This kin tax can induce direct disincentive effects on resource accumulation decisions, such as labor supply or investment, (Hadness et al., 2013), and indirect distortions in resource allocation choices (Baland et al., 2011; Boltz, 2015; di Falco and Bulte, 2011). The latter studies describe the resource-allocation strategies people adopt to escape the pressure to redistribute, often at a high cost: namely favoring non-easily-sharable assets and hiding easily-shared resources. However, rigorous causal evaluations of such costs are scarce, given how hard it is to identify redistributive pressure, using standard observational data.

In this paper, we aim to measure the individual cost[2] of social pressure to redistribute. We hence tackle the three subsequent questions. First, who is trying to escape these social obligations to redistribute, and how much do they value being able to relax these obligations? Second, how does it change people's resource allocation choices when they are offered the opportunity to escape this redistributive pressure?

[1] For a review, see Cox and Fafchamps (2007)

[2] We refer here to *gross* costs. Our paper does not allow for a net welfare analysis, as we are not able to measure the potential benefits from this informal redistribution in this analysis, such as the potential scope for informal insurance as stressed above. Including this dimension in the analysis is a necessary future step and is part of our research agenda.

Third, from whom are people hiding, their household members, their kin outside the household, or their neighbors? To answer these questions, we conducted an experiment in Senegal that uniquely combines a randomized controlled trial (RCT) and a lab experiment. We elicit preferences for income privacy in a lab setting for a random sample of participants, and a week later, we measure the effect of hidden income on resource allocation choices made outside the lab.

Only a few papers in the literature have attempted to identify the distortive role of social norms of redistribution on resource allocation decisions in a controlled experiment. Jakiela and Ozier (2015), using windfall income, explored how observability among volunteering participants from the same community in rural Kenya affects investment choices within the lab, and they show that women with kin participating in the experiment were willing to hide more. However, the paper does not look at how income observability affects non-investment allocation choices out of the lab and the experiment suffers from self-selection of the pool of participants and observers in the lab. Hadness et al. (2013) investigate on a small sample of tailors in Burkina-Faso the effort level they provide depending on whether their prospective income, earned following a lucrative job opportunity offered by the experimenters, was public information to their solidarity network or not. Beekman et al. (2015) in rural Liberia show that individuals with more kin in the community are more likely to hide a share of their gains, based on a lab-in-field experiment. However, they only elicit the WTP to hide on a subset of participants[3] and do not relate it to investment or allocation decisions. Finally,[4] Castilla and Walker (2012, 2013) look more specifically at how income unobservability may distort income pooling between spouses within the household. They carried out a field experiment in Ghana where spouses in rural villages were randomly allocated windfalls, either in cash or in kind, with half of the prizes awarded in public and the other half in private. They show that spouses behave non-cooperatively and that the effect of prize-winning on out-of-the-lab spending varies depending on the publicity of the prize and the gender of the recipient.

Inspired by the pioneer experiments mentioned above, our main contribution to the literature is to estimate the effect of redistributive pressure on real-life resource allocation decisions[5] and to relate this effect to the individual willingness-to-pay to escape informal redistribution. Specifically, we contribute to the literature in four dimensions. First, we elicit the willingness-to-pay to hide income for all participants,

[3] In each household, the head or a spouse participated, depending on the decision made par the selected household.

[4] Another less related paper is Goldberg (2013). The objective of that paper is to identify the extent to which time discounting preferences can be related to the income observability by peers. She conducted two lotteries among agriculture clubs in Malawi, one private and one public. She measures differences in expected use of the windfall income between the two lottery-winner types and finds that public lottery winners spend 35% more than private winners directly after the lottery. She also re-surveyed her sample a few months later to estimate the variations between expected and actual use of the windfall income, but she faced a high attrition rate.

[5] A limitation of our analysis is that we study the allocation of windfall gains. However, an important result of our paper is that these windfall gains are found not to be allocated differently than other sources of income, i.e. lottery gains are fungible.

not just for subjects in a specific treatment group. Preferences are elicited through choices incentivized by a subsequent lottery offering the opportunity to keep part of their lottery gains unobserved from other participants. This enables us to estimate the deadweight loss associated with redistributive pressure for the whole sample and to test whether the effect of getting the opportunity to hide is heterogeneous in *ex ante* preferences for privacy. Second, we estimate the impact of the redistributive pressure on real-life decisions. For this, we rely on the specific feature of our setting, which associates an RCT with a lab experiment. We thus do not impose any structure of transfer or investment decisions in the lab setting and rather leave the participants free to choose how to allocate their gains outside the lab. One week later, we observe resource-allocation decisions out of the lab, for all participants, with an attrition rate below 3%. Third, thanks to the random selection of participants at baseline, we have an exogenous pool of participants, and thus of observers. In contrast to most lab experiments in the field, which are based on voluntary participation, our baseline survey enables us to control for the relatively low attrition between the selection and the lab phase. Fourth, we build on the growing literature of family economics aimed at analyzing economic decisions within the extended family. Specifically, we draw a link between the literature on intrahousehold non-cooperative behavior and the literature on the role of redistribution beyond the household, within social networks. In our setting, we distinguish between transfers made to individuals within or outside the household and we exogenously selected either one or two participants per household in the baseline. This enables us to identify the extent to which the overall results are affected by redistribution between household members or across households.[6]

We conducted the lab-in-the-field experiment in May and June 2014 in poor, densely populated urban communities in the Dakar region, in Senegal on a final sample of 797 individuals. First, we find a high willingness-to-pay to escape social obligations to redistribute among participants: 65% prefer to receive their gains in private rather than in public, and they are ready to forgo on average 14% of their unobserved income for privacy. Second, we show that the willingness-to-pay to hide income is positively correlated with proxies for redistributive pressure, proxies that differ across gender: women hide more the stronger their position in their extended family, while men hide more the better off they are. Third, we find evidence of strong distortions in resource allocation decisions outside the lab due to the redistributive pressure, relying on the RCT component. Among people fearing redistributive pressure, the ones who get the opportunity to escape it, through income hiding, transfer 27% less to kin than the ones who get everything in public. They spend this extra money on healthcare, and private goods (e.g. personal care, clothing). Women in poor households invest less of their income when they are able and willing to

[6]In another paper underway, we explore the mechanisms for decision making under social obligations, differentiating between intra-and inter-households redistribution, building a theoretical framework and testing the predictions exploiting the various exogenous variations of our experiments.

hide, suggesting that investment is a substitute strategy to gain more control over their resources and to transfer less.

In contrast with the existing literature on social interactions in developing countries, which often focuses on rural village economies, we conducted the experiment in densely populated urban communities in the neighborhood of the capital city, Dakar. In village economies, inhabitants typically know each other well, while in densely-populated urban areas, social ties are supposedly weaker, since the turnover among residents is higher.

The question of the effect of redistributive obligations is not specific to Senegal. Platteau (2014) provides numerous references from the sociological and anthropological literature describing the prevalence of redistributive norms and of coping strategies — the strategy we analyze being one of the most widespread — throughout Africa and more largely in all lineage-based societies. The cost of informal redistribution in Senegal likely has implications for other countries as well — it is not specific to this society or to Muslim countries. Moreover, studies in Ghana (Castilla and Walker, 2013), in Kenya (Jakiela and Ozier, 2015), and in Burkina Faso (Hadness et al., 2013), as well as on other continents, such as in the Philippines (Ashraf, 2009), demonstrate a propensity to hide resources even within the household.

Finally, by analyzing the linkages between social networks and resource allocation decisions in economies with prevalent redistributive norms and limited access to formal financial markets, our paper highlights possible causes of poverty traps in Sub-Saharan Africa. We point to the existence of large distortions induced by redistributive pressure. Helping people gain more control over their own resources appears crucial for avoiding such deadweight loss. Our study provides strong evidence on how informal institutions shape economic behaviors, in the absence of formal financial markets and public redistribution. Our results, and the new avenues for research they prompt, are all the more important because people most affected by these informal arrangements appear to be the most vulnerable.

The remainder of this paper is organized as follows: Section 2 presents the experiment protocol, and Section 3 describes the experiment sample. In Section 4, we present the results for the estimation of the cost of informal redistribution, through the elicited willingness-to-pay for income unobservability. Sections 5 and 6 present the empirical strategy and results for respectively, (1) the determinants of the willingness to pay, and (2) the impact of income hiding on resource allocation outside the lab. Section 7 explores heterogeneity across wealth and gender. Section 8 concludes.

2 Experiment Protocol

2.1 General setting

We conducted our experiment in May and June 2014, in seven different poor urban communities in the department of Pikine, in Senegal's Dakar region.[7] We illustrate the different steps of the experiment in Figure 1. The experiment lasted approximately two weeks in each community. The first week, we selected the sample and administered the household and individual baseline questionnaires. The lab took place on the Sunday of the same week. One week later, the enumerators went back to administer a follow-up questionnaire to the subjects.[8]

2.2 *Pre-lab* sample selection

The baseline sample consisted of 947 individuals selected using a random-walk sampling method.[9] A household was selected if at least two members satisfied the eligibility criteria: being between 18 and 60 years old and having ever earned some labor income.[10] Once these criteria were verified, the enumerator could start the household survey and proceed to the random selection of the player from among the pool of eligible household members. So as to ensure no possible *ex ante* manipulation in the selection of participants, the enumerator would not mention any lottery gain and would not proceed to the random draw of the players before having established the complete roster of household members.

We introduced an additional layer of heterogeneity in our study by randomly varying the number of individuals selected per household: in every second household, only one player was selected, while two players were selected in the next household.[11] This enabled us to introduce some exogenous variation in the intrahousehold pressure for redistribution.

The household survey includes information on the household composition and household expenditures. The individual questionnaire administered to each player provides us with data on socioeconomic and

[7] In total, the survey lasted approximately four weeks. We selected the communities enough apart so as to prevent any learning or overlap in subject populations.

[8] This last questionnaire being very short, one day was usually enough to re-survey the subjects of one specific community. During this week, the enumerators also started the sample selection for another community. As we had three teams of enumerators working in three different communities simultaneously, we could cover six communities within three weeks. An additionnal community was surveyed at the beggining of the survey.

[9] Each enumerator was assigned one or two blocks of dwellings and a starting point; he or she had to follow a strict rule: only every other dwelling was preselected. If this dwelling had only one floor, and if more than one household was living there, the enumerator would move on to the household to the right of the entrance of the pre-selected dwelling. If a dwelling had several floors, first the floor was randomly selected and then, the right-hand-side household rule was followed.

[10] These two criteria were added to ensure that people were accustomed to managing some resources and to make resource-allocation decisions. If these selection criteria were not satisfied, the enumerator left the dwelling and resumed the random-walk procedure.

[11] As indicated above, to be eligible, a household had to contrain at least two eligible members so that one-player households and two-player households are comparable.

demographic characteristics, social capital held in one's kinship and community network, and personal assets and expenditures. At this stage, players were invited at a given hour on the following Sunday to continue the survey; they were informed that this would involve only a few additional questions and small compensation for the time spent with us.

2.3 Lab experiment design

The lab phase took place on the Sunday following the baseline interviews, in a primary school within the community so as to minimize travel cost.[12] In each community, there were four sessions, at 9 a.m., 11 a.m., 1 p.m. and 3 p.m. Players surveyed by the same enumerators, and therefore, from the same or nearby blocks were assigned to the same sessions. On average 30 players were invited to the same session. Again, the players were not yet aware of the lottery amounts.

Each session was split into three stages, as illustrated in the second point of Figure 1. First, all players from the same session were gathered in the same large room, enabling all participants to observe each other. At this stage, they learned that they could gain at least 1000 CFA francs (FCFA) and up to 9000 FCFA if they agreed to pursue the interview with us. To put these amounts in context, in this sample, 527 FCFA is the average daily per capita food expenditure and the average household comprises 11 members.[13] Second, subjects who agreed to stay were invited one by one for a private interview in one of eight small rooms, based on the order of subjects' arrival at the lab session. They were asked to make a set of choices between private and public gains so as to reveal their preference for income unobservability. The subsequent lottery made these choices incentive-compatible, since the choices were definitive and could potentially determine the outcome of the lottery.[14] Third, after all private interviews took place, all subjects were gathered again in a large room, where all public payoffs were declared and distributed in front of all participants.

Each private interview was composed of three main steps (see Point 3 in Figure 1). The first part is devoted to questions on identifying other participants at the session he or she knows and what his or her relationships are with those people. The second step concerns the elicitation of preferences for private income. Third, the lottery takes place, implementing potentially previous choices. If the drawn card entailed some private gains, the enumerators gave them to the participant during the private interview so as to ensure unobservability by other participants. We describe in details the last two steps in the

[12] Subjects had to walk five to ten minutes to get to the school.

[13] The average per capita food expenditure for one day in the department of Pikine is 465 FCFA, and the average household size is 13, according to the "Poverty and Family Structure" survey, a nationally representative survey of Senegal collected in 2006. Thus we selected slightly richer-than-average households or communities.

[14] Participants are told that if they choose not to continue to participate, they would receive 500 FCFA publicly at the end of the session.

subsequent two subsections.

Elicitation of preferences for income unobservability

The enumerator explained the rules of the lottery game, reading first the "consent",[15] in French or in Wolof, the dominant local language.[16] Just before the elicitation of the player's preference for income unobservability, he or she was shown all the potential cards he or she could draw from the lottery box (Point 4 in Figure 1). The participant learned that no matter her and his choices in the preferences' elicitation and the draw in the lottery, he or she would receive at least 1000 FCFA in public. The player was also told that he or she may receive more in public or in private. The enumerator carefully explained each card, especially the two types of cards: the "option cards" and the "no-option cards". The gains associated with the latter were independent of the participant's preferences: each of the three cards specifies receiving respectively 1000 FCFA in public and nothing in private, 9000 FCFA in public and nothing in private, or 1000 FCFA in public and 8000 FCFA in private. Conversely, the gains associated with the "option cards" would follow the choices participants were about to make about their preferences for income privacy. The no-option with only 1000 FCFA in public and nothing in private is crucial in the design because it made impossible any inference about who chose to hide: everybody knew that some "unlucky" people got 1000 FCFA in public and nothing in private, regardless of their preferences for income unobservability. This card thus protected the privacy of participants' choices — about income privacy. Enumerators took care to make this point clear; however, had a participant not understood this, we would bias his or her willingness-to-pay to hide downward, since she or he would not pay for the privacy.

To elicit preferences for income unobservability, we relied on a multiple-choice-list method. Each subject was asked to make a series of choices illustrated by the option cards. The various choices are shown in Table 1. Each card presented two options: option A corresponds to receiving 9000 FCFA in public, i.e. in the presence of the other participants of the session, while option B means receiving 1000 FCFA in public and 8000 FCFA minus some varying amount p, where p, the price of the income-hiding option, equals either 0, 200, 500, 700 or 1000 FCFA; the payoffs for option B amount to 9000 FCFA minus p. Each choice, i.e. for each value of p, was offered one after the other, in ascending order, until reaching 1000 FCFA, no matter what the previous answer was. The enumerator made clear that some of these cards were in the ballot box, meaning that each choice the subject made would potentially be implemented after the lottery.[17] For subjects showing multiple switches, the enumerators re-explained the questions

[15] The French and Wolof consents are available upon request.

[16] Subjects who spoke neither French nor Wolof, were given a translated version of the consent in their mother tongue as well.

[17] After the lottery draw, if the subject did not agree on her previous choice, he or she could leave the room with 500

and the stakes of the choices; if they changed their initial choices, the revised choices in addition to the initial ones were recorded. Choosing A for the first choice when $p = 0$ indicated a strong preference for income *observability*. For subjects ready to pay up to 1000 FCFA to get only 1000 FCFA in public, the enumerator asked the maximum amount the player was ready to forgo in order to get the minimum in public.

Table 1: Elicitation of preference for income unobservability: "option cards"

	Option A				**Option B**		
	Public	Private	Total	p	Public	Private	Total
Choice 1	9000	0	9000	0	1000	8000	9000
Choice 2	9000	0	9000	200	1000	7800	8800
Choice 3	9000	0	9000	500	1000	7500	8500
Choice 4	9000	0	9000	700	1000	7300	8300
Choice 5	9000	0	9000	1000	1000	7000	8000

Lottery and payoffs distribution

After the participant made all his or her choices, the enumerator explained again that all no-option cards and *some* of the option cards were in the lottery box, and if drawn, the player's decisions will be implemented. For budget and power constraints, only two "option cards" were actually put in the box, the ones with $p = 200$ and $p = 700$. However, this information was not revealed to subjects: the enumerators only told them that some of the option cards were in the lottery box. The different cards included in the ballot box are presented in Table 2. Participants did not know about the actual distribution of cards, so they could not infer how many people had actually chosen to hide when the public payoffs were distributed.[18]

The *ex ante* distribution of cards in the lottery box was fixed: in each session, there were five no-option cards with 1000 FCFA in public, seven no-option cards with 9000 FCFA in public, eight no-option cards with 1000 FCFA in public and 8000 FCFA in private, nine option cards with the hiding price p set at 200 FCFA, and eight option cards with the hiding price p set at 700 FCFA.[19]

Once everything was explained and understood, the subject drew a card from the lottery box. If it was

FCFA.

