# Does Wealth Reduce Support for Redistribution? Evidence from an Ethiopian Housing Lottery* 

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#### Abstract

We provide causal evidence of how an increase in wealth affects support for redistribution and beliefs about the causes of poverty. Exploiting the variation in wealth created by an Ethiopian housing lottery, we show that general attitudes toward redistribution and inequality acceptance are relatively insensitive to economic circumstances although winners are less favorable of taxing homeowners. Further, we find evidence of endogenous beliefs: relative to losers, the wealthier winners are more likely to attribute poverty to character traits and less likely to emphasize the role of luck. We interpret this as evidence of a self-serving bias.


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## I Introduction

The relationship between wealth and support for redistribution is a classic topic in the social sciences (Marx, 1859; Lipset, 1960; Downs, 1957). The correlation between the two is generally negative (Alesina and Giuliano, 2011) but causal evidence remains scarce. This is not due to a lack of interest, which is evident from its prominence in theoretical models (Romer, 1975; Meltzer and Richard, 1981), but rather to the difficulty of finding plausibly exogenous variation in wealth.

From a classical economic viewpoint, individual support for redistribution reflects economic self-interest. According to this "pocketbook" perspective, better-off people should oppose redistribution, because they are more likely to have to pay for it. But there is also ample evidence of fairness considerations affecting support for redistribution: a sense that a just society should correct for unfair outcomes (Cappelen et al., 2007; Fong 2001). Such considerations may come into conflict with economic self-interest.

The literature also highlights that fairness views and support for redistribution depend on beliefs about the sources of inequalities. People generally consider economic differences to be fairer and, hence, more acceptable if they are the result of effort rather than luck or personal connections (Alesina and Giuliano, 2011; Alesina and Glaeser, 2004; Alesina and Angeletos, 2005; Alesina et al., 2018; Fong, 2001; Almås et al., forthcoming). Such beliefs may, however, themselves be endogenous to material resources, e.g. due to motivated reasoning (Bénabou and Tirole, 2016). For instance, in order to maintain a positive selfimage, people tend to attribute their successes in life to own efforts and abilities and makeup excuses for their failures. Beliefs may thus be subject to a self-serving bias. ${ }^{1}$ As a result, the relationship between beliefs about the causes of poverty and support for redistribution may run in the opposite direction to the one usually hypothesized: self-interested individuals may

[^1]update their beliefs about the causes of poverty in order to justify their lack of support for redistribution, while still maintaining a commitment to fairness.

We provide evidence of the causal effects of material conditions on support for redistribution and on beliefs about the causes of poverty by studying winners and losers of an Ethiopian housing lottery. The lottery randomly allocates the right to purchase an apartment at a highly subsidized price and the winners experience a substantial increase in wealth. Two years after the lottery, the average net wealth of winners is 20 times larger than that of losers and we find a positive effect on perceived economic position as well as on economic mobility.

We find that winning the lottery decreases support for redistribution through taxes that would affect winners directly, in particular a real estate tax. This is consistent with the pocketbook-perspective. However, we find no effects on general attitudes towards redistribution or on inequality acceptance, indicating that such attitudes may be rooted in deeper and more stable values. Finally, we show that winning the lottery has important effects on beliefs about the causes of poverty. Paradoxically, lottery winners are more likely to attribute poverty to character flaws and less likely to emphasize the role of luck, even though the difference in economic resources between the two groups is entirely due to chance.

We further investigate people's own willingness to redistribute resources: in a modified dictator game, we give winners and loser the opportunity to share 50 ETB between themselves and a charitable organization supporting the poor. Winners donate slightly more, but given that they do not exhibit more pro-social attitudes, this may simply reflect that giving is a normal good.

Taken together, our findings show that although beliefs may be endogenous, altered beliefs do not necessarily affect general attitudes. On the contrary, people may change their beliefs in order to reconcile their lower support for redistribution, through taxes that would affect them directly, with their unchanged underlying preference for a more equal society.

Our results are robust to various prespecified tests and sensitivity analyses. To further assess the robustness of our findings, we replicate parts of the analysis using survey data from an earlier round of the lottery (Franklin, 2019), which included similar questions. Winners from this lottery are also less likely to believe that luck is important for success, and again we find no effects on general attitudes towards redistribution or on inequality acceptance.

We contribute to a large literature on the endogeneity of policy preferences ${ }^{2}$ and more specifically to the literature on the effects of wealth and income on support for redistribution. Several studies have exploited job or wage trajectories to target this question. Longitudinal studies indicate that income gains increases conservative voting even after controlling for stable unobserved individual factors(Lind, 2010), and that the loss of a job increases support for redistribution (Owens and Pedulla, 2013) and welfare spending (Margalit, 2013). At a higher level of aggregation,Brunner et al. (2011) find that good local employment conditions reduce support for redistribution.

A challenge with using income shocks related to job losses is that - even in settings where it is arguably random who lose their jobs - income and wealth are not the only things changing. To our knowledge, only two previous studies have investigated the effects of lottery-induced wealth on political attitudes. Powdthavee and Oswald (2014) use selfreported data from the British Household Panel Survey to compare lottery winners before and after they win. They find that winners of larger amounts are less likely to vote for parties that favor redistribution. Doherty et al. (2006) exploit the variation in prizes among lottery winners in the US, and show that winners of larger amounts are more hostile to estate taxes. They find no effects on support for redistribution, views on inequality, nor on the desire to

[^2]expand the social safety net; however, the absence of such effects is unclear, because the small sample size ( 342 winners) does not permit the authors to reject either large or null effects.