[18]The players' prior about the distribution of cards is likely to be an uniform distribution of cards in the lottery box since it is the easiest distribution to deal with. Alternatively, people may have guessed that we put more cards with low gains (the no-option card with only 1000 FCFA in public) in the lottery box so as to minimize lottery costs. In the two priors of the distribution, people would have anticipated fewer people hiding than what there actually was, since we included fewer of such cards.

[19]However, since participation varied from one location to another and from one session to another, the final distribution of drawn cards is slightly different from the distribution in the lottery box. This difference is nevertheless totally random. Moreover, since the private interviews took place simultaneously in eight rooms, the 37 cards were distributed randomly in eight small lottery boxes in front of all participants when they were all gathered in room prior to the private interviews.

Table 2: Cards in the ballot box and their associated payoffs

Type of cards	Cards	Option	Public gain	Private gain	Total
Option cards	$Private_{p200,\,O}$	A: Public	9000	0	9000
		B: Private	1000	7800	8800
	$Private_{p700,\,O}$	A: Public	9000	0	9000
		B: Private	1000	7300	8300
No-option cards	$Private_{free,\,NO}$	-	1000	8000	9000
	$LowPublic_{NO}$	-	1000	0	1000
	$HighPublic_{NO}$	-	9000	0	9000

All gains are given in FCFA. 1000 FCFA ≈ 1.5 EUR.
"O" stands for option card (i.e., based on the choices made *ex ante*) and "NO" stands for no-option card (i.e., not based on the choices made *ex ante*).
A *Private* card gives the opportunity to hide, either based on the previously chosen option, at a price $p200$ or $p700$ (200 and 700 FCFA, respectively) or at no cost, $free$, and independently of the previous choices. A *Public* card gives all the gains in public.
Low refers to small gains, 1000 FCFA. $High$ refers to high gains, 9000 FCFA. All $Private$ cards are high gains.

an option card, the enumerator recalled the subject's previous choice and asked the subject whether he or she still agreed with his or her previous choice, indicating that the alternative was receiving 500 FCFA in public. The private gains were distributed in the private room in a separate envelope. A ticket was given to the subject stating the amount he/she would receive in public, either 1000 FCFA or 9000 FCFA. By design, all participants received at least 1000 FCFA in public.

We made clear to the enumerators and to the subjects that subjects were totally free to use their money as they wanted to. No explicit or implicit declaration was made so as to influence their answers in the lab or their choices out of the lab.[20] After the private interview, subjects were then invited to wait in a separate large room until everyone had finished.[21] Once each interviewee had played, the public gains were disclosed to the assembly and distributed publicly.

2.4 *Post*-lab survey

A novel feature of our experiment design is that we did not force any in-the-lab transfers. We measured in a framed lab setting the willingness-to-pay to hide one's income and then varied exogenously who received the opportunity to hide or not. In order to measure the impact of the observability of personal gains by other participants on transfers and resource-allocation decisions, we analyzed spending decisions made outside the lab. One week later, we visited the subjects to administer a short additional questionnaire on the expenditures and events of the past week. At the end of the survey, we asked an open question about how they allocated the payoffs of the gains. We emphasized the identification of the recipient of transfers made by the participant, especially if the latter also took part in the lab experiment. We symmetrically

[20] However, we cannot eliminate the fact that the money was gained in a lottery, which is different from real life income.
[21] Beverages were given to help people wait. On average, a session lasted one and a half hour, with a maximum of two hours.

listed the transfers received by the participant from other participants. Finally, we asked them what they learned about the payoff of the other household member (if selected in a pair).

3 Experiment Sample

3.1 Sample description

Table 10 describes the sample of individuals that attended the experiment phase (thereafter, the "lottery sample"), and tests whether baseline characteristics are balanced across the cards giving the opportunity to hide, "private cards", and cards with no opportunity to hide "public cards".

In the sample, two-thirds of the players were women.[22] The average age was 37 years. Household heads accounted for 20% of the sample, while spouses and children of the head represented each a quarter of the distribution. Two-thirds of the subjects were married, including 18% in a polygynous union. One-fifth of the sample had no education and 40% contributed to the food expenditures of their households. The informal sector represented 86% of the last or current jobs held. Overall, most variables were not significantly different accross groups, but some differences remained – ethnicity, marital status, having a responsability in the community, and risk aversion – that we control for in the subsequent empirical analysis.

3.2 Distribution of treatment and control groups

Table 11 presents the final distribution of drawn cards: 352 of 797 subjects, i.e. 44.2%, received a share of their payoffs in private, either based on their previously elicited preferences ($Private_{p200,O}$, $Private_{p700,O}$) or not ($Private_{free,\ NO}$).[23] The number of subjects who drew a public card at 1000 FCFA, $LowPublic_{NO}$, is smaller than the others since its primary role was to make sure that people could not infer whether players chose to hide or truly only received 1000 FCFA, as explained above. Players who drew a card with the possibility to hide for $p = 200$ FCFA (respectively $p = 700$ FCFA) had expressed a willingness-to-pay larger than 200 FCFA (respectively 700 FCFA) in 57% of the cases (respectively, 49%), which means that they accepted to hide at this price (Table 12). We observe only a very slight decrease in the demand for income unobservability between the two price levels.

[22] Great care was given to including both men and women in the sample. This is why all the experimental sessions took place on Sundays and enumerators were flexible about when to fill the baseline questionnaire – coming back when people, mostly men, were coming back from work, or very early in the morning before they left the house.

[23] In Table 11, we removed 19 inconsistent observations, in terms of preferences. These observations are also dropped in the subsequent tables and analyses.

3.3 Attrition between the pre-lab interview and the lab phase

Table 13 describes the attrition between the baseline and the lottery sample. The attrition rate is 13%. Individuals who did not come to the lottery lived in smaller and richer households (in terms of daily food expenditure), with a relatively larger share of adult members. They were more likely to be single men who were not selected with another member of the household.[24] They were more educated, more likely to work in the formal sector and to fund their personal expenses exclusively through their labor or capital revenues. We account for these differences throughout the rest of the analysis.

3.4 Attrition between the lab phase and post-lab interview

Attrition between the lab phase and the post-lab survey was very low: only 25 individuals were lost, representing 3% of the lottery sample. The main reason (16 observations) is that those people were traveling out of the Dakar region the week after the lab phase and not reachable for a face-to-face interview. Table 14 compares the characteristics of the attrited players (column 2) and the non-attrited ones (column 3). The two groups are similar. Players who earned only 1000 FCFA publicly were, however, less likely to be reinterviewed.[25]

4 Estimation of the cost of informal redistribution

4.1 Measuring the willingness-to-pay to hide income

The willingness-to-pay (WTP) for unobservable income can be directly recovered from the responses during the lab, before the lottery. It can be inferred from the choices made at each price $p \in \{0, 200, 500, 700, 1000\}$ and from the question asked to people who were ready to pay 1000 FCFA, "What is the maximal amount you are ready to pay out of 9000 FCFA to get only 1000 FCFA in public and the remaining in private ?". This allows us to capture the maximal willingness to pay, even for the individual who had very high preferences for income unobservability.[26]

Measures of the elicited WTP to hide income in the lab are shown in Table 3. The average WTP to hide is 708 FCFA for the whole sample, 643 FCFA for women and 845 FCFA for men, the difference being significant at the 5% level. The median of the WTP to hide is 600 FCFA for the whole sample, 500 FCFA

[24] Part of this attrition among pairs comes from the fact that no delay or report to the next session was tolerated for paired individuals in order to be sure to have the two paired individuals attending the same session.

[25] This is not worrisome to our study since as mentioned above, this group mainly served in the lab phase to protect people choosing to keep a share of their income unobservable.

[26] During the pilot phase, the take-up for $p = 200$ was 40% and 22% for $p = 500$; therefore, we chose to range prices from 0 to 1000 FCFA. However, the results of the experiment show that we could have asked for higher prices. Our results are hence rather a lower bound of the WTP for income unobservability given our framing.

Table 3: Measures of the willingness-to-pay (WTP) to hide income

	Whole sample			**Sample with WTP $\geq$ 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
Median (in FCFA)	600	500	1000	1000	1000	1000
Std. Dev.	874	783	1026	871	774	1019

1000 FCFA $\simeq$ 1.5 EUR $\simeq$ 1.7 USD
Taking a conservative approach, the WTP statistics are computed at the lower bound of the price interval. For example if a participant is ready to pay 200 FCFA but not 500 FCFA, her maximum WTP is registered as being equal to 200 FCFA.
The difference of the average WTP between men and women is significant at a 5% level.

for women and 1000 FCFA for men. Sixty-five percent of players were willing to hide at a zero price ; this rate is similar for men and women. Conditional on a positive WTP to hide, half of the sample of both men and women was ready to pay up to 1000 FCFA to have only 1000 FCFA in public and the remainder in private. On average, the WTP is 1089 FCFA (13.6% of the gains that could be hidden); women were ready to pay 944 FCFA (11.8%), whereas men were ready to pay 1285 FCFA (16.1%). Assuming that preference for income unobservability reflects the implicit tax rate people will face on their observable revenues, the observed WTP is really high. Moreover, Table 15 in Appendix C shows that men whose daily food consumption is above the median are willing to pay more than those below the median, either because they are less income-constrained or because they face higher redistributive pressure. In contrast, women below and above the median have exactly the same WTP to hide, at both the mean and the median. The distribution of the WTP to hide is shown in Figures 2, 3 and 4 in Appendix A for the individuals with a positive WTP to hide income.[27]

4.2 Estimation of the price elasticity for income privacy

As described in Section 2, we adopted a standard multiple-choice-list approach to elicit the WTP to hide revenues in our experiment. Subjects had to choose between two options. In option A, their 9000 FCFA payoffs were always fully disclosed in public; in contrast, in option B, they could pay a price p, which varied from 0 to 1000 FCFA, to have only 1000 out of $9000 - p$ FCFA declared in public, and then to receive the remaining part in private. To make these choices incentive-compatible, we made clear to participants that in the lottery phase, their choices would be implemented if they drew a card corresponding to one of these choices.

The probability that subject i chooses to pay p, when p lies in $\{0, 200, 500, 700, 1000\}$, takes a standard

[27] A WTP equal to 0 on the histogram means that the individual prefers hidden income over public income when the choice is free; however he or she is not ready to pay 200 FCFA or more.

logit form.[28] We estimate a panel random effect logit model, since each individual was asked to choose option A or B for five different prices; the random individual intercept ζ_i captures the combined effect of all omitted subject-specific covariates that cause some subjects to be more prone to choose option B. This model allow us to estimate the price elasticity for income privacy, controlling for observable characteristics of the subjects.

Table 16 in Appendix C presents the estimation of the price elasticity for income privacy relying on a panel logit model with random individual effects. We find a demand for hidden income decreasing with price. Conditional on the reference 0 FCFA price, the larger the offered price, the lower the probability to hide. Furthermore, the willingness to hide income decreases more slowly with the price for men than for women. This is in line with the descriptive statistics of Table 3. This model estimating the sensitivity of the WTP to hide income to prices is robust to alternative specifications, such as a pooled panel logit model, where panel robust standard errors are estimated by clustering them at the individual level.[29]

5 Who is willing to hide? The determinants of the WTP to hide income

5.1 Empirical strategy

We estimate the determinants to the WTP to hide, using as a dependent variable the maximum price people declared to be willing to pay to have revenue partly unobservable. However, we observe only the *interval* in which this maximum price lies, for individuals with a WTP to hide smaller than 1000 FCFA.[30] Therefore, we run an interval-censored-data regression model,[31] where the dependent variable is the price intervals implied by each question in the experiment[32]: $]-\infty; 0[\,; [0; 200[\,; [200; 500[\,; [500; 700[\,; [700; 1000]$, for individuals with a WTP below 1000 FCFA and their true WTP otherwise. Let $p = X'\beta + \epsilon_i$ be the model we want to estimate. p is the vector of maximum price individuals are willing to pay to hide income: it is a continuous outcome, even if not observed on a continuum. Our model assumes $\epsilon \sim \mathcal{N}(0, \sigma^2 I)$.

[28] We assume that the utility, U_{ik}, of subject i for choosing option $k = A$ or B, takes the form of an additive random utility model (ARUM) (see Hey and Orme (1994) and von Gaudecker et al. (2011), for modeling of stochastic choices in experimentes) : $U_{ik} = V_{ik} + \zeta_i + \epsilon_{ik}$, where ζ_i is an individual effect normally distributed with variance σ^2_ζ and ϵ_{ik} is an i.i.d. type 1 extreme value distributed preference shock, with variance $\sigma^2_\epsilon = \pi/3$. V_{ik} is the deterministic utility of choosing option k and is a linear function of observable characteristics X_i and price p: $V_{ik} = \alpha_k + X'_i\ \beta_k + \gamma_k\ p$.

[29] Results not shown ; available upon request.

[30] Individuals with a WTP to hide income larger than 1000 FCFA were asked to state the maximum price they are willing to pay to have only 1000 FCFA disclosed in public. We use this question to increase the precision of our estimates. Results are robust to the use of this extra information or to treat them as right-censored.

[31] An interval-data regression is similar to an ordered probit, except that here the interval boundaries are known. See Cameron and Trivedi (2010) (pages 548-550), for a discussion on the differences among censored and interval data models.

[32] Subjects who prefer having their payoffs observable even at a null price, we assume that they have a preference for income observability, subsequently a WTP to keep income observable, namely a negative price $p \in [-\infty, 0[$.

For observations i whose price $p_i \leq 1000$, p_i is observed in intervals, i.e., we know only that the true unobserved p_i lies in the interval $[p_{1i}, p_{2i}[$, where the list of intervals was given just above.

Finally, to investigate determinants of the extensive margin of preference for hidden income, we estimate a logit model. The dependent variable is a dummy equal to 1 if the player is willing to hide, i.e., has a positive WTP, and to 0 otherwise. We cluster the standard errors at the session level. The idea is to test whether the extensive margin is predicting most of the determinants for the WTP to hide. This will be important to back up the empirical strategy developed in Section 6, in which we explore the differential impact of hidden income on resource allocation between individuals with preference for hidden income and individuals with no such preference.

5.2 Experimental variations in the pool of observers of the gains

Table 4 presents the estimation results of the effect of the exogenous experimental variations of the group composition on the WTP to hide income.[33] Panel A shows the estimation results of the interval-censored-data regression model of the determinants to the WTP to hide income. Panel B concerns the results of the logit estimation on the dummy variable, taking 1 whether the individual has a positive WTP, and 0 otherwise. Column (1) is estimated on the whole sample, columns (1w) and (1m) on the respective subsamples of female and male players.

Looking at the interval-censored model, in Panel A of Table 4, coefficients represent the additional price people are willing to pay. We find that men are willing to pay on average 192 FCFA more than women for income privacy. Moreover, looking at columns (1w) and (1m), it appears clearly that men and women do not share the same determinants of their WTP to hide income. Women and men have generally separate social networks: they do not interact within the same groups, and the pressure to redistribute may thus also come from differents groups.[34] Therefore, we focus hereafter on the discussion about these two specifications. A first remark is that the effect of being selected along with another household member is never significant, for either men or women.

For men, we find no significant effect from the experimental variations of the group composition of a lab session on the maximum price they were willing to pay (Panel A of Table 4). However, in Panel B, we find that at the extensive margin, men were more likely to be willing to hide when there was at least

[33] The composition of the group of participants is exogenous by design of the experiment since the participants were selected randomly. However, individuals with more kin living in the community may end up with a higher probability to have any kin in the same session. Controlling for having any kin in the neighborhood — the variable being significantly correlated with having any kin in the same session — does not affect the results, in this section and the following on the impact of hidden income on resource allocation decisions. Results available upon request.

[34] For an illustration in Madagascar, see Nordman and Vaillant (2014).