Another important limitation of the two studies is that they compare winners from different lotteries and lack information about how much people played. It is, therefore, unclear if the winners of different amounts are drawn from the same distribution. By contrast, we are able to compare randomly drawn winners and losers from the same lottery. The fact that around half of the city's population enrolled in the program also implies that participants are probably more representative of the general population than is the case for most prize-lotteries. Furthermore, our investigation includes a wider set of outcomes, allowing us to investigate different aspects of the income-attitudes nexus.

There is also a related literature on the importance of asset ownership, and in particular home ownership, for political attitudes (see Ansell (2019), for an overview). Among conservative politicians there has been a hope that increased house ownership would induce more conservative voting. Indeed, such considerations appear to have underlied the promotion of the "ownership society" by the Thatcher-administration in the UK and the W. Bushadministration in the US (Ansell, 2019). Alpino (2018) further show that politicians (in this case Berlusconi) use housing tax reductions strategically to increase conservative voting in elections. Using longitudinal data from the USA and the UK, as well as cross sectional data from 29 countries, Ansell (2014) shows that house ownership and higher housing prices reduces demand for redistribution. Using a housing lottery in India, Kumar (2019) shows that winning the right to buy a subsidized house increases political participation. ${ }^{3}$

Our results also contribute to the economic literature on belief formation by showing

[^3]how a shock to material conditions can change people's views on the causes of poverty. This is consistent with the findings of Di Tella et al. (2007), and with recent evidence from the laboratory (Deffains et al., 2016; Durante et al., 2014; Molina et al., 2019), showing that "random" idiosyncratic events can deeply affect individual beliefs. Economists have shown that motivated beliefs serve both psychological and functional needs (Bénabou and Tirole, 2016; Bénabou, 2015). In our case, winners may adjust beliefs in order to avoid identity conflicts or preserve internal consistency, and selective recall may make them underplay the role of luck.

Finally, we contribute to the economics of philanthropy by using a dictator game to assess the role of wealth for charitable giving. The experimental literature is so far limited to sampling richer and poorer people and observe if they behave differently (Andreoni et al., 2017; Blanco and Dalton, 2019; Smeets et al., 2015) or to introducing limited variation in an experimental setting (Bartling et al., 2018; Chowdhury and Jeon, 2014). We observe people who randomly became much richer, and we can therefore make a plausible causal claim about the effect of wealth on charitable giving. We offer respondents the opportunity to donate any share of their compensation for participating ( 50 ETB) to a charity. Almost 80 percent of the respondents choose to donate money, and although winners are not more likely to donate, they donate slightly more than losers on average (ETB 1.4 out of ETB 50). In a standard dictator game, a higher donation amount is often interpreted in terms of altruism (Fehr and Schmidt, 2006; Andreoni and Miller, 2002). In the literature on philanthropy, however, it is common to separate between pure and impure altruism (see Monnet and Panizza (2017) for a recent overview). People may derive a private utility from giving in the form of joy, pride, social status, or a warm-glow reward (Ribar and Wilhelm, 2002; Andreoni, 1989). As such, it is unclear whether the increase in giving reflects altruism or simply that philanthropy is a normal good. Since we find no other increases in pro-social preferences for the winners, and since the difference in giving is very small relative to the difference in wealth, we lean
towards the latter interpretation.
This article is structured as follows. We describe the lottery in the next section, the data in Section III, the main results in Section IV, and some additional analyses in Section V. We conclude in Section VI.

## II The lottery

An estimated 70-90 percent of the households in Addis Ababa live in informal housing or slums, often characterized by a very high density and a lack of basic amenities such as running water and electric lighting. ${ }^{4}$ As a means of improving housing conditions for the city's residents-while at the same time stimulating the domestic construction sector and upgrading slum areas of the inner city - the Ethiopian government launched the Integrated Housing and Development Programme (IHDP) in 2005. Under this program, multistorey condominiums have been constructed, mostly on cheap plots of land at the outskirts of the city, and sold at highly subsidized prices. ${ }^{5}$

Given the excess demand for housing at the subsidized prices, the condominium apartments are allocated through a lottery among eligible registrants. The lottery is computerbased and held in a location open to the public (UN-HABITAT, 2010). ${ }^{6}$ Lottery winners are required to pay at least 20 percent of the apartment price up front, and are offered access to finance for the remaining 80 percent through the Commercial Bank of Ethiopia (CBE). Due to this payment scheme, the program has been labeled the $20 / 80$-program. ${ }^{7}$ As we show in

[^4]Section B, the wealth gain associated with winning the lottery is substantial.
Despite a stated focus on facilitating access to quality housing for low- and middleincome groups, there is no means testing with respect to income. ${ }^{8}$ Eligibility is based on three requirements: (i) having resided in Addis Ababa for at least the previous six months; (ii) not having any other house or lease land registered in one's own (or spouse's) name; and (iii) having opened a savings account at the CBE and deposited the required monthly savings for a specified period. ${ }^{9}$

During registration, applicants must select the desired apartment type (studio, one, two, or three bedrooms). As supply and demand vary across unit type, separate lotteries are held for each type. Within each lottery, quotas exist for women, civil servants, and people with disabilities. First, 30 percent of the winners are drawn from the pool of female applicants. Second, 20 percent of the winners are drawn from the pool of government employees. Third, there is a five-percent quota for people with physical disabilities. Finally, the remaining 45 percent are allocated among all applicants (i.e. regardless of gender, etc.). All quotas were decided upon after registration but before the lottery draw. Only one person per household is allowed to sign up for the program.

The IHDP is a large-scale and comprehensive program. During the initial registration in 2005, more than 300,000 households in Addis Ababa signed up for the program, corresponding to roughly half of the city's population, ${ }^{10}$ and at the time of writing 192,000 apartments have been allocated through 13 rounds of the lottery (see Appendix Tables A. 1 and A.2). ${ }^{11}$

[^5]In this paper, we focus on the $11^{\text {th }}$ round of the lottery, which took place in 2016. The reason for this is that the $12^{\text {th }}$ round of the lottery, conducted in 2018, was unusually small because only 2,607 apartments were allocated. ${ }^{12}$ The $13^{\text {th }}$ round of the lottery took place in March 2019 after data collection for the project was completed.

At the time of the $11^{\text {th }}$ round of the lottery, 142,000 apartments had been allocated over the previous 10 years. This lottery allocated the purchase rights for 12,027 apartments (disregarding three-bedroom units). Only individuals who had registered in 2005 were included in the draw. In addition, applicants were required to have saved continuously for at least 29 months (with no breaks longer than six months). Upon winning the lottery, prospective homeowners were required to make the 20 percent down payment before they could sign the contract and receive the keys to their apartment. Around 95 percent of the winners initially drawn were able to do this. They are free to rent out their apartment, but are not allowed to sell it within the first five years. As noted, a small share (4 percent) of the winners in our sample in fact managed to sell the apartment, despite these rules. A majority of the apartments are either rented out (31 percent) or still empty (32 percent), ${ }^{13}$ while only 30 percent actually have moved into their apartment two years after the lottery.

## III Data

We sampled applicants who registered in the first round (in 2005) for a studio, a one-, or a two-bedroom apartment, and who were eligible for the $11^{\text {th }}$ lottery in 2016. We did not sample applicants for three-bedroom apartments, because almost everyone in this group had received an apartment at the time of sampling. As noted, there were special quotas for

[^6]women, government employees and people with physical disabilities, so we needed to obtain information on these variables.

There are two different administrative lists pertaining to the lottery, one for winners and one for losers. The list for the winners is publicly available and the winners are removed from the losers list after each lottery. The Ethiopian Development Research Institute (EDRI) therefore obtained two types of lists from the AAHDAA: one for winners and one for losers. Starting with the winners, we randomly sampled 2,200 individuals on this list who had unique telephone numbers and who had not won a three-bedroom apartment. For this "winners' sample", we have information about apartment type, gender, and public sector employment at the time of the registration. We also have information about the location of the apartments won. We did not have information about physical disability status at registration, so we had to ask them about this separately.

EDRI also obtained the list of individuals who registered in 2005, and qualified for the 11th lottery, but who did not win it (and did not win the 12th lottery either). This list includes information about the type of apartment the individuals applied for and about physical disability status. We obtained employment status and gender during the survey. ${ }^{14}$ We also ranked all individuals on this list randomly and then selected a random sample of 2,200 losers (stratified by gender within each apartment type). This is our "losers' sample". We then aggregate the winners' and losers' samples and randomize the order again. We create a new ID variable and keep only the people's ID, names, and phone numbers before sending the list to the data collection team. In this way, the individual status (winner or loser) is blinded for the enumerators and we avoid issues with confounding factors due to different timing and different enumerators. EDRI interviewed the sampled individuals by phone using the survey questionnaire developed by the research team. The survey took around 20 minutes to answer and the respondents were given ETB 50 in compensation.

[^7]EDRI was told to stop after around 3,000 completed interviews. The survey respondents were paid with mobile money directly after the interview was conducted.

## A) Attrition and non-response

EDRI was given a list of 4,400 individuals in total; however 1,082 of the telephone numbers were invalid. ${ }^{15}$ There was no difference between winners and losers in the probability of having an invalid number. In total, EDRI called 3,318 people and completed interviews with 3,049 individuals ( 1,485 winners and 1,564 losers). ${ }^{16}$ The response rate is therefore 92 percent. As seen in Table 1, the share of people declining to be interviewed (unwilling) is significantly larger among the winners. There is no difference between winners and losers in the share of people who moved abroad, were never available to answer the survey, had passed away, or for which the person answering said it was a wrong number.

The total response rate is statistically significantly different between winners and losers after controlling for gender and apartment type (the only strata variables available for both winners and losers not answering the survey). In Appendix Section C, we present the results from a prespecified bounds analysis, and we show that our main results are robust to reasonable assumptions about the potential values of the missing observations.