Table 4: The effects of the experimental group composition on the WTP to hide income
Interval-censored & Logit regressions

	All (1)	**Women** (1w)	**Men** (1m)
Panel A: Interval-censored estimation on the WTP to hide (in FCFA)†			
Male	192.4^{*}		
	(105.4)		
Selected in household pair	-17.9	-122.4	110.1
	(110.7)	(120.5)	(211.0)
Any known non-kin in the session	-16.0	-94.3	89.5
	(150.2)	(131.2)	(335.4)
Any kin in the session (excl. household pairs)	271.1^{**}	444.7^{***}	-265.3
	(134.8)	(132.5)	(301.0)
Mean of the WTP to hide (in FCFA)	732.4	651.2	902.7
Number of observations	771	524	247
AIC	7512.7	4914.9	2592.5
Test Chi-2 p-value	0.00	0.00	0.00
Panel B: Logit estimation on the dummy, willing to hide (Yes/No)‡			
Male	0.024		
	(0.041)		
Selected in household pair	-0.006	-0.004	-0.054
	(0.040)	(0.045)	(0.070)
Any known non-kin in the session	0.027	-0.018	0.129^{+}
	(0.042)	(0.058)	(0.081)
Any kin in the session (excl. household pairs).	0.107^{*}	0.192^{***}	-0.063
	(0.056)	(0.058)	(0.088)
Mean of the dummy, willing to hide	0.65	0.65	0.66
Number of observations	771	524	247
Test Chi-2 p-value	0.00	0.00	0.00

s.e. clustered at the session level in (); $^{+}p < 0.12$,* $p < 0.10$,** $p < 0.05$,*** $p < 0.01$.
Panel A: Interval-censored data regression model; † Dependent 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 price above 1000 FCFA (specific question).
Panel B: Logit model (average marginal effects); ‡ Dependant variable : dummy equal to 1 if the WTP is positive
Controls: complete set of controls shown in Tables 18 and 19 for respectively the interval-censored and the logit estimations.

one known non-kin in the same session: this increased their probability to hide by 13 percentage points (although the effect is only significant at 12%). This suggests that men are fearing more redistributive pressure from non-kin neighbors than from kin.

For women, the variable indicating that at least one kin attended the same session than the player (other than the player's potential paired household member) significantly increased the WTP to hide income. Given our experimental design, a kin who attended the same session lives in the same community but does not belong to the player's household. Hence, having at least one non-household-member kin attending the lab increased the WTP by 445 FCFA for women, whereas having a household member participating in the session had no significant impact, though the sign is negative. In Panel B, we consider the extensive margin, we also find for women that the presence of at least one kin in the same session increased the probability to be willing to hide income by 19 percentage points.

Furthermore, Table 17 in Appendix C explores the heterogeneity of the effects between poorer and richer households by estimating the interval-censored data model on the samples below and above the median of household daily food expenditures per capita for all and for women.[35] We find that the effect of this variable, any kin in the same session, is the same for women below or above the median of household food consumption. This means that poorer and richer women do respond similarly to the presence of a non-household-member kin.

5.3 Other determinants

Tables 18 and 19 in the Appendix C present the results for all the covariates of the interval-censored data model respectively on the whole sample and on the subsamples below and above the median household food consumption. Results of the logit estimation for all covariates are presented in Table 20 in Appendix C; they are similar to the previous model and are not further discussed here.

For women, the characteristics correlated with a higher WTP to hide income are closely linked to the position they hold in their extended family and their community (see Table 18, column (1w)). Besides the experimental variation variables we already mentioned, a woman who has always been living in the community is willing to pay 380 FCFA more. Having always lived in the community implies that she may have had longer interactions with members of the community and potentially extended family members. Concerning her economic situation, a woman's income is positively correlated with the WTP to hide. These two last effects are driven by the sample of women below the median of daily food expenditures

[35] The smaller sample size for men does not allow us to look at the subsamples of men below and above the median food consumption.

(see column (1w) in Table 19). A possible interpretation is that women who earn labor revenues and who have always lived in the neighborhood are more at risk to be asked for transfers, and this is more true for the ones living in the poorest households. In addition, women in poorer households who work in the formal sector, meaning that they have stable revenues, decrease their WTP by 485 FCFA. This implies that the result on earnings explained above is mainly driven by women working in the informal sector for whom earnings are more instable and therefore hiding their income can be a strategy for smoothing their own consumption. An alternative interpretation could be that if working in the formal or informal sector is a matter of choice, female formal workers may be women who fear less having more visible and stable income and thus being "taxed". Regarding the individual position in the household, being the household head or the spouse of the head increases the WTP by 433 FCFA and 273 FCFA, respectively. The only negative and significant variable in Table 18 is the share of dependent household members (the elderly and children): a woman living with her husband and her two children is willing to pay 395 FCFA less than a woman living only with her husband.

For men, the only similitude with women is that being the household head leads also to a higher WTP to hide income : male heads are willing to pay 474 FCFA while, as mentioned above, female heads are willing to pay 433 FCFA. Determinants of the WTP to hide income for men fall into two broad dimensions: on the one hand, characteristics related to the economic position, — a better economic position is correlated with a higher WTP, and a worse-off position with a lower WTP —, and on the other hand, having a good social position in the community correlates with a *lower* WTP. Regarding the social dimension, holding a responsibility in the community[36] induces a WTP 1316 FCFA lower. Hence, a responsibility in the community may induce a higher internalized redistributive duty. Another potential explanation for this correlation is that men holding such responsibility may have more control over their resources and therefore fear less possible taxation of their gains. Looking at proxies for economic status, we see that being single or being the child of the household head, i.e., being financially responsible for fewer people, encourages men to increase their WTP to hide income by 558 FCFA and 391 FCFA, respectively. Also a higher daily food expenditure is linked with a higher WTP. Renting a house, often correlated with a weaker economic situation, is associated with a decrease of the WTP by 1220 FCFA: this suggests that poorer men are less ready to forgo some money to keep income unobservable.

In conclusion, we find that for both men and women, variables that seem correlated with a higher redistributive pressure are also determinants of a higher WTP to hide income. These variables differ, however, across gender. Thus, women with more and stronger family ties in the community are willing

[36] Among individuals who have a responsibility within the community, 21% are responsible for a "tontine" (ROSCAS), 35% are responsible of another type of association, and 44% have another kind of responsibility.

to hide more. Men who are betteroff economically are willing to pay more to hide, and vice versa for men worseoff. However, men endowed with some observable high social status, such as responsibility in the community, are negatively correlated with the WTP to hide, potentially because these positions also allow them to gain more control over their resources.

6 The impact of income hiding on resource-allocation decisions

In this section, we present the main results of our randomized controlled trial. We analyze the effect of the randomized hiding opportunity in the lab on resource-allocation decisions made out of the lab. We aim to test whether individuals with a share of hidden gains are making different real-life choices of consumption or transfers than the ones with observable gains.

6.1 Empirical model and identification strategy

We estimate the following system of equations for each commodity type g:

$$Y_{ig} = \alpha + \beta\ PrivateCard_i\ + X'_{ig}\ \gamma + \mu_c + \mu_s + u_{ig} \tag{6.1}$$

where Y_{ig} represents the share of the lottery gains dedicated to good g by individual i as reported by the individual one week after the lottery (we discuss below the outcomes below). Our key variable of interest, $PrivateCard$, takes 1 when the subject draws a card giving him or her the *opportunity* to hide. A $PrivateCard$ leads to actually hidden income, either regardless of the preferences for private income when the no-option card, $T_{free,\ NO}$ is drawn, or conditionally on the previously stated preferences when either of the two option cards is drawn, $T_{p200,O}$; $T_{p700,O}$. The estimated coefficient β thus represents the Intention-to-Treat effect of private gains since not all subjects who drew a "private card" were willing to hide and thus actually did. μ_c and μ_s correspond, respectively, to fixed effects of the community and of the hour of the attended session. X_{ij} is a set of controls including sociodemographic and economic characteristics of the individual and his/her household, as well as some measure of his/her position in the kinship and in social networks in the community.[37] As this set of expenditure shares are correlated at the individual level (each share can be written as one minus the sum of all other shares), the error

[37] We include sex, age, link to household head, religion, ethnicity, marital status, Koranic education, French or Arabic education, household size, share of adult members and share of women in the household, sector of activity, average of labor income over past three months in log, contributor to household food expenditures, household total food expenditures per day and per capita in log, and whether the house is not owned by the household. In addition, we control for some commodity for whether the individual contributes to household daily food expenditures, whether he is the eldest among same-parents siblings, whether he was selected with another household member, has any kin the lab session (excluding the household pair), holds a responsibility in the community, and holds a formal or informal salaried job. See notes under each table for detailed information on the specification per commodity share.

terms, u_{ig} in the regression equations are correlated, and we estimate the system through a seemingly unrelated OLS regression (SUR) system.

Going one step further, we also investigate the heterogeneity of this effect across preferences for income privacy. Indeed, we expect the opportunity to hide to favor some expenses that could be constrained for individuals subject to a high redistributive pressure within his or her network. If the WTP to hide income is positively correlated to this redistribution pressure, the effect of the "private card" should be driven by the subsample of participants with preferences for privacy. We therefore estimate equation (6.1) on the subsamples of individuals with positive WTP to hide income and of individuals with no or negative WTP to hide income.[38]

We further test for heterogeneity in the impact of the opportunity to hide across the two groups of WTP (positive or strictly negative) by estimating the following equation:

$$Y_{ig} = \alpha + \beta_1 \, PrivateCard_i + \beta_2 \, \mathbb{1}_{(WTP \geq 0)i} + \beta_3 \, PrivateCard_i * \mathbb{1}_{(WTP \geq 0)i} + X'_{ig}\gamma + \mu_c + \mu_s + \epsilon_{ig} \quad (6.2)$$

where $\mathbb{1}_{(WTP \geq 0)}$ is a dummy variable that takes 1 when the player has a positive WTP to hide income. In this specification, our parameter of interest is α_3 which tests the difference of the effect of the opportunity to hide between subjects with positive and nonpositive preferences for income hiding.

Identification

Identification of the effect of the *PrivateCard* in model (6.1) on the whole sample totally relies on the randomness of the opportunity to hide in the lottery. Concerning the estimation of the same model on the subsample of individuals with positive and nonpositive WTP to hide and of model (6.2), the identification of the effect relies on the exogeneity of the opportunity to hide in the lottery draw for a given preference. In other words, we posit that, conditional on a given *ex ante* stated preference, the likelihood to pick up a private card is random. Table 21 in Appendix D shows that the probability to draw a card allowing to hide gains is not correlated with preference for hiding income, regardless of the inclusion of community, session, or enumerator fixed effects.

In both specifications (6.1) and (6.2), we exclude the 1000 FCFA winners; therefore, the possible lottery gains are 8300, 8700, and 9000 FCFA. We do not control for the lottery windfall income as certain values — 8300 and 8700 FCFA — are obtained only when the WTP to hide income is positive. We thus assume

[38] We do not exploit the different prices since although the results are strengthened for higher WTP to hide, the coefficients are not statistically different from each others (see Table 27 in Appendix D). Moreover, it also involves looking at the effect on smaller samples. We thus prefer to focus on the dichotomous variation between positive and negative WTP to hide.

here that the *shares* of the lottery gains allocated to the various commodities are not directly affected by the windfall-income-level differences — at most 700 FCFA– - but are directly affected by preferences for hidden income and the random opportunity to hide. We test for this assumption in section 6.4 by restricting the analysis to the subsample of subjects who randomly won exactly 9000 FCFA: comparing the ones who received 9000 FCFA in public, $C_{9000,NO}$, and the ones who won 1000 FCFA in public and 8000 FCFA in private, $T_{free,NO}$, both regardless of their preferences for income privacy. Table 6 presents the results.

Outcome variables: lottery-gains allocation choices

To be able to assess the impact of the opportunity to hide resource allocation out of the lab, we exploit the survey conducted seven days after the lottery took place. In this survey, individuals were asked several questions — without any reference to the lottery— about the events over the past week in which they took part and about the expenses made. At the very end of the survey, each participant was asked in an open question what he or she did with the lottery gains.[39]. We rely on this question for the subsequent analysis.[40]

Personal expenditures encompass expenses that exclusively concern the lottery winner. Health expenditures account for all health expenditures made by the individual — both for himself/herself or for someone else. We also consider expenditures that benefit part or all of the household, distinguishing between food expenses — contribution to the usual food pot or purchase of some extras, e.g., candies, fruits, juices– and nonfood expenses — e.g., electricity bill and detergent. We separate transfers made to kin and non-kin; among the kin, we include transfers both within the household and to kin outside the household. In some specific tables, we explore the differences between transfers to kin within and outside the household. Investment accounts for any purchase made for an economic activity, be it for direct resale or as an input for any income-earning activity: for instance, for women it will often concern inputs they need for some homemade preparations that they will sell on the street or in the market. Finally, saved gains correspond to gains that are not used yet.

6.2 Main results

Here, we consider the share of lottery gains devoted to several commodity types, as presented in the previous section. All subsequent tables of results will be organized in the same way. In Panel A, we show the results of model (6.1) estimating on the whole sample, the ITT effect of having drawn a "private

[39] Enumerators wrote the answer to this question literally; the answer was coded only after the survey. Special attention was paid to not influencing any answer from the respondent and to making sure each answer was correctly coded.

[40] We discuss the question of fungibility of the gains further in this section.

card", namely a card giving the opportunity to hide income. In Panels B and C, we estimate the same model, restricting it to the subsample of individuals with positive WTP to hide, for Panel B and with non-positive WTP to hide for Panel C. In Panel D, we estimate the interaction model (6.2) on the whole model: we investigate whether the effect of the opportunity to hide is statistically different between the two subsamples with positive and nonpositive WTP to hide. We thus interact the variable "private card" with a binary variable taking 1 if the WTP to hide is positive. In Panel E, we present the unconditional means at the reference value, namely, for individuals with "public cards" and with public cards and a positive WTP to hide income.

Table 5 presents the results of the impact of income hiding on resource-allocation choices for all participants.[41]

A first observation points to the fact that transfers to kin account for the largest share of expenses of the lottery gains (Panel E): they represent 21% of gains for people with public cards (i.e., 1980 FCFA out of 9000 FCFA). The share dedicated to the household food expenditures is similar. Transfers to non-kin are marginal in comparison. We find that public card winners with positive WTP to hide are spending 11 percentage points more of their gains on transfers to kin than individuals who also have public cards but have nonpositive WTP to hide. This result reinforces the relevance of our measure of the WTP to hide: individuals with a positive WTP are also those more subject to informal taxation. Personal expenditures, investment, and nonfood household expenditures each account for around one-tenth of the gains.

6.2.1 Transfers

The central finding of our paper is the effect of the opportunity to hide on transfers to kin: having the opportunity to hide decreases by 27% the share devoted to transfers to kin, but only for individuals who prefer income privacy. Indeed, no significant effect on transfers is found for the whole sample in Panel A, while a large decrease of 6.7 percentage points of total gains dedicated to transfers to kin is found for individuals with a positive WTP to hide in Panel B and a non significant increase, for individuals with a negative WTP to hide.[42] For Panel B, this represents a decrease of 603 FCFA out of the 2224 FCFA transferred on average to kin by the reference group who drew a public card and were willing to hide. Moreover, the effect of the opportunity to hide between the individuals with positive and non positive WTP to hide is significantly different: the large difference of –10.7 percentage points is significant at 5% (Panel D).

[41] Table 22 in Appendix D shows the same results without any control, only community and session fixed effects.

[42] The sample of individuals with non positive WTP to hide is rather small, and we lack power for estimating significant effect on this subsample.

Table 5: Effect of the opportunity to hide on allocation choices of the lottery gains
Sample: all individuals

Dependent variables:	Expenditures				Transfers			
Commodity shares	Personal (1)	Health (2)	Hh nonfood (3)	Hh food (4)	To kin (5)	To non-kin (6)	Investment (7)	Saved gains (8)
Panel A (N=654): Whole sample								
Card with opportunity to hide	3.966*	1.446	−1.389	−0.704	−2.655	0.386	−1.895	0.302
	(2.101)	(1.327)	(2.139)	(3.030)	(2.257)	(0.971)	(2.711)	(1.473)
R^2	0.09	0.04	0.06	0.11	0.10	0.05	0.10	0.03
Chi-2 (p-value)	0.00	0.70	0.03	0.00	0.00	0.11	0.00	0.54
Panel B (N=433): Sample with WTP to hide† ≥ 0								
Card with opportunity to hide	4.989*	2.727*	−3.394	1.766	−6.720**	1.456	−2.873	0.607
	(2.711)	(1.560)	(2.568)	(3.642)	(2.795)	(1.273)	(3.383)	(1.845)
R^2	0.10	0.06	0.07	0.16	0.11	0.06	0.12	0.05
Chi-2 (p-value)	0.00	0.24	0.20	0.00	0.00	0.26	0.00	0.72
Panel C (N=221): Sample with WTP to hide† < 0								
Card with opportunity to hide	1.965	0.074	−0.012	−5.033	4.531	−1.655	2.223	−0.692
	(3.396)	(2.523)	(3.936)	(5.462)	(3.934)	(1.475)	(4.572)	(2.482)
R^2	0.14	0.06	0.15	0.13	0.17	0.13	0.17	0.12
Chi-2 (p-value)	0.06	0.94	0.08	0.12	0.00	0.14	0.00	0.26
Panel D (N=654): Testing heterogeneity across WTP to hide†								
Card hide × WTP to hide ≥ 0‡	3.350	3.241	−4.829	4.917	−10.745**	2.797	−2.372	0.512
	(4.428)	(2.791)	(4.532)	(6.389)	(4.778)	(2.043)	(5.726)	(3.113)
R^2	0.10	0.04	0.06	0.11	0.10	0.05	0.10	0.03
Chi-2 (p-value)	0.00	0.71	0.04	0.00	0.00	0.11	0.00	0.65
Panel E: 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

Standard errors in (). $^{+}$ p $\leq$ 0.12, * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01. Panels A, B, C and D: System of linear equations estimated with a SUR model.
† WTP to hide = Willingness to pay to hide (as measured in the lab experiment). The sample of strictly negative WTP to hide encompasses all individuals who prefer to get the gains in public rather than in private even at no cost; the sample with positive WTP is all the other inviduals.
‡ In Panel D, main effects are also included: WTP to hide and card with opportunity to hide lottery gains (both in dummies).
Dependent var: Share of lottery gains allocated to the various commodities. One column per commodity.
Samples: in all panels, individuals who drew the card 1000 FCFA in public are excluded. Panel A and D: whole sample. Panel B (respectively C): sample with positive (respectively negative) WTP to hide income.
Control variables common in all colums in all panels: (d = dummy) sex (d), age, household head (d), link to household head, Wolof dummy, Muslim dummy, any Koranic & French education (d), being single (d), household size, share of dependents in household (below 15 or above 60), works in formal sector (d), average income over last 3 months if worked last 7 days (in log), household food expenditures per day per capita (in log).
Additional control variables in col. (1): contributes to household daily food consumption (dummy), col. (2): has a chronic disease or a handicap (d), receives and/or benefit from external support in/out the neighborhood (d). Col. (4): contributes to household daily food consumption, col. (5): eldest among same-parents siblings (d), selected with another household member (d), has any kin the lab session (excl. household pair) (d), col. (6): holds a responsibility in the community (d), col. (7) and (8): holds a formal or informal salaried job (d).
Community fixed effects included in all panels and for all outcomes.