Table 1: Attrition and non-response.

|  | (1) | (2) | (3) | (4) | (5) | (6) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Interviewed | Unwilling | Abroad | Unavailable | Passed away | Wrong number |
| Winner | -0.036*** | $0.027^{* * *}$ | 0.001 | 0.003 | 0.004 | 0.001 |
|  | (0.010) | (0.006) | (0.004) | (0.003) | (0.004) | (0.005) |
| Mean dep. var. | 0.937 | 0.014 | 0.014 | 0.004 | 0.008 | 0.023 |
| No. of observations | 3318 | 3318 | 3318 | 3318 | 3318 | 3318 |
| R-squared | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| Strata (gender/bedroom) | Yes | Yes | Yes | Yes | Yes | Yes |

[^8]
## B) Survey measures

The phone survey started by introducing the enumerator and saying that they work for EDRI (the full survey is added in Section J in the Appendix). Our main outcome variables are related to preferences for redistribution, beliefs about the causes of poverty, and inequality acceptance. We did not include questions about party affiliation or incumbent support, which is common in this literature, as it was deemed to sensitive in present day Ethiopia.

We measure the respondents' preferences for redistribution with three main outcome variables that are thought to operate at different levels. At the more general level, we ask whether they agree that the government should intervene to reduce economic inequality. This question comes from Almås et al. (2020a). We then ask more specifically if the redistribution should be based on real estate taxation. Answers are given according to a four-point scale (from Strongly disagree to Strongly agree), and the variables are recoded into dummy variables by choosing the cutoff value that divides the losers sample into two groups of as equal size as possible. For the first question, this cutoff is between Agree and Strongly agree, with 73 percent (of the losers) ${ }^{17}$ falling into the latter category; for the housing tax question, the cutoff is between Disagree and Agree, with 60 percent agreeing to some extent. Finally, to capture preferences toward privately funded redistribution, we give the respondents the opportunity to share ETB 50 between themselves and an NGO (which we randomly assign to be either one supporting poor people or one supporting the elderly and disabled people). We later refer to these variables as "Redistribution (general)", "Redistribution (real estate)" and "Redistribution (private)".

Our other two main outcomes are beliefs about the causes of poverty and inequality acceptance. We measure the causes of poverty variable with the question "Why, in your opinion, are there people in this country who live in need? Here are two opinions: Which comes closest to your view? 1. People are poor because of laziness and lack of will power.

[^9]2. People are poor because of an unfair society." We create a dummy variable, "Individual/Society", which equals one if people answer 1 (49 percent) and zero if they answer 2. This variable comes from the World Values Survey (http://www.worldvaluessurvey.org).

We create a measure of inequality acceptance based on the question: "Which opinion about inequality comes closest to your view? 1. Large differences in people's incomes are acceptable to properly reward differences in talents and efforts. 2. For a society to be fair, differences in people's standard of living should be small." We create a dummy variable, "Meritocratic/Egalitarian", which equals one if people answer 1 (31 percent) and zero if they answer 2. The items used in this variable are from the European Social Survey (www.europeansocialsurvey.org).

Based on people's reported assets values (including real estate) and liabilities, we calculate their housing-related wealth and net wealth. ${ }^{18}$ People were also asked whether they are richer than they were five years ago ( 71 percent of the losers answered yes), whether they expect to be richer in five years from now ( 94 percent answered yes), and whether they perceive themselves as richer, equally rich, or poorer than other Ethiopians (where we have grouped together richer and equally rich (63 percent of the losers) in accordance with the procedure used for "Redistribution (general)" and "Redistribution (real estate)". Furthermore, we construct an asset index based on whether the households own a radio, TV, refrigerator, car, computer, tablet, satellite dish, smartphone, or an electric mitad (a common cooking appliance).

Finally, we include measures used in Almås et al. (2020b), where the respondent is asked to what extent each of the following factors cause people to become poor (to a small or to a

[^10]large degree): competence, luck, poor character, effort, discrimination, lack of opportunities, poor family, poorly-educated parents, and lack of ambition.

## C) Descriptive statistics and balance test

Table 2 presents descriptive statistics for all individuals and for the winners and losers separately. We see that 49 percent of the final sample are winners.

Regarding the strata variables, 42 percent of the respondents are female, while the shares registered for a studio, a one-, and a two-bedroom apartment are 20, 54, and 26 percent, respectively. As we used these strata variables when sampling winners and losers to maximize similarity, we would expect them to be balanced across the winners and losers groups. The fact that the share of females is slightly higher in the winners group ( 45 vs. 40 percent) is due to the imputation of gender based on first names for the losers' sample in the sampling. ${ }^{19}$ The shares of civil servants and people with physical disabilities are however higher among the winners (30 and 6 percent, respectively) than among the losers (14 and 0 percent, respectively). We expect differences with respect to these variables as there are quotas for these groups. As the information was not available for both winners and losers beforehand, we could not stratify on these variables. We describe these issues in detail in Appendix Section A), where we also show that the coding choices have little consequence for the main results.