An interesting question is whether this effect on transfers to kin concerns household members or kin outside the household. We explore this difference in Table 23 in Appendix D. We find that this effect is mainly driven by a decrease in transfers to kin outside the household for individuals with a positive WTP to hide income, although the coefficient for transfers within the household is also negative. Strikingly, the difference between individuals with a positive or nonpositive WTP to hide comes mainly from the opposite reactions to the opportunity to hide for transfers to household members: in Panel B, the effect is negative, while in Panel C it is positive, and the interaction term in Panel D is negative and significant. For transfers to kin outside the household, we find that individuals with no preference for hiding are also decreased their transfers but to a nonsignificant lower extent.

We find no significant effect on transfers to non-kin; if anything, for the ones with a positive WTP to hide, the effect of being able to hide is a positive sign.

6.2.2 Personal expenditures and other outcomes

Almost symmetrically to the decrease in transfers, the share of the gains devoted to personal expenditures is significantly increased. We found this for the whole sample, the effect being larger in Panel B than in Panel C, though the difference is not significant (Panel D). For Panel B, this effect is 5 percentage points, accounting for an increase of 45% in the share of personal expenditures (449 FCFA). We also find weak evidence of an effect of the opportunity to hide for the individuals willing to hide on health[43] that again seems totally driven by individuals with a positive WTP to hide income. Their health expenses are 1.5 times larger when they have the possibility to hide their lottery gains than when they get everything in public.

In brief, the key result here is that allowing people exogenously to hide their gains decreases considerably the share dedicated to transfers to kin, especially kin outside the household, with more resources being spent on private expenditures, and potentially on health. The result on transfers concerns exclusively subjects who show *ex ante* preferences towards income privacy.

6.3 Robustness checks

6.3.1 Income effect

In the estimated models (6.1) and (6.2), we do not control for the windfall gains obtained in the lab. The reason is that the lottery gains take the following values $\{8300; 8800; 9000\}$ and some values, namely 8300 and 8700, are specific to a unique card in the ballot box. Then, controlling for the exact level of income would not allow us to identify our parameter of interest. We thus relied on the assumption that the maximum 700 FCFA difference between the subjects who earned 8300 FCFA and those who earned 9000 FCFA is not large enough to induce different patterns in the *shares* of expenditures. To test for this assumption and whether our results in Table 5 are not driven by this mechanism, we estimate the same equations on the subsample of individuals who randomly drew the card $C_{9000,NP}$ or $T_{free,NP}$. The idea being that all of these individuals earned 9000 FCFA but some were randomly awarded 8000 FCFA in private while others were not, all regardless of their *ex ante* stated preferences. Hence, the comparison of these two groups is not affected by the issue raised above, and the difference will capture only the effect of having hidden income. Table 6 presents the results, which closely mirror those found in Table 5, in both

[43] The Chi-2 test has a p-value of 0.24, which is far from any standard level of significance. However, the share devoted to health is small — 1.8 % in the reference group— meaning that we may lack power to properly estimate this effect.

sign and magnitude. We find that the opportunity to hide decreases by 6.2 percentage points, significant at the 10% level the shares of the gains devoted to transfers to kin for individuals with a positive WTP to hide income in Panel B (the coefficient is –6.7 and significant at the 5% level in Table 5). In Panel D, the difference between the effect for individuals with a positive and with a nonpositive WTP to hide is –12.4 and significant at the 5 % level while it is –10.75 with the same level of significance for the whole sample. Looking at the share of the gains dedicated to personal expenditures, we find a positive effect of 5.3 percentage points in Panel B , while in Table 5, it is 5 percentage points.[44]

From these results, we can conclude that our assumption is valid : that resource allocation in terms of shares is not affected by the small differential in income gains among some participants.

Table 6: Testing for the no-income-effect hypothesis
Subsample: no-option cards, all with lottery gains = 9000 FCFA

Dependent variables:	Expenditures				Transfers			
Commodity shares	Personal (1)	Health (2)	Hh nonfood (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	0.910	−0.423	−3.292	−1.898	0.666	−1.503	0.917
	(2.526)	(1.473)	(2.714)	(3.784)	(2.776)	(1.291)	(3.490)	(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*	0.680	−2.353	−0.580	−6.245*	2.174	−2.069	0.812
	(3.134)	(1.516)	(3.238)	(4.411)	(3.335)	(1.555)	(4.077)	(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 C (N=94): WTP to hide† < 0								
Card with opportunity to hide	−8.044*	0.573	5.461	−20.332**	7.256	−0.129	8.017	6.118*
	(4.651)	(3.775)	(5.777)	(8.023)	(5.073)	(2.649)	(7.328)	(3.545)
R^2	0.29	0.22	0.29	0.25	0.36	0.22	0.21	0.37
Chi-2 (p-value)	0.06	0.55	0.04	0.07	0.00	0.14	0.43	0.00
Panel D (N=304): Testing heterogeneity across WTP to hide†								
Card opportunity to hide × WTP to hide $\geq 0^{\ddagger}$	8.015	−0.055	−6.630	9.770	−12.444**	4.958*	−4.126	−1.311
	(5.606)	(3.296)	(6.062)	(8.421)	(6.147)	(2.861)	(7.781)	(4.073)
R^2	0.13	0.07	0.13	0.16	0.19	0.13	0.10	0.10
Chi-2 (p-value)	0.02	0.78	0.04	0.00	0.00	0.01	0.21	0.19
Panel E: 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

Standard errors in (). $^{+}$ $p \leq 0.12$, * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$. Panels A, B, C & D: System of linear equations estimated with a SUR model.
† WTP to hide = Willingness to pay to hide (as measured in the lab experiment).
‡ In Panel D, main effects are also included: WTP to hide and card with opportunity to hide lottery gains.
Dependent var: Share of lottery gains allocated to the various commodities. One column per commodity.
Samples: in all panels, individuals who drew the no-option card 9000 FCFA in public or the no-option card 1000 FCFA in public and 8000 FCFA in private. Panel A and D: whole sample. Panel B (respectively C): sample with positive (respectively negative) WTP to hide income.
Control variables: same as in Table 5.
Community fixed effects included in all panels and for all outcomes.

[44]Other effects are found on household food and personal expenditures on Panel C; however we take these results with caution given the small sample size in this panel (94).

6.3.2 Testing the fungibility of the gains with other income sources

An inherent limitation of our experiment is the nature of the windfall gains, as opposed to effort-based income. True, there is a number of experimental studies that show people are less generous in dictator games when they first need to earn their income, rather that receive a windfall payment (among others, Cappelen et al., 2013; Cherry, 2001; Cherry et al., 2002; Hoffman et al., 1994). However, in this paper, we are not so much interested in the *level* of redistribution but rather in the *difference* in the level of redistribution between private and public gain earners. Therefore, under the assumption that the pure windfall income effect is the same for private and public gains, the fact that gains are not earned should not bias our results.

Moreover, we test the fungibility between the lottery gains and other income earned by the players. Lottery gains are not fungible in our context if an increase in the expenditures of an item using lottery gains is compensated by a decrease in the expenses for this item using the other income sources. In presence of such substitution in the use of the two types of earnings, our previous results would hide general equilibrium effects that would cancel out our estimated effects.

To discard this threat, we rely on our post-lab survey, in which we asked for the labor income earned during the past seven days, but also the amounts for the five largest transfers received and sent during this timeframe.[45] We compute the total earnings perceived over the past seven days by summing the declared labor income, the received transfers, and the lottery gains.[46] We thus compare our main results on the effect of hidden income on the share of lottery gains allocated to tranfers to kin and non-kin in Table 5, with the results on the share of total earnings on the same types of transfers[47] in Table 7. If the lottery gains are fully fungible, we should find close results between these two tables. In the opposite scenario, under non-fungibility of the gains, we should find no effect or an effect of the opposite sign, driven by the compensation mechanism highlighted above. Reassuringly, we find comparable effects of the opportunity to hide; the opportunity to hide decreases the resources allocated to transfers to kin in both cases. The magnitude is even remarkably similar for players with a positive WTP to hide (Panel B): drawing the card allowing the player to hide income decreases the share allocated to transfers to kin by 6.7 percentage points in Table 5 and by 5.9 percentage points in Table 7. Results in transfers to non-kin are also close in magnitude but are non-significant. Moreover, the shares allocated to transfers (Panel C)

[45] Note that these questions were asked at the beginning of the questionnaire, with no reference to the lottery gains. The questions about the use of the lottery gains were asked only at the very end of the survey.

[46] For individuals who did not perceive their income in the past seven days (e.g., monthly earned income), we compute it from the baseline survey.

[47] We have the information about only the amounts of the five most important transfers made during those seven days and not about other types of expenditures. Since our main results focus on transfers, we think that this comparison provides a convincing test on the fungibility issue.

are very similar between the two tables.

Hence, this test allows us to rule out the issue of the non-fungibility of the lottery gains, meaning that our main results were not assorted with opposite compensating behaviors with nonlab income. This is a strong reassuring result; it suggests that the difference in allocation choices of public and private resource is not affected by the nature of the windfall nature of the gains, since the same pattern is observed for total income.

Table 7: Testing the fungibility of the gains: effect of the opportunity to hide on the share of *total* income devoted to transfers
Sample: all individuals

Commodity shares	*Nontransfer consumption*	*Transfers to kin*	*Transfers to non-kin*
Panel A (N=669): Whole sample			
Card with opportunity to hide	3.870*	−4.158**	0.156
	(2.155)	(1.934)	(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*	−5.866***	1.736
	(2.574)	(2.268)	(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	−2.327	−2.113
	(3.928)	(3.568)	(1.584)
R^2	0.16	0.17	0.09
Chi-2 (p-value)	0.01	0.01	0.69
Panel D (N=669): Testing heterogeneity across WTP to hide†			
Card opportunity to hide × WTP to hide $\geq 0^\ddagger$	1.416	−3.988	3.581*
	(4.523)	(4.056)	(2.069)
R^2	0.07	0.08	0.04
Chi-2 (p-value)	0.00	0.00	0.27
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
Public cards & WTP <0 (N=60)	78.257	17.626	4.811

Standard errors in (). $^+$ p ≤ 0.12, * p ≤ 0.1, ** p ≤ 0.05, *** p ≤ 0.01
Dependent var: Share of *total* post-lab income – labor income, received transfers and lottery gains – allocated to the various commodities. One column per commodity. Panels A , B, C & D: System of linear equations estimated with a SUR model.
Sample: in all panels, individuals who drew the card 1000 FCFA in public are excluded. Panel A and D: whole sample, Panel B: sample with positive WTP to hide income , Panel C: sample with stricltly negative WTP to hide income.
Control variables: same as in Table 5.
Community fixed effects included in all panels.

6.3.3 Exploiting the different prices of the WTP to hide

Table 27 in appendix D presents the results looking at different levels of prices, 0, 200, and 700 FCFA — the prices that were on the cards in the lottery box. We see that the effect (in absolute value) of the opportunity to hide on transfers to kin is globally increasing between a WTP to hide at 0 and at 700 FCFA, though the coefficient decreases slightly between 0 and 200 FCFA. However, globally the

different coefficients are not statistically different from each other. We observe a similar pattern on the personal expenditures. Therefore, to present the results simply, we mainly focus on the dichotomy between negative and positive WTP to hide income, which guarrantees also the largest samples.

6.3.4 Aversion for public attention: an alternative channel?

Our argument here is that the WTP to keep income private is driven by the fear of out-of-the-lab claims about gains from kin or neighbors. However, one may wonder whether an alternative or competing story might be an aversion to public attention: whether fear or distaste of being publicly exposed, regardless of their income from the experiment. We think that our experiment does not suffer from this competing story. Indeed, an important feature of our experiment is that everybody was publicly exposed in the lab and this was public information since the beginning of the session. Each participant was named and given at least 1000 FCFA in public even when they received some gains in private.

7 Heterogeneity across wealth and gender

7.1 Better-off *versus* worse-off individuals

In this paper we are interested in how having the opportunity to hide affects resource-allocation choices, especially transfer behaviors. We also find it interesting to ponder whether this effect is different among worse-off and better-off individuals; in other words, do more financially constrained individuals are making different choices in terms of transfers and allocation strategies than individuals in more comfortable economic situations. For this, we explore the heterogeneity of the effect at the median household daily food consumption per capita, which is 420 FCFA. The mean daily household food consumption per capita for the sample below the median is 301 FCFA ,while for the sample above the median, it is more than the double: 696 FCFA. Hence, for an individual in the lower part of the distribution, the lottery gains represent almost a month of his or her own daily consumption, while for someone above the median, this represents only 13 days. We may thus expect a differential effect of the lottery gains in private or in public on these two subsamples. We conduct this analysis in Table 24 in Appendix D on the whole sample. Panel A concerns the sample of individuals below and at the median of household daily food consumption, while Panel B refers to the sample strictly above the median. Moreover, in Panels A2 and B2, we restrict the considered samples to the individuals with a positive WTP to hide.

The first important result of Table 24 is that we find a negative effect significant at 10 percent of the opportunity to hide on transfers to kin for individuals with a positive WTP to hide, both below and

above the median. Moreover, we observe that the effect on personal expenditures is mainly driven by better-off individuals — the magnitude and significance of the effect is larger on this sample. Finally, we find that the investment shared is decreased by the opportunity to hide among individuals willing to hide, but this is only true for individuals below the median. It seems that investing in inputs is part of a strategy to keep more control over one's resources and to lessen the pressure to redistribute[48]; hence, getting the opportunity to hide make this strategy redundant.

7.2 Gender analysis

The analysis of the WTP to hide income shows strong difference in the determinants to hide income across gender and along the median of household food expenditures. Following on these results, we explore the heterogeneity of the results by splitting our samples by gender — Table 25 for women and Table 9 for men – and by household economic position — Table 8 for women.[49]

7.2.1 Women

Looking at Table 25, we find no significant effect of the opportunity to hide neither on transfers to kin — although the sign is negative —, nor on personal expenditure — the sign is positive. We find a weak negative effect on the share devoted to investment purchases among women who were willing to pay to hide income, meaning that women who did not get the opportunity to hide but were willing to hide are spending 7.5 percentage points more on investment than women with similar preferences who got the "private card".

While we found almost no effect of the treatment for the whole sample for female players, we understand from Table 8 that the behaviors seem heterogeneous among women depending on the economic condition of the household. Indeed, all women below the median were decreasing their transfers to kin outside the household by 2.9 percentage points; this effect reaches 4.5 percentage points for women in this sample with a positive WTP to hide, representing a decrease of 86% of the share devoted to these transfers by the reference group. Concerning transfers to household members, the sign is positive and not significant.

Finally, women below the median were decreasing their expenses for investment, by 7.5 percentage points for all women and by 13.4 percentage points for women with a positive WTP to hide. The latter group of women spent on average 1208 FCFA less than women with same preferences but with a public card – accounting for a decrease in the share of 54.6 %. The combination of these two effects on transfers to kin outside the household and on investment freed up about 1620 FCFA for these women. A natural

[48] Some qualitative evidence of such type of coping strategies is provided in (Boltz and Villar, 2013).
[49] The smaller size of the sample of men does not allow us to conduct this analysis on men.