The mean age of respondents is around 43 years (which implies that they were on average 29-30 when they signed up in 2005), and the most common religions are Orthodox Christianity ( 76 percent), Protestantism (12 percent) and Islam (11 percent). ${ }^{20}$ The most common ethnic groups are Amhara (37 percent), Gurage (17 percent), Oromo (16 percent), and Tigray (8 percent), whereas the most common birth regions are Addis Ababa (45 percent),

[^11]Amhara (18 percent), Oromia (15 percent), SNNP (14 percent), and Tigray (6 percent).
Table 2: Descriptive statistics.

|  | Total |  | Winner |  | Loser |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Mean | SD | Mean | SD | Mean | SD |
| Winner | 0.49 | (0.5) | 1.00 | (0.0) | 0.00 | (0.0) |
| Strata |  |  |  |  |  |  |
| Female | 0.42 | (0.5) | 0.45 | (0.5) | 0.40 | (0.5) |
| Government employee | 0.22 | (0.4) | 0.30 | (0.5) | 0.14 | (0.3) |
| Disabled | 0.03 | (0.2) | 0.06 | (0.2) | 0.00 | (0.1) |
| Studio | 0.20 | (0.4) | 0.20 | (0.4) | 0.19 | (0.4) |
| One-bedroom | 0.54 | (0.5) | 0.53 | (0.5) | 0.55 | (0.5) |
| Two-bedroom | 0.26 | (0.4) | 0.26 | (0.4) | 0.26 | (0.4) |
| Other control variables |  |  |  |  |  |  |
| Age | 42.81 | (9.6) | 43.38 | (9.7) | 42.26 | (9.5) |
| Oromo | 0.16 | (0.4) | 0.16 | (0.4) | 0.17 | (0.4) |
| Amhara | 0.37 | (0.5) | 0.38 | (0.5) | 0.37 | (0.5) |
| Tigray | 0.08 | (0.3) | 0.09 | (0.3) | 0.07 | (0.3) |
| Gurage | 0.17 | (0.4) | 0.15 | (0.4) | 0.18 | (0.4) |
| Orthodox | 0.76 | (0.4) | 0.77 | (0.4) | 0.74 | (0.4) |
| Muslim | 0.11 | (0.3) | 0.09 | (0.3) | 0.13 | (0.3) |
| Protestant | 0.12 | (0.3) | 0.12 | (0.3) | 0.11 | (0.3) |
| Born in Tigray | 0.06 | (0.2) | 0.08 | (0.3) | 0.05 | (0.2) |
| Born in Amhara | 0.18 | (0.4) | 0.19 | (0.4) | 0.16 | (0.4) |
| Born in Oromia | 0.15 | (0.4) | 0.16 | (0.4) | 0.14 | (0.3) |
| Born in SNNP | 0.14 | (0.3) | 0.14 | (0.3) | 0.14 | (0.4) |
| Born in Addis | 0.45 | (0.5) | 0.42 | (0.5) | 0.49 | (0.5) |
| Earnings at reg. | 5.13 | (3.2) | 5.22 | (3.2) | 5.05 | (3.2) |
| Earnings 2015 | 7.05 | (3.0) | 7.14 | (3.0) | 6.97 | (3.0) |
| Partner earnings at reg. | 0.92 | (2.5) | 0.92 | (2.5) | 0.93 | (2.5) |
| Partner earnings 2015 | $1.52$ | $(3.2)$ | 1.55 | (3.2) | 1.48 | (3.2) |
| Partnered at registration | 0.32 | (0.5) | 0.31 | (0.5) | 0.32 | (0.5) |
| $N$ | 3049 |  | 1485 |  | 1564 |  |

Notes: An F-test of whether all "Other control variables" jointly predict winning after the strata variables are controlled for returned a value of $0.45(p=0.50)$.

To check that winning is indeed random, we test for balance in the control variables across the winners and losers groups. We do this by regressing the "winner" variable on the control variables described above while controlling for the strata fixed effects $S_{i}$ (gender, government employee, disabled, and apartment type). Based on the F-test (see note below Table 2) we reject the hypothesis that these variables jointly predict winning. In the Appendix, Table A.4, we also present t-tests for each variable, as well as the results from the multivariate estimation. While the F-test shows that there is balance in general there are differences between the winners and losers on some variables. We also present results where we control for all variables as well as from a doubly robust LASSO procedure, as we explain in the next
section.

## IV Empirical strategy and results

To test the effects of winning the lottery on individual $i$ 's outcomes, we calculate intention-to-treat estimates by regressing the outcome of interest $Y_{i}$ on $T_{i}$, a dummy variable equal to one if the individual has won the lottery, while controlling for the set of strata covariates $S_{i}$ (gender, government employee, disabled, and apartment type):

$$
\begin{equation*}
Y_{i}=\beta T_{i}+\theta S_{i}+\varepsilon_{i} \tag{1}
\end{equation*}
$$

This is our main specification as explained in the preanalysis plan. Nonetheless, we also show results where we include the full set of control variables, and we check whether using the post-double LASSO selection approach of Belloni et al. (2014) increases precision. To the extent that one is worried about imbalance, the LASSO selection approach is also helpful since it precisely selects those variables that are correlated with both treatment and the outcomes. As the randomization is at the individual level, we use robust standard errors without any clustering.

## A) Effects of winning on wealth

As noted, we interpret the effects of winning the lottery in terms of a wealth effect. To substantiate this interpretation, we start by estimating the effect of winning the lottery on wealth.