Table 8: Effect of the opportunity to hide on *transfers* and allocation choices of lottery gains
Sample: Women, below or above median food consumption

Dependent variable	Expenditures				**Transfers**				
Commodity shares	Personal (1)	Health (2)	Hh nonfood (3)	Hh food (4)	**To hh** (5)	**To kin out hh** (6)	**To non-kin** (7)	Investment (8)	Saved gains (9)
Panel A: Sample below median of household daily food consumption									
Panel A1 (N=242): All									
Card with opportunity to hide	1.905	2.509	−2.571	2.090	0.069	−2.919*	1.970	−7.479*	2.399
	(3.246)	(2.157)	(3.223)	(4.787)	(3.078)	(1.581)	(1.624)	(4.216)	(2.514)
R^2	0.18	0.11	0.07	0.15	0.20	0.16	0.09	0.14	0.09
Chi-2 (p-value)	0.00	0.51	0.78	0.01	0.00	0.00	0.60	0.03	0.45
Panel A2 (N=156): WTP ≥ 0									
Card with opportunity to hide	5.065	2.992	−0.920	5.482	1.449	−4.522**	2.896	−13.421**	0.601
	(4.295)	(2.905)	(3.702)	(5.754)	(3.739)	(2.039)	(2.286)	(5.553)	(3.127)
R^2	0.18	0.16	0.12	0.25	0.29	0.21	0.14	0.19	0.09
Chi-2 (p-value)	0.06	0.44	0.68	0.00	0.00	0.03	0.37	0.03	0.90
Panel A3: Unconditional means									
Public cards (N=61)	12.566	1.73	11.02	25.384	15.146	4.521	1.906	21.539	3.689
Public cards & WTP >=0 (N=39)	12.65	1.567	10.142	20.855	15.883	5.271	1.496	24.587	4.558
Panel B: Sample above median of household daily food consumption									
Panel B1 (N=208): All									
Card with opportunity to hide	5.518+	−2.222	1.565	−2.028	−1.498	1.295	−1.299	−1.624	−0.593
	(3.377)	(2.286)	(3.878)	(4.914)	(3.334)	(1.890)	(1.675)	(5.536)	(2.127)
R^2	0.25	0.18	0.15	0.18	0.14	0.16	0.09	0.22	0.16
Chi-2 (p-value)	0.00	0.02	0.12	0.00	0.09	0.02	0.71	0.00	0.02
Panel B2 (N=137): WTP ≥ 0									
Card with opportunity to hide	7.158	0.874	−4.730	−1.817	−4.001	2.839	0.855	−4.573	3.965
	(4.783)	(1.985)	(4.640)	(6.441)	(3.970)	(2.578)	(2.019)	(7.004)	(2.763)
R^2	0.30	0.29	0.25	0.26	0.18	0.24	0.17	0.29	0.26
Chi-2 (p-value)	0.00	0.00	0.01	0.00	0.20	0.01	0.23	0.00	0.00
Panel B3: Unconditional means									
Public cards (N=52)	8.172	5.491	10.833	22.244	14.783	3.034	4.032	24.124	1.866
Public cards & WTP >=0 (N=30)	10.276	2.296	14.111	18.709	16.259	2.593	2.057	26.556	1.937

Standard errors in (). $^{+}$ p $\leq$ 0.12, * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01. Panels A, B, C and D: System of linear equations estimated with a SUR model.
† WTP to hide = Willingness to pay to hide (as measured in the lab experiment).
‡ In Panel D, main effects are also included: WTP to hide and card with opportunity to hide lottery gains.
Dependent variables : Share of lottery gains allocated to the various commodities. One column per commodity.
Samples: women. In all panels, individuals who drew the card 1000 FCFA in public are excluded. Panels A (respectively B) correspond to women below or equal (respectively strictly above) to the median of household daily food consumption. Panels A1 and B1: whole sample, A2 and B2 : sample with positive WTP to hide income, A3 and B3: unconditional means.
Control variables: same as in Table 5.
Community fixed-effects included in all panels and for all outcomes.
The median daily household food expenditures per capita is 420 FCFA.

subsequent question is thus: Where do these women reallocate this extra money? Though we find no significant effect, women seem to spend more on personal and health, on household transfers and food, and on transfers to neighbors. From this analysis, we see that the poorer women are more responsive to the offered strategy to hide income: they seem to try to escape the pressure to redistribute from kin in the neighborhood so as to spend more for themselves and their households.

7.2.2 Men

Men are found, in Table 9, to decrease by 12 percentage points the amount they devoted to transfers to kin — Panel B shows men with a positive WTP to hide. This effect accounts for a 40% decrease in the share men in this sample devoted to transfers to kin, i.e., 1100 FCFA less spent on transfers, out of an average of 2745 FCFA among male public card winners with a positive WTP to hide income. This is

close to the mean WTP to hide income among men with a positive WTP: 1284 FCFA (see Table 3). This decrease in transfers to kin is associated with an increase of 9 percentage points in the gains allocated to personal expenditures. Again, this effect is substantial, since it doubles the share of the reference group. We learn from Table 26 in Appendix D that this decrease in transfers mainly occurred toward kin outside the household — transfers to household members also seem to decrease but the effect is smaller and not significant. Concerning transfers to kin, the opposite effect is found for men with a negative WTP to hide: they transfer much more when they have the opportunity to hide, though Panel C should be taken with caution given the small sample (N=64).

Table 9: Effect of the opportunity to hide on allocation choices of lottery gains
Sample: Men

Dependent variables:	Expenditures				Transfers			
Commodity shares	Personal (1)	Health (2)	Hh nonfood (3)	Hh food (4)	To kin (5)	To non-kin (6)	Investment (7)	Saved gains (8)
Panel A (N=204): Whole sample								
Card with opportunity to hide	6.605^{+}	2.210	−3.613	−0.794	−2.662	−0.095	0.304	−0.805
	(4.086)	(2.398)	(4.005)	(6.033)	(4.463)	(1.754)	(3.521)	(2.812)
R^2	0.16	0.07	0.18	0.17	0.19	0.12	0.15	0.13
Chi-2 (p-value)	0.01	0.98	0.01	0.00	0.00	0.21	0.00	0.00
Panel B (N=140): WTP to hide† ≥ 0								
Card with opportunity to hide	9.184*	2.450	−5.223	−0.744	−12.126**	0.451	3.370	−0.662
	(4.933)	(2.924)	(4.893)	(6.833)	(5.402)	(2.213)	(3.823)	(3.496)
R^2	0.17	0.09	0.18	0.22	0.24	0.18	0.23	0.17
Chi-2 (p-value)	0.00	0.49	0.00	0.00	0.00	0.12	0.00	0.23
Panel C (N=64): WTP to hide† < 0								
Card with opportunity to hide	6.337	2.929	−8.496	16.356	21.617***	−1.943	−8.210	−8.815*
	(7.969)	(4.575)	(7.730)	(12.431)	(8.127)	(2.793)	(7.432)	(4.664)
R^2	0.35	0.39	0.44	0.38	0.44	0.34	0.39	0.40
Chi-2 (p-value)	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Panel D (N=204): Testing heterogeneity across WTP to hide†								
Card hide × WTP to hide $\geq 0^{\ddagger}$	4.063	−0.259	−2.583	−5.694	−27.449***	0.428	12.322*	1.750
	(8.700)	(5.234)	(8.654)	(12.875)	(9.523)	(3.742)	(7.484)	(6.064)
R^2	0.16	0.08	0.19	0.17	0.22	0.13	0.18	0.14
Chi-2 (p-value)	0.00	0.62	0.01	0.00	0.00	0.00	0.01	0.17
Panel E: Unconditional means								
Public cards (N=51)	11.218	1.089	12.738	31.997	22.694	3.721	5.413	4.357
Public cards & WTP >=0 (N=35)	9.749	1.587	12.385	32.18	30.529	4.166	1.429	4.444
Public cards & WTP <0 (N=16)	14.432	0	13.511	31.597	5.556	2.748	14.13	4.167

Standard errors in (). $^{+}$ p $\leq$ 0.12, * p $\leq$ 0.1, ** p $\leq$ 0.05, *** p $\leq$ 0.01. Panels A, B, C and D: System of linear equations estimated with a SUR model.
† WTP to hide = Willingness to pay to hide (as measured in the lab experiment).
‡ In Panel D, main effects are also included: WTP to hide and card with opportunity to hide lottery gains.
Dependent variables: Share of lottery gains allocated to the various commodities. One column per commodity.
Samples: Men. In all panels, individuals who drew the card 1000 FCFA in public are excluded. Panel A and D: whole sample. Panel B (respectively C): sample with positive (respectively negative) WTP to hide income.
Control variables: same as in Table 5.
Community fixed-effects included in all panels and for all outcomes.

8 Conclusion

In this paper, we investigate the adverse effects of informal redistribution on resource allocation decisions in Senegal. We rely in this paper on an original experiment conducted in dense urban areas in Senegal

that combines a lab-in-the-field and a randomized controlled trial. We estimate the willingness-to-pay to hide income and analyze how having hidden income affects resource allocation choices outside the lab. First, we find a high WTP for hiding: 65% of subjects prefer to receive their gains in private rather than in public, and are ready to forgo on average 14% of their unobserved income. For both men and women, variables correlated with a higher redistributive pressure are also determinants of a higher WTP to hide income, although these determinants differ across gender. Second, looking at the effect of hidden income on out-of-the-lab allocation choices, individuals with preferences for hidden income who received their gains in public spend on average 23% of their income on transfers to kin. In contrast, participants who are willing and able to hide their lottery gains transfer 27% less, reallocating this extra money mostly on private goods and on health care (though the effect is weaker for the latter). Women in poor households invest less of their income when they are able and willing to hide, which suggests that they employ investment as a strategy to gain more control over their resources and to transfer less. These two components of the experiment corroborate the idea that the preference for hidden income is driven by a strategy to escape redistributive pressure.

This paper contributes to the growing but still scarce literature on the potential adverse effects of informal redistribution in developing economies. It sheds light on the possible causes of poverty traps in sub-Saharan Africa. Our paper is the first to both identify the hidden cost of informal redistribution, throught the WTP to hide income from peers, and to link it to the effect of redistributive obligations on resources allocation within and between households. Our results show the existence of important welfare costs associated with redistributive pressure. First, the widespread, high WTP to hide income provides us with an estimate of the deadweight loss associated with the redistributive pressure. Moreover, we find that redistribution takes place mostly within kinship networks and that people are willing to avoid redistributive pressure from kin outside the household. Offering people the opportunity to keep income unobservable pushes allocation choices away from transfers toward personal and health expenditures. It also decreases the share devoted to the purchase of productive assets for women in poor households, which suggests that investing in small inputs represents a substitute strategy - vs. income hiding - for these women to gain more control over their resources and sidestep potential demands on them to redistribute their gains.

The strong WTP for income privacy and the considerable effects income hiding induces on resource allocation point to the importance of designing adequate financial products such as savings, especially when they would protect individuals secrecy from other household or kin members and offer more control over their resources. A formal insurance scheme that can offer at least as good insurance coverage as the extended family would allow two-thirds of the population to save 14% of their revenues. This

is all the more important since the population at stake are also the most vulnerable groups. Indeed, pressed by the social obligations to redistribute, poor women make some small daily investment, such as reselling goods, that do not allow them to improve their economic conditions. Offering them a safe, unobserved savings device would enable them to capitalize for a larger investment and help them to escape this poverty trap. However, further research is needed to capture the general equilibrium effects, including the benefits of social redistribution in terms of risk-sharing as well as the distortionary costs identified here. Understanding the linkages between formal and informal institutions would help to assess the effects of introducing a large-scale insurance scheme in economies with predominant family-provided insurance. Therefore, this paper calls for further research investigating the welfare gains associated with the design of adequate financial products, e.g. savings accounts, that offer individuals more control over their resources.

This study provides some evidence on how informal institutions, in the absence of formal financial markets and public redistribution, shape economic behaviors and the structure of society. These results and the new research avenues they prompt are all the more important because the individuals most affected by these informal arrangements are also generally society's most vulnerable.

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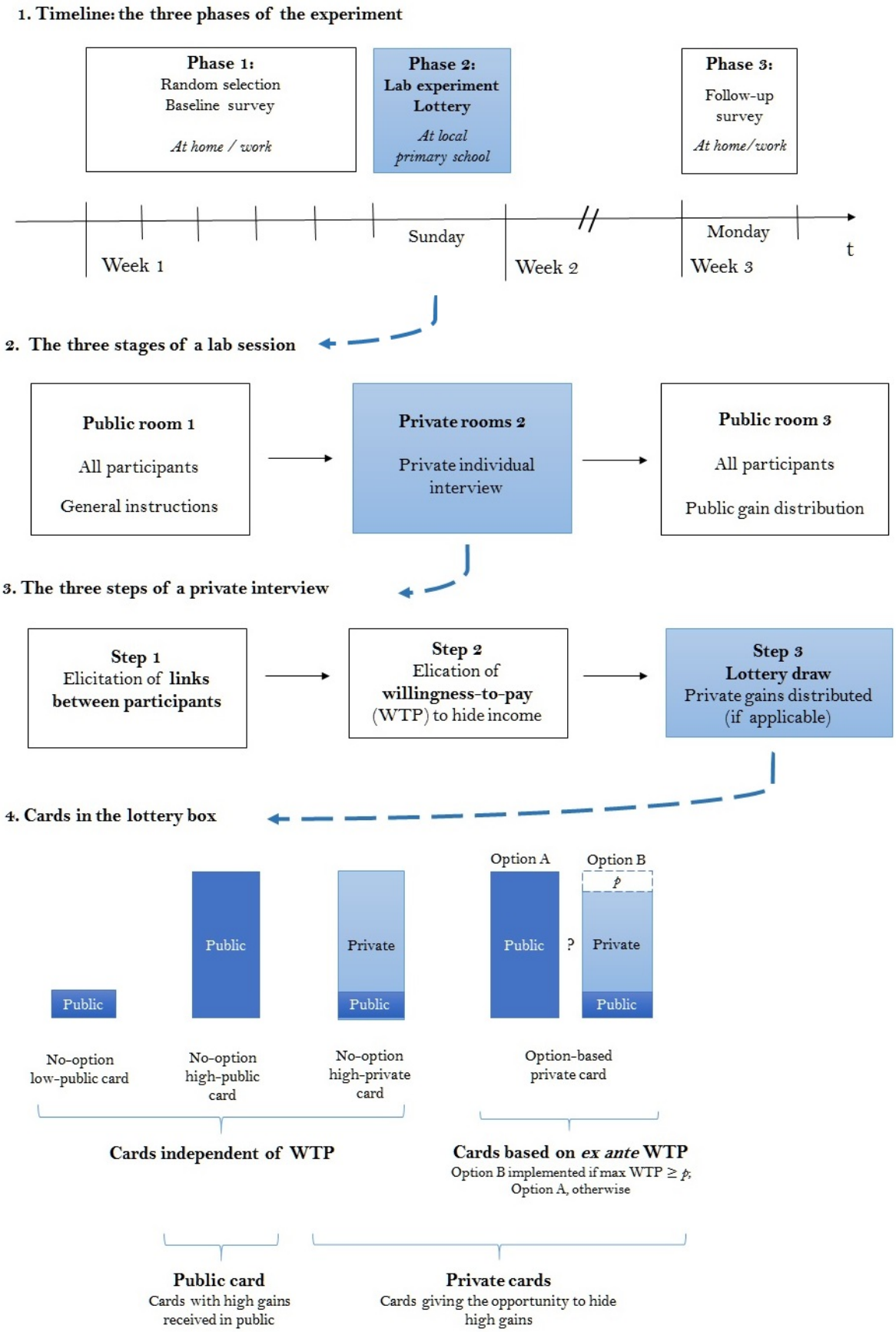
9 Appendix A: Protocole

Figure 1: Schema of the experiment in four steps



10 Appendix B: Descriptive Statistics

Figure 2: Distribution of the WTP to hide for people for all positive prices
Sample: all individuals

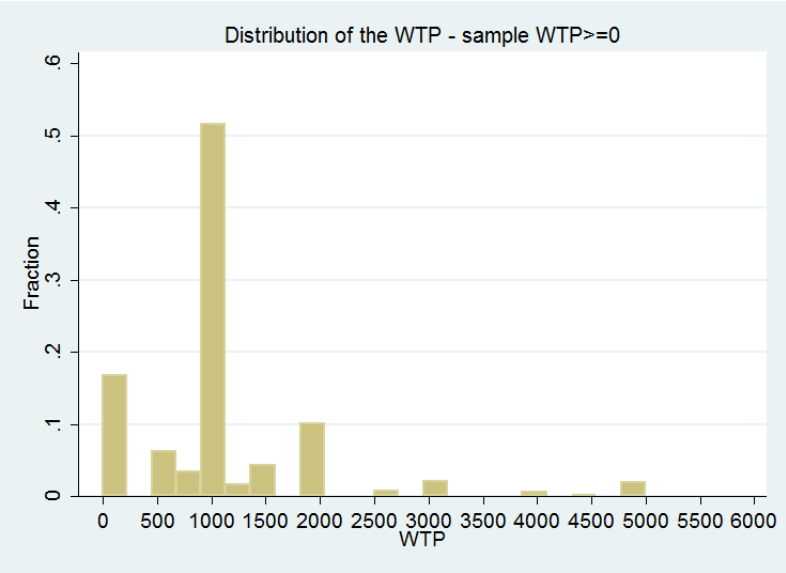


Figure 3: Distribution of the WTP to hide for people for all positive prices
Sample: women

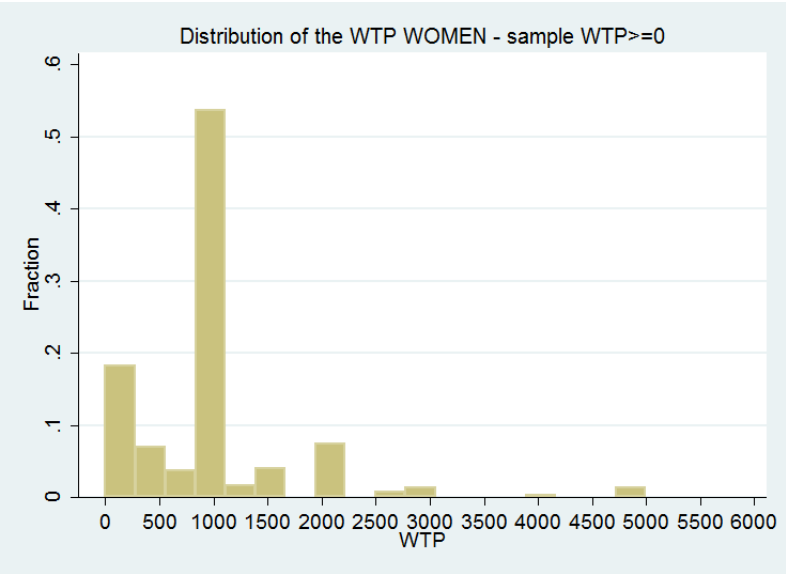


Figure 4: Distribution of the WTP to hide for people for all positive prices
Sample: men

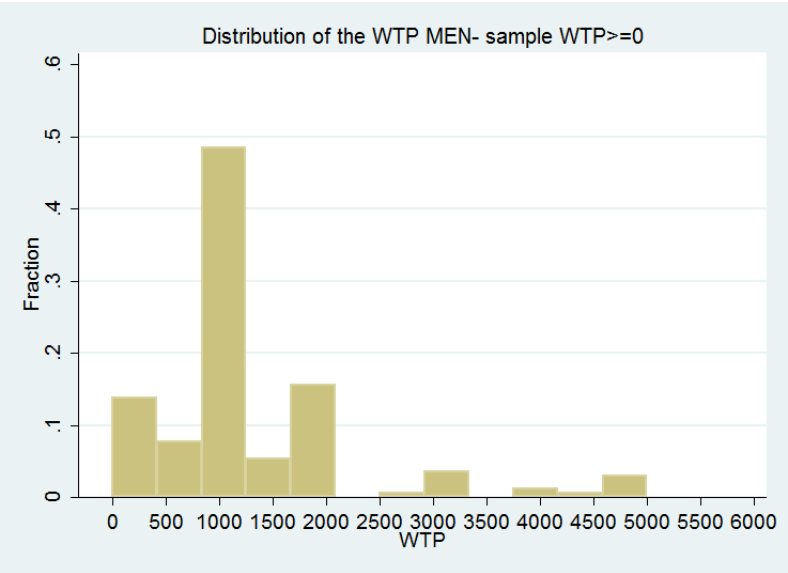


Table 10: Full lottery sample, *Private* and *Public* lottery cards subsamples

	Full sample		Private card		Public card		Diff.
	N	Mean	N	Mean	N	Mean	P-val.
	(0)		(1)		(2)		(1)-(2)
Experimental variations							
Selected with another household member	816	0,65	537	0,67	278	0,63	0,29
Any close friend among players	811	0,08	533	0,07	278	0,09	0,31
Any neighbor among players	811	0,79	533	0,79	278	0,79	0,87
Any kin among players	811	0,53	533	0,55	278	0,49	0,15
Individual sociodemographic characteristics							
Male	816	0,33	537	0,32	278	0,34	0,57
Age	816	37,40	537	37,72	278	36,74	0,25
Muslim	816	0,96	537	0,97	278	0,94	0,10
Wolof	816	0,46	537	0,48	278	0,41	0,06
No education	816	0,23	537	0,23	278	0,21	0,51
Koranic School	816	0,36	537	0,36	278	0,36	0,92
French/Arabic education	816	0,61	537	0,59	278	0,65	0,13
In a monogamous union	816	0,48	537	0,44	278	0,56	0,00
In a polygamous union	816	0,18	537	0,18	278	0,17	0,50
Single	816	0,23	537	0,26	278	0,19	0,05
Other marital status	816	0,10	537	0,12	278	0,07	0,02
Individual economic characteristics							
Informal sector	816	0,86	537	0,85	278	0,87	0,45
Monthly earnings (in log)	810	6,59	531	6,53	278	6,70	0,67
Contributes to household's food expenses	811	0,42	534	0,43	276	0,38	0,20
Borrower	816	0,41	537	0,42	278	0,38	0,35
Lender	814	0,37	536	0,37	277	0,38	0,71
Owns some cattle	816	0,10	537	0,10	278	0,10	1,00
Owns some poultry	816	0,06	537	0,07	278	0,05	0,13
Personal exp. funded only by labor/capital earnings	803	0,30	528	0,30	274	0,29	0,67
Personal exp. funded only by private transfers	803	0,21	528	0,22	274	0,19	0,32
Personal exp. funded by savings	803	0,12	528	0,12	274	0,13	0,61
Personal exp. funded by loans	803	0,07	528	0,08	274	0,07	0,89
Individual position in the household							
Household head	815	0,20	536	0,21	278	0,17	0,19
Spouse of household head	815	0,25	536	0,25	278	0,26	0,78
Son or daughter of household head	815	0,28	536	0,28	278	0,29	0,90
Sibling of household head	815	0,06	536	0,06	278	0,07	0,55
Eldest in same parent sibship	816	0,25	537	0,26	278	0,24	0,66
Father alive	816	0,43	537	0,43	278	0,44	0,81
Mother alive	813	0,72	535	0,70	277	0,75	0,13
Individual position in the community and extended family							
Has always lived in the community	816	0,35	537	0,37	278	0,32	0,22
Has a responsibility in the community	816	0,09	537	0,10	278	0,07	0,09
Can rely on someone in household	816	0,65	537	0,64	278	0,67	0,31
Can rely on someone in neighborhood	816	0,15	537	0,15	278	0,14	0,96
Can rely on someone outside neighborhood	816	0,49	537	0,47	278	0,51	0,31
Anyone in household can rely on him/her	816	0,63	537	0,64	278	0,61	0,39
Anyone in neighborhood can rely on him/her	816	0,22	537	0,21	278	0,23	0,44
Anyone outside neighborhood can rely on him/her	816	0,34	537	0,35	278	0,34	0,81
Household characteristics							
Household size	815	11,75	537	11,88	277	11,54	0,47
Share of adult household members	815	0,63	537	0,63	277	0,63	0,96
Share of female household members	815	0,52	537	0,51	277	0,53	0,12
Household daily food consumption p.c. (log)	812	6,09	536	6,09	275	6,11	0,57
House is rented	816	0,33	537	0,35	278	0,29	0,13

Table 11: Distribution of cards in the lottery

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

NO stands for "no-option" cards, *O* stands for "option" cards.

Table 12: Distribution of gains for option cards

		Choice made at given price		
Card	Price	Option A (All public)	Option B (Partly private)	Total
$Private_{p200,O}$	200 FCFA			
Frequency		80	106	186
Percentage*		43.0%	57.0%	100%
$Private_{p700,O}$	700 FCFA			
Frequency		93	91	184
Percentage*		50.5%	49.5%	100%

* It corresponds to the percentage of individuals having chosen option A (respectively B) for a given card and at the corresponding price level. The difference between the take-ups for price=200 and p=700 is not significantly different from zero at the 5% level.

NP stands for "not preference-based", *P* stands for "preference-based".

Table 13: Attrition between baseline and lab phase

Samples	Baseline		Lab		Attrited		Diff.
	N	Mean	N	Mean	N	Mean	P-values
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(2)-(3)
Experimental variations							
Selected with another household member	922	0.64	816	0.65	106	0.55	0.03
Individual sociodemographic characteristics							
Male	922	0.35	816	0.33	106	0.48	0.00
Age	932	37.07	826	37.44	106	34.15	0.01
Muslim	922	0.96	816	0.96	106	0.95	0.79
Wolof	922	0.46	816	0.46	106	0.48	0.66
No education	922	0.22	816	0.23	106	0.17	0.19
Koranic schooling	947	0.36	841	0.35	106	0.42	0.20
French/Arabic education	947	0.60	841	0.59	106	0.68	0.09
In a monogamous union	922	0.48	816	0.48	106	0.49	0.86
In a polygamous union	922	0.17	816	0.18	106	0.08	0.02
Single	922	0.25	816	0.23	106	0.38	0.00
Other marital status	947	0.09	841	0.10	106	0.05	0.09
Individual economic characteristics							
Informal sector	947	0.82	841	0.83	106	0.74	0.01
Monthly revenues (in log)	915	6.58	810	6.59	105	6.45	0.80
Contributes to household's food expenses	924	0.41	821	0.42	103	0.37	0.34
Borrower	921	0.39	816	0.41	105	0.30	0.03
Lender	919	0.38	814	0.37	105	0.40	0.62
Owns some cattle	922	0.11	816	0.10	106	0.18	0.02
Owns some poultry	922	0.07	816	0.06	106	0.11	0.07
Personal exp. funded only by labor/capital earnings	907	0.32	803	0.30	104	0.46	0.00
Personal exp. funded only by private transfers	907	0.21	803	0.21	104	0.25	0.34
Personal exp. funded by savings	907	0.12	803	0.12	104	0.10	0.49
Personal exp. funded by loans	907	0.07	803	0.07	104	0.06	0.53
Individual position in the household							
Eldest in same-parent sibship	922	0.25	816	0.25	106	0.23	0.54
Household head	921	0.19	815	0.20	106	0.18	0.70
Spouse of household head	921	0.24	815	0.25	106	0.20	0.25
Son or daughter of household head	921	0.29	815	0.28	106	0.33	0.33
Sibling of household head	921	0.06	815	0.06	106	0.06	0.85
Father alive	922	0.44	816	0.43	106	0.51	0.12
Mother alive	919	0.72	813	0.72	106	0.76	0.32
Individual position in the community and extended family							
Has always lived in the community	922	0.35	816	0.35	106	0.32	0.51
Has a responsibility in the community	922	0.09	816	0.09	106	0.06	0.23
Can rely on someone in household	922	0.63	816	0.65	106	0.51	0.01
Can rely on someone in neighborhood	922	0.15	816	0.15	106	0.14	0.91
Can rely on someone out of neighborhood	922	0.48	816	0.49	106	0.44	0.42
Anyone in household can rely on him/her	922	0.63	816	0.63	106	0.66	0.51
Anyone in neighborhood can rely on him/her	922	0.22	816	0.22	106	0.25	0.36
Anyone outside neighborhood can rely on him/her	922	0.35	816	0.34	106	0.44	0.04
Household characteristics							
Household size	930	11.49	825	11.73	105	9.60	0.00
Share of adult household members	929	0.63	825	0.63	104	0.68	0.01
Share of female household members	929	0.52	825	0.52	104	0.50	0.31
Household daily food consumption p.c. (log)	926	6.12	822	6.10	104	6.28	0.00
House is rented	947	0.32	841	0.32	106	0.29	0.50

Table 14: Attrition between lab phase and post-lab interviews

Samples	Lab N (1a)	Lab Mean (1b)	Post-lab N (2a)	Post-lab Mean (2b)	Attrited N (3a)	Attrited Mean (3b)	Diff. P-values (2)-(3)
Experimental dimensions							
Positive WTP to hide	797	0.65	772	0.66	25	0.52	0.16
$Private_{O,A}$	797	0.22	772	0.22	25	0.08	0.09
$Private_{O,B}$	797	0.25	772	0.24	25	0.32	0.39
$Private_{free,NO}$	797	0.19	772	0.20	25	0.16	0.66
$HighPublic_{NO}$	797	0.21	772	0.21	25	0.16	0.55
$LowPublic_{NO}$	797	0.13	772	0.13	25	0.28	0.03
Selected with another household member	797	0.65	772	0.66	25	0.52	0.15
Any close friend among players	793	0.08	768	0.08	25	0.08	0.97
Any neighbor among players	793	0.79	768	0.79	25	0.76	0.69
Any kin among players	793	0.53	768	0.53	25	0.52	0.93
Individual socio- demographic characteristics							
Male	797	0.32	772	0.32	25	0.56	0.01
Age	797	37.42	772	37.27	25	42.20	0.03
Muslim	797	0.96	772	0.96	25	0.96	1.00
Wolof	797	0.46	772	0.46	25	0.48	0.82
No education	797	0.23	772	0.23	25	0.16	0.42
Koranic schooling	797	0.36	772	0.35	25	0.52	0.09
French/Arabic education	797	0.61	772	0.61	25	0.68	0.47
In a monogamous union	797	0.48	772	0.48	25	0.48	0.98
In a polygamous union	797	0.18	772	0.18	25	0.24	0.45
Single	797	0.23	772	0.24	25	0.20	0.68
Other marital status	797	0.10	772	0.10	25	0.08	0.73
Individual economic characteristics							
Informal sector	797	0.86	772	0.86	25	0.84	0.78
Monthly revenues (in log)	791	6.57	767	6.54	24	7.59	0.35
Contributes to household's food expenses	792	0.42	767	0.41	25	0.56	0.14
Borrower	797	0.41	772	0.41	25	0.24	0.09
Lender	795	0.37	770	0.37	25	0.40	0.78
Owns some cattle	797	0.10	772	0.10	25	0.20	0.10
Personal exp. funded only by labor/capital	785	0.30	761	0.30	24	0.38	0.40
Personal exp. funded only by private transfers	785	0.21	761	0.21	24	0.13	0.30
Personal exp. funded only by savings	785	0.12	761	0.12	24	0.13	0.94
Personal exp. funded only by loans	785	0.07	761	0.07	24	0.13	0.33
Individual position in the household							
Household head	796	0.19	771	0.19	25	0.28	0.25
Spouse of household head	796	0.25	771	0.25	25	0.24	0.90
Son or daughter of household head	796	0.29	771	0.29	25	0.24	0.58
Sibling of household head	796	0.06	771	0.06	25	0.08	0.61
Eldest in same-parent sibship	797	0.25	772	0.25	25	0.24	0.89
Father alive	797	0.43	772	0.43	25	0.44	0.92
Individual position in the community and extended family							
Has always lived in the community	797	0.35	772	0.35	25	0.32	0.77
Has a responsibility in the community	797	0.09	772	0.09	25	0.12	0.58
Can rely on someone in household	797	0.65	772	0.66	25	0.52	0.16
Can rely on someone in neighborhood	797	0.14	772	0.14	25	0.20	0.42
Can rely on someone outside neighborhood	797	0.49	772	0.49	25	0.40	0.37
Anyone in household can count on him/her	797	0.63	772	0.63	25	0.76	0.18
Anyone in neighborhood can rely on him/her	797	0.22	772	0.21	25	0.28	0.43
Anyone outside neighborhood can rely on him/her	797	0.34	772	0.34	25	0.36	0.82
Household characteristics							
Household size	796	11.78	771	11.79	25	11.52	0.84
Share of adult household members	796	0.63	771	0.63	25	0.64	0.66
Share of female household members	796	0.52	771	0.52	25	0.48	0.17
Household daily food consumption p.c. (log)	793	6.09	769	6.09	24	6.12	0.79
House is rented	797	0.33	772	0.33	25	0.44	0.23

11 Appendix C: Results on willingness-to-pay to hide

Table 15: Willingness-to-pay (WTP) to hide income
Samples: below/above the median of household daily food consumption

	Whole sample			**Sample with WTP $\geq$ 0**		
	All players	Women	Men	All players	Women	Men
Panel A: < median of household daily food expenditures per cap.						
Number of observations	400	272	129	259	177	82
Mean (in FCFA)	689	650	764	1063	999	1202
Median (in FCFA)	500	500	1000	1000	1000	1000
S.D.	938	954	900	980	1025	864
Relative WTP †	2.28	2.14	2.52	3.54	3.34	3.97
Panel B: $\geq$ median of household daily food expenditures per cap.						
Number of observations	402	271	130	266	176	90
Mean (in FCFA)	776	652	1040	1173	1005	1502
Median (in FCFA)	700	500	1000	1000	1000	1000
S.D.	1067	750	1502	1121	716	1602
Relative WTP †	1.18	1.12	1.34	1.80	1.72	1.97
Test difference in relative WTP - Panels A vs B (P-Val)	0.00	0.00	0.00	0.00	0.00	0.00

1000 FCFA $\simeq$ 1.5 EUR $\simeq$ 1.7 USD
The median daily household food expenditure per capita is 420 FCFA.
† Relative WTP corresponds to the ratio of the WTP on the household daily food expenditures per capita
Taking a conservative approach, we computed the willingness-to-pay statistics at the lower bound of the price interval. For example, if a participant is ready to pay 200 FCFA but not 500 FCFA, her maximum WTP is registered as being equal to 200 FCFA.