Figure 1 shows kernel (epanechnikov) density estimates of the (net) wealth distribution of the losers and winners, respectively, at the time of the survey (i.e. two years after the lottery). Net wealth is calculated as the sum of housing wealth, other real estate or land, and savings in cash and in the bank minus debt. The winners are clearly wealthier than the losers. Their average net wealth is ETB 452,038 (USD 15,120), which is more than 20 times

Figure 1: Wealth distribution among losers and winners.

larger than the wealth of losers (ETB 20,406 or USD 682). The difference corresponds to around 15 years of average earnings in our data.

Table 3 confirms that winning indeed increases both real-estate wealth (defined as the respondent's expected selling price of any housing units owned) and net wealth. Winners also perceive themselves to be richer than five years ago (the estimated effect is 6.5 percentage points relative to a mean of 71 percent among the losers $)^{21}$ and expect to become even richer over the next five years (1.4 percentage points). Finally, a larger share of winners perceive themselves to be as rich as or richer than Ethiopians in general (10 percentage points). This analysis suggests that winning the lottery has a substantial impact on self-assessed wealth and perceived economic position. We find no effects on household assets, which may take longer to materialize. It may also be the case that winners have not invested in household assets because they spend a large share of their income on mortgage payments, and their disposable income may, therefore, not increase much (or even decrease in the short run). We show in Appendix Section I that disposable income decreases. While rent incomes increase, this is not sufficient to offset the increase in mortgage payments.

[^12]The main weakness of our wealth measures is missing values for a substantial part of the sample. This is because many respondents were unable to provide an estimate of the market value for their real estate, and because some refused to report their wealth during the interview. In Appendix Table A.7, we calculate bounds on the lottery effects and we conclude that the estimated wealth effects remain large and statistically significantly different from zero even if we make very extreme assumptions about the values of the missing observations.

Table 3: Wealth outcomes.

|  | $(1)$ |  | $(2)$ | $(3)$ |  | $(4)$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | Housing wealth | Net wealth | Richer than 5y ago | Richer in 5y | Asset index | Perceived position |
| Winner | $12.4^{* * *}$ | $4.11^{* * *}$ | $0.065^{* * *}$ | $0.014^{*}$ | 0.046 | $0.10^{* * *}$ |
|  | $(0.17)$ | $(0.37)$ | $(0.016)$ | $(0.0084)$ | $(0.034)$ | $(0.017)$ |
| Mean (losers) | 0.13 | 7.42 | 0.71 | 0.94 | 0.00 | 0.63 |
| N | 2298 | 1533 | 3049 | 3049 | 3049 | 3049 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

## B) Main results

Having shown that winning seems to be random conditional on the strata variables, and that there is a substantial effect of winning on wealth, we now present the effects of winning on main outcomes in Table 4.

First, we see that there does not appear to be any effect on attitudes toward redistribution in general. This seems to support the hypothesis that support for redistribution is to some extent stable and depend on deeper values. Turning to a specific type of redistribution that is salient to winners of the housing lottery, i.e. whether there should be a tax on people owning houses, we find a statistically significant negative effect on support for this type of policy. This suggests that material conditions indeed play a role, and that support for redistribution is partly driven by self-interest.

As regards our measure of privately funded redistribution, we see that winners donate slightly more to charity than losers on average. While a straightforward interpretation of this finding could be that wealth increases altruism, it might simply reflect that philanthropy is
a normal or a luxury good. Figure 2 shows the distribution of the amounts given by winners and losers out of their ETB 50 endowment. The figure and the impact estimate in Table 4 together show that, even though there is statistically significant difference on average between winners and losers, that difference is very small, especially when compared to the magnitude of the wealth difference.

We find no effect on the variable measuring whether poverty is due to an unfair society rather than poor people's behavior (Individual/Society), nor on the inequality acceptance measure (Meritocratic/Egalitarian).

Figure 2: Charitable giving among winners and losers.


Table 4: Results on the main outcomes.

|  | (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Redistribution (general) | Redistribution (housing) | Redistribution (private) | Individual/Society | Meritocratic/Egalitarian |
| Winner | -0.0026 | -0.038** | 1.35** | -0.0024 | -0.0098 |
|  | (0.017) | (0.019) | (0.58) | (0.019) | (0.017) |
| Mean (losers) | 0.73 | 0.60 | 17.91 | 0.49 | 0.31 |
| N | 3049 | 3049 | 3049 | 3049 | 3049 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

The results are robust to a series of changes in the specifications. In Appendix Section E, we show that the results are similar when using additional controls and when using an "optimal" set of controls, selected by means of a LASSO procedure. In Appendix Section C, we present the results from a pre-specified bounds analysis accounting for the differences in response rates between the losers and the winners. In Appendix Section H we show heterogeneity in the lottery effects with respect to baseline characteristics and in Appendix Section G we explain why we cannot exploit heterogeneity across winners with respect to self-reported wealth. There is little heterogeneity to report and we note that winners with different self-reported wealth also differ in other ways, in particular regarding self-reported earnings, making them difficult to compare. Appendix Section D shows that there are no important differences to the results if we deviate from the pre-analysis plan and make other coding choices for the strata variables. Adjusting the p-values for multiple testing using the false discovery rate method developed by Benjamini and Hochberg (1995), the effect on redistribution via a housing tax and the effects on charitable giving are statistically significant at the 10 percent level. ${ }^{22}$

When investigating the more detailed questions about the causes of poverty in Table 5, winners appear to be less likely to attribute poverty to "bad luck" and more likely to attribute it to "poor character". This might suggest that people find ways of justifying what they have obtained, even if this-as in this case - in fact is a result of a lucky draw. ${ }^{23}$

[^13]Table 5: Impact on beliefs about the causes of poverty.

|  | (1) <br> Competence | (2) <br> Luck | (3) <br> Character | (4) <br> Effort | (5) <br> Discrimination | (6) Opportunities | (7) <br> Poor family | (8) <br> Poorly educated parents | (9) <br> Ambitions |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Winner | $\begin{gathered} -0.018 \\ (0.018) \end{gathered}$ | $\begin{gathered} -0.033^{* *} \\ (0.015) \end{gathered}$ | $\begin{aligned} & 0.052^{* * *} \\ & (0.019) \end{aligned}$ | $\begin{gathered} 0.0086 \\ (0.0088) \end{gathered}$ | $\begin{gathered} 0.0089 \\ (0.016) \end{gathered}$ | $\begin{gathered} 0.013 \\ (0.015) \end{gathered}$ | $\begin{gathered} -0.023 \\ (0.015) \end{gathered}$ | $\begin{gathered} -0.024 \\ (0.016) \end{gathered}$ | $\begin{gathered} -0.011 \\ (0.016) \end{gathered}$ |
| $\begin{aligned} & \text { Mean (losers) } \\ & \mathrm{N} \end{aligned}$ | $\begin{gathered} 0.68 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.21 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.54 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.93 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.77 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.78 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.22 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.24 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.76 \\ 3049 \end{gathered}$ |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

## V Mechanisms and additional exploratory analysis

We have shown that winning the housing lottery increases people's wealth substantially, reduces their support for real estate taxes, and changes their beliefs about the causes of poverty. But the effects on the latter are not necessarily a result of the changes in wealth.

Changes in wealth do not occur in isolation. When people become wealthier, they typically adapt their consumption: for instance, they may move to a nicer house in a better neighborhood (and this of course is even more likely in our case), they may make new friends and acquaintances, they may get access to new sources of information, and so on. Such changes in consumption could themselves have effects on policy preferences and beliefs. The observed effects may therefore be due to the immediate, direct effect of wealth, coupled with the indirect effects of wealth through changes in consumption or environment. It is difficult to know what exact mechanisms yield our results. Furthermore, it may be the case that winning the lottery has a direct effect on our outcomes, i.e., not via the effect on wealth. The most likely direct effect would be to move to a better neighborhood and house.

In this section, we investigate whether the effects of the lottery differ for different types of winners, and we use data from an earlier lottery to explore further the mechanisms behind our results.

## A) Movers, sellers, and non-movers

Moving to a new neighborhood is a possible mediator for the effects of wealth and studies of cash prize lotteries find that people often move when they become wealthier. In our sample, we find that only around 30 percent of the winners moved to the apartment they won. ${ }^{24}$ As moving is a choice, it is endogenous and we are unable to distinguish between the direct effects of winning and the effects of winning mediated by moving. We can, however, conduct some exploratory analysis and investigate the effects for different groups, namely those who

[^14]moved to the apartment they won, those who still own it but have not moved in (yet), and those who have sold it.

In Tables 6 and 7, we split the winners into the three groups. We find that sellers are more favorable to taxing homeowners. For winners who have not sold the apartment, the effect estimates are negative and not statistically significantly different from each other $(\mathrm{p}=0.17)$. We interpret these findings as a clear indication that people's attitudes towards redistribution may depend on the likelihood of having to pay for it themselves. We show in Appendix Table A. 5 that movers are slightly older, less likely to be Oromo, and less likely to be born in Tigray. Sellers, on the other hand, are less likely to belong to any of the main religions, but otherwise they look fairly similar. We note that adding control variables does not change the results much.

Table 6: Effects on main outcomes for winners with different post-lottery behavior.

|  | (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Redistribution (general) | Redistribution (housing) | Redistribution (private) | Individual/Society | Meritocratic/Egalitarian |
| Non-movers | -0.0060 | -0.035* | 2.04*** | -0.016 | -0.011 |
|  | (0.019) | (0.021) | (0.65) | (0.019) | (0.021) |
| Movers | 0.0076 | $-0.074^{* * *}$ | -0.29 | 0.013 | 0.014 |
|  | (0.024) | (0.027) | (0.86) | (0.025) | (0.027) |
| Sellers | -0.014 | 0.18*** | 0.20 | -0.058 | 0.019 |
|  | (0.059) | (0.058) | (2.10) | (0.056) | (0.067) |
| Mean (losers) | 0.73 | 0.60 | 17.91 | 0.31 | 0.49 |
| N | 3049 | 3049 | 3049 | 3049 | 3049 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table 7: Effects on selected outcomes for winners with different post-lottery behavior.