Table 16: Willingness to hide income : Random-effect panel logit model

	All (1)	**Women** (1w)	**Men** (1m)
Price = 200 FCFA	-3.15^{***}	-3.24^{***}	-2.40^{***}
	(0.44)	(0.52)	(0.74)
Price = 500 FCFA	-5.78^{***}	-5.66^{***}	-5.22^{***}
	(0.53)	(0.62)	(0.88)
Price = 700 FCFA	-8.10^{***}	-7.97^{***}	-7.24^{***}
	(0.60)	(0.71)	(0.93)
Price = 1000 FCFA	-9.35^{***}	-9.26^{***}	-8.17^{***}
	(0.63)	(0.76)	(0.95)
Number of observations	3855	2620	1235

Panel logit with random effect model; Community and time fixed effects included; robust standard errors in (); $^{*}p < 0.10,^{**} p < 0.05,^{***} p < 0.01$.
Dependent variable: $Hide_{ik} = 1$ if subject i wants to hide at price $p = k$.
Controls not shown: same controls as in Table 18.

Table 17: The effects of the experimental group composition on the WTP to hide income : *Interval-censored regression — Below/above the median of household daily food expenditures*

	Below Median		**Above Median**	
Maximum WTP to hide†	All	Women	All	Women
	(1)	(1w)	(2)	(2w)
Selected in a household pair	152.8	32.5	−131.7	−179.0
	(151.8)	(162.5)	(138.7)	(152.6)
Any known non-kin in the session	−15.0	19.1	6.5	−98.6
	(155.5)	(128.2)	(259.8)	(195.9)
Any kin in the session (excl. household pairs)	283.0	385.0*	240.5	406.3*
	(223.4)	(223.1)	(176.7)	(218.7)
Mean of the WTP to hide (in FCFA)	688.5	650	776.1	652.4
Number of observations	386	260	385	264
AIC	3698.1	2390.2	3846.3	2548.4
Test Chi-2 (p-value)	0.00	0.00	0.00	0.00

Interval-data regression model; standard errors clustered at the session level in ()
$^{+}p < 0.12,^{*}\ p < 0.10,^{**}\ p < 0.05,^{***}\ p < 0.01$. Interval-censored data regression model;
† Dependent 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 price above 1000 FCFA (specific question).
The median of the daily household food expenditures per capita is 420 FCFA.
Controls not shown: same controls as in Table 18.

Table 18: The Determinants of the Willingness-to-pay to hide income
Interval-censored regression model

Maximum WTP to hide†	**All** (1)	**Women** (1w)	**Men** (1m)
Experimental variations			
Selected with another hh member	−17.9	−122.4	110.1
	(110.7)	(120.5)	(211.0)
Any known non-kin in the session	−16.0	−94.3	89.5
	(150.2)	(131.2)	(335.4)
Any kin in the session (excl. pairs)	271.1**	444.7***	−265.3
	(134.8)	(132.5)	(301.0)
Individual demographics			
Male	192.4*		
	(105.4)		
Age	−1.9	−5.3	1.2
	(5.1)	(5.9)	(12.0)
French/Arabic education	−66.9	−77.7	−18.4
	(104.7)	(129.0)	(199.2)
Koranic schooling	−100.4	−137.7	11.1
	(103.3)	(113.2)	(173.8)
Single	232.7**	185.5	558.1**
	(116.3)	(145.6)	(252.9)
Individual economic situation			
Formal sector	−154.9*	−167.6	−95.9
	(92.2)	(120.6)	(253.2)
Average income in last 3 months (log)	12.3**	15.2*	11.1
	(6.0)	(7.8)	(14.1)
Has some savings	102.8	54.0	263.2
	(77.2)	(107.6)	(181.5)
Individual position in the household			
Household head	355.2**	433.0*	473.9**
	(170.9)	(224.6)	(232.9)
Spouse of household head	275.5*	273.3*	
	(145.4)	(150.2)	
Child of household head	40.6	−138.0	390.8*
	(143.8)	(172.9)	(217.1)
Contributes to household food expenses	35.7	−20.4	24.4
	(111.7)	(116.3)	(243.9)
Individual position in the community			
Has always lived in this community	193.0	379.7***	−314.1
	(135.0)	(139.9)	(247.1)
Has a responsibility in the community	−494.7***	−91.4	−1315.8***
	(113.9)	(164.6)	(296.7)
Household characteristics			
Household size	14.4	19.5	17.3
	(11.4)	(12.7)	(22.2)
Share of dependent household members (%)	−3.6	−7.9**	8.4
	(3.0)	(3.3)	(6.7)
Household daily food consumption p.c. (log)	211.8*	94.5	465.8*
	(121.8)	(116.2)	(267.6)
House is rented	−111.4	−11.7	−450.6**
	(107.3)	(131.6)	(197.2)
Constant	−960.2	315.9	−3480.6*
	(791.8)	(787.5)	(2010.7)
Mean of the WTP to hide (in FCFA)	732.4	651.2	902.7
Number of observations	771	524	247
AIC	7512.7	4914.9	2592.5
Test Chi-2 (p-value)	0.00	0.00	0.00

Interval-data regression model; standard errors clustered at the session level in ()
$^{+}p < 0.12,^{*}\ p < 0.10,^{**}\ p < 0.05,^{***}\ p < 0.01$.
† Dependent 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 price above 1000 FCFA (specific question).
Controls not shown : can read (dummy), Wolof and Muslim dummies.

Table 19: Willingness-to-pay to hide income
Interval regression model — Below/above the median of household food expenditures
Sample: all and women only ; all controls shown

	Below Median		Above Median	
	All	*Women*	*All*	*Women*
	1	1*w*	2	2*w*
Experimental variations				
Selected with another hh member	152.8	32.5	−131.7	−179.0
	(151.8)	(162.5)	(138.7)	(152.6)
Any known non-kin in the session	−15.0	19.1	6.5	−98.6
	(155.5)	(128.2)	(259.8)	(195.9)
Any kin in the session (excl. pairs)	283.0	385.0*	240.5	406.3*
	(223.4)	(223.1)	(176.7)	(218.7)
Individual demographics				
Male	45.4		323.0*	
	(160.3)		(168.9)	
Age	5.4	−1.8	−8.7	−11.4^{+}
	(6.1)	(8.3)	(7.6)	(7.0)
French/Arabic education	−134.2	−248.5	−57.4	11.3
	(177.3)	(239.8)	(147.1)	(176.4)
Koranic schooling	−57.5	−55.1	−145.3	−162.1
	(145.2)	(130.7)	(123.6)	(160.8)
Single	357.4*	271.5	127.3	53.1
	(194.2)	(247.6)	(131.3)	(212.8)
Individual economic situation				
Formal sector	−344.1**	−484.8**	−38.0	46.5
	(165.6)	(217.5)	(168.3)	(168.8)
Average income in last 3 months (log)	17.9*	28.7**	4.9	5.0
	(10.5)	(14.1)	(12.2)	(12.1)
Has some savings	118.0	120.6	150.1	84.0
	(95.0)	(103.6)	(136.8)	(147.1)
Individual position in the household				
Household head	493.9**	627.7	310.8	431.2*
	(246.3)	(416.7)	(229.9)	(223.7)
Spouse of household head	84.4	102.8	456.4**	416.5**
	(188.7)	(224.0)	(214.2)	(190.7)
Child of household head	−16.4	−212.6	123.1	−9.2
	(144.1)	(173.1)	(191.8)	(203.1)
Contributes to household food expenses	49.7	−3.5	12.2	25.0
	(156.6)	(161.9)	(209.4)	(181.0)
Individual position in the community				
Has always lived in this community	285.4***	442.5***	56.4	233.2
	(109.7)	(160.6)	(197.3)	(212.8)
Has a responsibility in the community	−247.0	71.1	−680.5***	−150.2
	(186.8)	(308.3)	(207.7)	(226.3)
Household charcteristics				
Household size	16.1	16.2	−0.5	25.8
	(12.9)	(16.5)	(18.4)	(16.9)
Share of dependent household members(%)	−4.3	−11.5**	−4.1	−7.9**
	(3.8)	(5.2)	(4.3)	(3.8)
Household daily food consumption p.c. (log)	157.3	62.8	271.5	89.2
	(246.0)	(294.9)	(206.7)	(240.2)
Household doesn't own house	−95.7	25.9	−220.0	−31.9
	(135.1)	(132.7)	(165.6)	(199.1)
Constant	−799.0	218.2	−1161.4	432.6
	(1521.9)	(1853.8))	(1262.6)	(1597.0)
Mean of the WTP to hide (in FCFA)	688.5	650	776.1	652.4
Number of observations	386	260	385	264
AIC	3698.1	2390.2	3846.3	2548.4
Test Chi-2 (p-value)	0.00	0.00	0.00	0.00

Interval-data regression model; standard errors clustered at the session level in ()
$^{+}p < 0.12$,* $p < 0.10$,** $p < 0.05$,*** $p < 0.01$. Interval-censored data regression model;
† Dependent 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 price above 1000 FCFA (specific question).
The median daily household food expenditure per capita is 420 FCFA.
Controls not shown : can read (dummy), Wolof and Muslim dummies.

Table 20: Willingness-to-pay to hide income : *Logit model (average marginal effects)*

Maximum WTP to hide[†]	**All** (1)	**Women** (1w)	**Men** (1m)
Experimental variations			
Selected with another hh member	−0.006	−0.004	−0.054
	(0.040)	(0.045)	(0.070)
Any known non-kin in the session	0.027	−0.018	0.129^{+}
	(0.042)	(0.058)	(0.081)
Any kin in the session (excl. pairs)	0.107*	0.192***	−0.063
	(0.056)	(0.058)	(0.088)
Individual demographic situation			
Male	0.024		
	(0.041)		
Age	−0.002	−0.003	−0.001
	(0.002)	(0.002)	(0.004)
French/Arabic education	−0.102**	−0.075	−0.156*
	(0.048)	(0.055)	(0.094)
Koranic schooling	−0.031	−0.046	−0.004
	(0.037)	(0.046)	(0.060)
Single	0.096**	0.103	0.166**
	(0.041)	(0.070)	(0.084)
Individual economic situation			
Formal sector	−0.033	0.002	−0.011
	(0.032)	(0.065)	(0.078)
Average income in last 3 months (log)	0.002	0.005	−0.001
	(0.003)	(0.003)	(0.005)
Has some savings	0.023	0.023	0.041
	(0.031)	(0.042)	(0.070)
Individual position in the household			
Household head	0.134*	0.173*	0.112^{+}
	(0.070)	(0.099)	(0.072)
Spouse of household head	0.081*	0.089*	
	(0.048)	(0.054)	
Child of household head	−0.011	−0.080	0.074
	(0.050)	(0.072)	(0.050)
Contributes to household food expenses	−0.023	−0.058	0.014
	(0.039)	(0.048)	(0.078)
Individual position in the community			
Has always lived in the community	0.004	0.045	−0.121
	(0.044)	(0.041)	(0.082)
Has a responsibility in the community	−0.152***	−0.016	−0.349***
	(0.035)	(0.069)	(0.070)
Household characteristics			
Household size	0.005	0.006	0.006
	(0.004)	(0.005)	(0.008)
Share of dependent household members (%)	−0.002	−0.004***	0.003*
	(0.001)	(0.001)	(0.002)
LN household food expendit. p.c. last 3 month	0.040	0.016	0.107
	(0.029)	(0.041)	(0.069)
Household doesn't own house	−0.041	−0.020	−0.102
	(0.049)	(0.053)	(0.081)
Mean of the WTP to hide (in FCFA)	0.65	0.65	0.66
Number of observations	771	524	247
Test Chi-2 (p-value)	0.000	0.000	0.000

Logit model (average marginal effects); Dependent variable : dummy equal to 1 if the WTP is positive ; standard errors clustered at the session level in ()
$+p < 0.12, *p < 0.10, **p < 0.05, ***p < 0.01$.
Controls not shown : can read (dummy), Wolof and Muslim dummies.

12 Appendix D: Results on the effect of hidden income

12.1 Complementary results

Table 21: Test of correlation between preferences for hidden income and lottery outcome

Drawing a private card	(1)	(2)	(3)	(4)	(5)
WTP to hide ≥ 0	0.042	0.044	0.044	0.043	0.043
	(0.235)	(0.225)	(0.225)	(0.245)	(0.245)
N	795	795	795	795	795
AIC	1073.1	1120.3	1120.3	1156.5	1156.5
R^2	0.0018	0.010	0.010	0.049	0.049
Community and Session-time f.e.		X		X	
Session f.e.			X		X
Interviewer f.e.				X	X

Dependent variable: Dummy, drawing a private card versus a control public card. LPM model. P-values in (); *0.1,** 0.05,*** 0.01

Table 22: The effect of the opportunity to hide on allocation choices of the lottery gains
Sample: all individuals - Without controls

Dependent variables	Expenditures				Transfers			
Commodity shares	Personal (1)	Health (2)	Hh nonfood (3)	Hh food (4)	To kin (5)	To non-kin (6)	Investment (7)	Saved gains (8)
Panel A (N=682): Whole sample								
Card with opportunity to hide	2.920	1.228	−1.858	−0.429	−2.176	0.692	−1.420	0.412
	(2.352)	(1.269)	(2.080)	(3.084)	(2.296)	(0.935)	(2.723)	(1.415)
R^2	0.02	0.01	0.04	0.02	0.02	0.01	0.02	0.01
Chi-2 (p-value)	0.18	0.42	0.00	0.40	0.19	0.46	0.11	0.75
Panel B (N=448): WTP to hide† ≥ 0								
Card with opportunity to hide	4.261^{+}	2.264	−3.185	1.571	−6.326**	1.730	−2.156	0.351
	(2.682)	(1.506)	(2.478)	(3.774)	(2.900)	(1.219)	(3.417)	(1.773)
R^2	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.02
Chi-2 (p-value)	0.15	0.15	0.12	0.20	0.64	0.11	0.13	0.58
Panel C (N=234): WTP to hide† < 0								
Card with opportunity to hide	1.359	−0.415	0.500	−2.762	4.591	−1.417	−1.175	0.369
	(3.408)	(2.328)	(3.796)	(5.347)	(3.716)	(1.410)	(4.471)	(2.377)
R^2	0.03	0.01	0.06	0.03	0.08	0.02	0.06	0.01
Chi-2 (p-value)	0.80	0.98	0.14	0.78	0.03	0.87	0.12	0.98
Panel D (N=682): Testing heterogeneity across WTP to hide†								
Card opportunity to hide × WTP to hide $\geq 0^{\ddagger}$	3.529	2.832	−3.918	4.455	−11.392**	2.999	−0.985	−0.107
	(4.428)	(2.662)	(4.362)	(6.467)	(4.796)	(1.959)	(5.718)	(2.972)
R^2	0.02	0.02	0.04	0.02	0.03	0.02	0.02	0.01
Chi-2 (p-value)	0.29	0.45	0.01	0.40	0.05	0.37	0.19	0.87
Panel E: 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

Standard errors in (). $^{+}$ $p \leq 0.12$, * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$. Panels A, B, C and D: System of linear equations estimated with a SUR model.
† WTP to hide = Willingness to pay to hide (as measured in the lab experiment).
‡ In Panel D, main effects are also included: WTP to hide and card with opportunity to hide lottery gains.
Dependent var: Share of lottery gains allocated to the various commodities. One column per commodity.
Samples: in all panels, individuals who drew the card 1000 FCFA in public are excluded. Panel A and D: whole sample. Panel B (respectively C): sample with positive (respectively negative) WTP to hide income.
No controls. Community and session-time fixed effects included in all panels and for all outcomes.

Table 23: Effect of the opportunity to hide on *transfers to kin in/out the household* and on allocation choices of lottery gains
Sample: all individuals

Dependent variables :	Expenditures				**Transfers**				
Commodity shares	Personal	Health	Hh nonfood	Hh food	**To hh**	**To kin out hh**	**To non-kin**	Investment	Saved gains
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A (N=654): Whole sample									
Card with opportunity to hide	3.965*	1.435	−1.396	−0.702	−0.112	−2.022*	0.381	−1.897	0.303
	(2.101)	(1.327)	(2.139)	(3.030)	(2.005)	(1.169)	(0.971)	(2.711)	(1.473)
R^2	0.09	0.04	0.06	0.11	0.13	0.05	0.05	0.10	0.03
Chi-2 (p-value)	0.00	0.68	0.04	0.00	0.00	0.23	0.10	0.00	0.54
Panel B (N=433): WTP to hide$^{\dagger} \geq 0$									
Card with opportunity to hide	4.986*	2.713*	−3.411	1.765	−2.396	−3.358**	1.441	−2.871	0.607
	(2.711)	(1.560)	(2.568)	(3.642)	(2.440)	(1.564)	(1.273)	(3.383)	(1.845)
R^2	0.10	0.06	0.07	0.16	0.15	0.08	0.06	0.12	0.05
Chi-2 (p-value)	0.00	0.27	0.25	0.00	0.00	0.06	0.25	0.00	0.72
Panel C (N=221): WTP to hide$^{\dagger} < 0$									
Card with opportunity to hide	1.962	0.017	0.010	−5.014	5.828+	−1.501	−1.653	2.243	−0.679
	(3.396)	(2.523)	(3.937)	(5.462)	(3.669)	(1.687)	(1.475)	(4.572)	(2.482)
R^2	0.14	0.07	0.15	0.13	0.18	0.11	0.13	0.17	0.12
Chi-2 (p-value)	0.06	0.95	0.09	0.12	0.01	0.31	0.14	0.00	0.26
Panel D (N=654): Testing heterogeneity across WTP to hide†									
Card opportunity to hide × WTP to hide $\geq 0^{\ddagger}$	3.351	3.231	−4.855	4.917	−7.177*	−2.337	2.797	−2.362	0.510
	(4.428)	(2.791)	(4.533)	(6.389)	(4.258)	(2.490)	(2.043)	(5.726)	(3.113)
R^2	0.10	0.04	0.06	0.11	0.13	0.05	0.06	0.10	0.03
Chi-2 (p-value)	0.00	0.69	0.05	0.00	0.00	0.15	0.11	0.00	0.65
Panel E: Unconditional means									
Public cards (N=164)	10.754	2.724	11.495	26.445	15.38	4.643	3.144	17.344	5.599
Public cards & WTP >=0 (N=104)	10.989	1.784	12.042	24.047	17.769	5.876	2.556	17.361	5.599
Public cards & WTP <0 (N=60)	10.347	4.352	10.548	30.601	11.238	2.504	4.164	17.314	5.599

Standard errors in (). + $p \leq 0.12$, * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$. Panels A, B, C and D: System of linear equations estimated with a SUR model.
† WTP to hide = Willingness to pay to hide (as measured in the lab experiment).
‡ In Panel D, main effects are also included: WTP to hide and card with opportunity to hide lottery gains.
Dependent variables: Share of lottery gains allocated to the various commodities. One column per commodity.
Samples: in all panels, individuals who drew the card 1000 FCFA in public are excluded. Panel A and D: whole sample. Panel B (respectively C): sample with positive (respectively negative) WTP to hide income.
Control variables: same as in Table 5.
Community fixed effects included in all panels and for all outcomes.

Table 24: Effects of the opportunity to hide on allocation choices of lottery gains
Samples: below/above median of food consumption

Dependent variables:	Expenditures				Transfers			
Commodity shares	Personal (1)	Health (2)	Hh nonfood (3)	Hh food (4)	To kin (5)	To non-kin (6)	Investment (7)	Saved gains (8)
Panel A: Sample ≤ median of household daily food consumption								
Panel A1 (N=356): All								
Card with opportunity to hide	2.650	2.923^{+}	−1.726	−0.504	−2.957	0.545	−3.688	1.059
	(2.771)	(1.853)	(2.885)	(4.172)	(2.991)	(1.330)	(3.238)	(2.208)
R^2	0.09	0.06	0.06	0.11	0.15	0.09	0.13	0.06
Chi-2 (p-value)	0.02	0.81	0.55	0.02	0.00	0.11	0.00	0.55
Panel A2 (N=230): WTP ≥ 0								
Card with opportunity to hide	4.837	3.520	−0.739	4.503	−6.535*	0.810	−7.738*	−0.909
	(3.435)	(2.291)	(3.439)	(4.957)	(3.669)	(1.792)	(4.021)	(2.811)
R^2	0.12	0.12	0.11	0.19	0.18	0.13	0.20	0.08
Chi-2 (p-value)	0.06	0.37	0.42	0.00	0.00	0.15	0.00	0.75
Panel A3: Unconditional means								
Public cards (N=89)	11.822	1.81	11.799	28.493	20.679	2.633	16.011	3.777
Public cards & WTP >=0 (N=59)	11.414	1.977	11.321	25.436	23.713	2.612	16.441	4.896
Panel B: Sample > median of household daily food consumption								
Panel B1 (N=298): All								
Card with opportunity to hide	6.177**	−0.469	−0.641	0.157	−3.202	−0.111	−0.390	−1.245
	(3.105)	(1.843)	(3.141)	(4.348)	(3.377)	(1.412)	(4.369)	(1.813)
R^2	0.19	0.11	0.14	0.18	0.11	0.05	0.17	0.09
Chi-2 (p-value)	0.00	0.12	0.01	0.00	0.09	0.89	0.00	0.21
Panel B2 (N=203): WTP ≥ 0								
Card with opportunity to hide	7.332*	1.119	−3.362	−2.332	−7.989*	2.198	0.214	2.375
	(4.253)	(1.956)	(3.702)	(5.278)	(4.218)	(1.758)	(5.439)	(2.235)
R^2	0.18	0.13	0.20	0.24	0.17	0.11	0.19	0.15
Chi-2 (p-value)	0.01	0.49	0.00	0.00	0.03	0.41	0.00	0.10
Panel B3: Unconditional means								
Public cards (N=75)	9.486	3.807	11.134	24.015	20.724	3.752	18.926	2.775
Public cards & WTP >=0 (N=45)	10.431	1.531	12.988	22.226	26.025	2.483	18.568	2.279

Standard errors in (). $^{+}$ p ≤ 0.12, * p ≤ 0.1, ** p ≤ 0.05, *** p ≤ 0.01. Panels A, B, C and D: System of linear equations estimated with a SUR model.
† WTP to hide = Willingness to pay to hide (as measured in the lab experiment).
‡ In Panel D, main effects are also included: WTP to hide and card with opportunity to hide lottery gains.
Dependent variables : Share of lottery gains allocated to the various commodities. One column per commodity.
Samples: all individuals. In all panels, individuals who drew the card 1000 FCFA in public are excluded. Panels A (respectively B) correspond to individuals below or equal (respectively strictly above) to the median household daily food consumption. Panels A1 and B1: whole sample, A2 and B2 : sample with positive WTP to hide income, A3 and B3: unconditional means.
Control variables: same as in Table 5.
Community fixed-effects included in all panels and for all outcomes.
The median daily household food expenditure per capita is 420 FCFA.

Table 25: Effect of the opportunity to hide on allocation choices of lottery gains
Sample: Women

Dependent variables:	Expenditures				Transfers			
Commodity shares	Personal (1)	Health (2)	Hh nonfood (3)	Hh food (4)	To kin (5)	To non-kin (6)	Investment (7)	Saved gains (8)
Panel A (N=450): Whole sample								
Card with opportunity to hide	2.995	0.762	−0.961	0.431	−2.430	0.562	−4.104	1.084
	(2.437)	(1.580)	(2.483)	(3.474)	(2.578)	(1.165)	(3.558)	(1.707)
R^2	0.11	0.07	0.06	0.11	0.08	0.05	0.08	0.05
Chi-2 (p-value)	0.00	0.22	0.25	0.00	0.04	0.47	0.03	0.49
Panel B (N=293): WTP to hide† ≥ 0								
Card with opportunity to hide	4.299	2.624	−3.686	3.940	−3.847	1.638	−7.506^{+}	1.613
	(3.277)	(1.859)	(2.928)	(4.305)	(3.179)	(1.551)	(4.600)	(2.125)
R^2	0.12	0.10	0.10	0.18	0.11	0.07	0.10	0.08
Chi-2 (p-value)	0.02	0.11	0.21	0.00	0.06	0.54	0.13	0.40
Panel C (N=157): WTP to hide† < 0								
Card with opportunity to hide	2.692	−1.508	−0.163	−7.430	2.884	−1.797	1.144	1.534
	(3.705)	(3.106)	(4.809)	(6.114)	(4.598)	(1.813)	(5.848)	(2.988)
R^2	0.20	0.11	0.13	0.15	0.20	0.16	0.18	0.16
Chi-2 (p-value)	0.03	0.90	0.58	0.26	0.07	0.31	0.07	0.20
Panel D (N=450): Testing heterogeneity across WTP to hide†								
Card hide × WTP to hide $\geq 0^{\ddagger}$	3.303	4.886	−6.127	10.152	−5.370	3.227	−8.172	−0.062
	(5.154)	(3.350)	(5.312)	(7.373)	(5.529)	(2.486)	(7.576)	(3.633)
R^2	0.12	0.08	0.07	0.12	0.08	0.06	0.08	0.05
Chi-2 (p-value)	0.00	0.20	0.25	0.00	0.06	0.48	0.03	0.52
Panel E: Unconditional means								
Public cards (N=113)	10.544	3.461	10.934	23.939	19.799	2.884	22.729	2.85
Public cards & WTP >=0 (N=69)	11.618	1.884	11.868	19.922	21.763	1.74	25.443	3.419
Public cards & WTP <0 (N=44)	8.861	5.934	9.47	30.239	16.719	4.679	18.472	1.957

Standard errors in (). $^{+}$ $p \leq 0.12$, * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$. Panels A, B, C and D: System of linear equations estimated with a SUR model.
† WTP to hide = Willingness to pay to hide (as measured in the lab experiment).
‡ In Panel D, main effects are also included: WTP to hide and card with opportunity to hide lottery gains.
Dependent variables: Share of lottery gains allocated to the various commodities. One column per commodity.
Samples: women. In all panels, individuals who drew the card 1000 FCFA in public are excluded. Panel A and D: whole sample. Panel B (respectively C): sample with positive (respectively negative) WTP to hide income.
Control variables: same as in Table 5.
Community fixed-effects included in all panels and for all outcomes.

Table 26: Effect of the opportunity to hide on *transfers in/out the household* and on allocation choices of lottery gains
Sample: Men

Dependent variables	Expenditures				**Transfers**				
Commodity shares	Personal (1)	Health (2)	Hh nonfood (3)	Hh food (4)	**To hh** (5)	**To kin out hh** (6)	**To non-kin** (7)	Investment (8)	Saved gains (9)
Panel A (N=204): Whole sample									
Card with opportunity to hide	6.610^{+}	2.199	−3.631	−0.837	1.667	−4.529*	−0.105	0.312	−0.796
	(4.086)	(2.398)	(4.005)	(6.033)	(3.893)	(2.508)	(1.754)	(3.521)	(2.812)
R^2	0.16	0.07	0.18	0.17	0.24	0.13	0.12	0.16	0.13
Chi-2 (p-value)	0.01	0.53	0.00	0.00	0.00	0.36	0.00	0.04	0.14
Panel B (N=140): WTP to hide† ≥ 0									
Card with opportunity to hide	9.184*	2.478	−5.215	−0.769	−4.120	−8.171**	0.417	3.403	−0.639
	(4.933)	(2.924)	(4.893)	(6.833)	(4.570)	(3.254)	(2.213)	(3.823)	(3.495)
R^2	0.17	0.09	0.18	0.22	0.29	0.20	0.18	0.23	0.17
Chi-2 (p-value)	0.00	0.90	0.00	0.00	0.00	0.14	0.13	0.00	0.23
Panel C (N=64): WTP to hide† < 0									
Card with opportunity to hide	6.329	3.224	−8.815	16.374	19.094**	2.405	−1.946	−8.197	−8.857*
	(7.969)	(4.566)	(7.728)	(12.431)	(8.088)	(3.382)	(2.793)	(7.432)	(4.664)
R^2	0.35	0.40	0.45	0.38	0.42	0.39	0.34	0.39	0.40
Chi-2 (p-value)	0.06	0.01	0.00	0.02	0.00	0.01	0.00	0.01	0.00
Panel D (N=204): Testing heterogeneity across WTP to hide†									
Card opportunity to hide × WTP to hide $\geq 0^{\ddagger}$	4.063	−0.166	−2.515	−5.671	−17.272**	−10.020*	0.441	12.384*	1.819
	(8.700)	(5.235)	(8.654)	(12.875)	(8.412)	(5.414)	(3.742)	(7.484)	(6.063)
R^2	0.16	0.08	0.19	0.17	0.26	0.15	0.13	0.18	0.14
Chi-2 (p-value)	0.00	0.99	0.01	0.03	0.00	0.01	0.00	0.00	0.00
Panel E: Unconditional means									
Public cards (N=51)	11.218	1.089	12.738	31.997	16.267	6.427	3.721	5.413	4.357
Public cards & WTP >=0 (N=35)	9.749	1.587	12.385	32.18	21.164	9.365	4.166	1.429	4.444
Public cards & WTP <0 (N=16)	14.432	0	13.511	31.597	5.556	0	2.748	14.13	4.167

S.e. in (). $^{+}$ $p \leq 0.12$, * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$. Panels A, B, C and D: System of linear equations estimated with a SUR model.
† WTP to hide = Willingness to pay to hide (as measured in the lab experiment).
‡ In Panel D, main effects are also included: WTP to hide and card with opportunity to hide lottery gains.
Dependent variable: Share of lottery gains allocated to the various commodities. One column per commodity.
Samples: Men. In all panels, individuals who drew the card 1000 FCFA in public are excluded. Panel A and D: whole sample. Panel B (respectively C): sample with positive (respectively negative) WTP to hide income.
Control variables: same as in Table 5.
Community fixed-effects included in all panels and for all outcomes.

12.2 Robustness checks

Table 27: Effect of the opportunity to hide for *different levels of the willingness to pay to hide*
Sample: all individuals

Dependant var:	Expenditures				Transfers			
Commodity shares	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=654): Whole sample								
Card with opportunity to hide	3.966*	1.446	−1.389	−0.704	−2.655	0.386	−1.895	0.302
	(2.101)	(1.327)	(2.139)	(3.030)	(2.257)	(0.971)	(2.711)	(1.473)
R^2	0.09	0.04	0.06	0.11	0.10	0.05	0.10	0.03
Chi-2 (p-value)	0.00	0.70	0.03	0.00	0.00	0.11	0.00	0.54
Panel B (N=433): WTP to hide† ≥ 0								
Card with opportunity to hide	4.989*	2.727*	−3.394	1.766	−6.720**	1.456	−2.873	0.607
	(2.711)	(1.560)	(2.568)	(3.642)	(2.795)	(1.273)	(3.383)	(1.845)
R^2	0.10	0.06	0.07	0.16	0.11	0.06	0.12	0.05
Chi-2 (p-value)	0.00	0.24	0.20	0.00	0.00	0.26	0.00	0.72
Panel C (N=389): WTP to hide† ≥ 200								
Card with opportunity to hide	4.313^{+}	2.335	−4.215^{+}	1.475	−5.824**	1.103	−1.552	0.641
	(2.771)	(1.519)	(2.659)	(3.802)	(2.966)	(1.268)	(3.540)	(1.939)
R^2	0.11	0.07	0.07	0.17	0.11	0.08	0.11	0.05
Chi-2 (p-value)	0.00	0.24	0.34	0.00	0.00	0.08	0.00	0.64
Panel D (N=333): WTP to hide† ≥ 700								
Card with opportunity to hide	5.457*	2.241	−3.912	0.804	−8.037**	0.685	−1.889	1.864
	(3.124)	(1.538)	(2.732)	(4.032)	(3.306)	(1.428)	(3.976)	(2.138)
R^2	0.12	0.08	0.08	0.19	0.11	0.08	0.13	0.06
Chi-2 (p-value)	0.00	0.49	0.17	0.00	0.02	0.21	0.00	0.62
Panel E (N=221): WTP to hide† < 0								
Card with opportunity to hide	1.965	0.074	−0.012	−5.033	4.531	−1.655	2.223	−0.692
	(3.396)	(2.523)	(3.936)	(5.462)	(3.934)	(1.475)	(4.572)	(2.482)
R^2	0.14	0.06	0.15	0.13	0.17	0.13	0.17	0.12
Chi-2 (p-value)	0.06	0.94	0.08	0.12	0.00	0.14	0.00	0.26
Panel F: 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

S.e. in (). $^{+}$ $p \leq 0.12$, * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$. Panels A, B, C & D: System of linear equations estimated with a SUR model.
† WTP to hide = Willingness to pay to hide (as measured in the lab experiment).
‡ In Panel D, main effects are also included: WTP to hide and card with opportunity to hide lottery gains.
Dependant var: Share of lottery gains allocated to the various commodities. One column per commodity.
Samples: in all panels, individuals who drew the card 1000 FCFA in public are excluded. Panel A and D: whole sample. Panel B (resp. C): sample with positive (resp. negative) WTP to hide income.
Control variables: same as in Table 5.
Community fixed effects included in all panels and for all outcomes.

12.3 Intra-household decision-making channels

Table 28: Relationships shared in the selected intra-household pairs

Relationships	Frequency	Percentage
Spouses	42	15.85
Child-Parent	50	18.87
Siblings	64	24.15
Niece/Aunt-Cousin	24	9.06
Child-in-law/Parent-in-law	9	3.4
Siblings in law	24	9.06
Other kin	24	9.06
Other non kins	9	3.4
Missing link	19	7.17
Total pairs	328	100