|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Competence | Luck | Character | Effort | Discrimination | Opportunities | Poor family | Parents' education | Ambitions |
| Non-movers | -0.024 | -0.032* | 0.042** | 0.0066 | 0.013 | 0.024 | -0.024 | -0.021 | -0.0054 |
|  | (0.020) | (0.017) | (0.021) | (0.0099) | (0.018) | (0.017) | (0.017) | (0.018) | (0.018) |
| Movers | -0.012 | -0.034 | 0.056** | 0.014 | -0.0089 | -0.017 | -0.035 | -0.033 | -0.027 |
|  | (0.026) | (0.021) | (0.027) | (0.012) | (0.023) | (0.023) | (0.022) | (0.022) | (0.024) |
| Sellers | 0.055 | -0.017 | 0.12** | -0.0062 | 0.057 | 0.032 | 0.078 | 0.0067 | 0.020 |
|  | (0.060) | (0.049) | (0.061) | (0.032) | (0.048) | (0.049) | (0.059) | (0.055) | (0.055) |
| Mean (losers) | 0.68 | 0.21 | 0.54 | 0.93 | 0.77 | 0.78 | 0.22 | 0.24 | 0.76 |
| N | 3049 | 3049 | 3049 | 3049 | 3049 | 3049 | 3049 | 3049 | 3049 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

## B) Results from the round 10 lottery

We test the robustness of our results on the beliefs about the causes of poverty using data collected by Franklin (2019) about an earlier lottery (the $10^{\text {th }}$ ). As discussed in Section II, he uses lottery round 10 in 2015 and finds that it led to a substantial wealth shock. His data are from December 2017 to February 2018, around three years after the lottery.

He asked the following questions: "Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between."

- "In the long run, hard work usually brings a better life." vs. "Hard work doesn't usually bring success, it's more a matter of luck and connections."
- "Incomes should be made more equal." vs. "We need larger income differences as incentives for individual effort."

In addition, he asked the question "Government should raise taxes in order to expand programs that help the poor" (1 Strongly Agree-4 Strongly Disagree).

We show the effects of winning the lottery on these variables in Table 8. Again, we see that winners are less likely to view luck as important for success and also that there are no effects on wide preferences of redistribution or taxation. As seen in Appendix Tables A. 20 and A.21, these results are robust to adding strata variables and controls.

Table 8: Results from lottery round 10.

|  | $(1)$ |  |  |
| :--- | :--- | :--- | :--- |
|  | Success due to luck | Income differences are needed | Raise taxes to help poor |
| Winner | $-0.590^{* * *}$ | -0.015 | 0.071 |
|  | $(0.154)$ | $(0.047)$ | $(0.050)$ |
| N | 1375 | 1343 | 1336 |
| Strata | No | No | No |
| Additional controls | No | No | No |
| The table reports the estimate of the effect of winning in the 10th round of the lottery based on data |  |  |  |
| from Franklin (2019). Robust standard errors are in parentheses. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, |  |  |  |
| and $\leq 0.1^{*}$. |  |  |  |

## VI Conclusion

Are attitudes toward redistribution stable or are they endogenous to material conditions? This question has puzzled social scientists for centuries and we offer new evidence based on a large-scale, preregistered, data collection of randomly assigned winners and losers in an Ethiopian housing lottery. We verify that winners and losers are similar in terms of baseline characteristics and show that winning causes a large wealth shock.

Our main findings lend support to both the pocketbook theory of attitudes and the ideology perspective. We find that attitudes toward taxation that directly affects the winners, in our case a real estate tax, are clearly affected by winning the lottery. In support of the notion that attitudes are more stable, we find no effects on more general attitudes toward redistribution and inequality acceptance. We further show that care should be taken when separating ideology and pocketbook, as beliefs that are often seen as more profound and ideological can clearly be endogenous to material conditions. In particular, we uncovered important changes in beliefs about the causes of poverty: lottery winners are less likely to think luck plays a role for poverty and more likely to believe it to be determined by poor character. This finding is perfectly consistent with the self-serving bias.

The wealth shock experienced by the lottery winners is substantial. Two years after the lottery, the average net wealth of winners is 20 times larger than that of losers. We also find a positive effect on perceived economic position and economic mobility. In this light, it seems natural to interpret the observed effects on preferences and beliefs in terms of a wealth effect. Alternative explanations are, of course, possible. In particular, one might suspect that support for redistribution and beliefs are affected by moving to a new apartment and neighborhood. We argue, however, that moving is unlikely to play any important role for our results. In fact, only a minority of winners (30 percent) had moved into their new apartment within the first two years. Furthermore, if we separate the winners into three different groups
-winners who sell (sellers), winners who move (movers), and winners who neither sell nor move (non-movers) - we see that sellers are more favorable to taxing house owners than the two other groups, for whom the estimates are similar. Although this finding may be subject to a risk of bias, given the self-selection into moving, it suggests that movers and non-movers are affected by the lottery in the same manner.

In addition to support for public redistribution, we measured private redistribution directly by giving winners and losers an opportunity to give to a charity working with the poor in Ethiopia. Despite being much wealthier, winners only donate slightly more. Since their general support for redistribution are unchanged, we interpret this difference as reflecting that giving is a normal good rather than as a change in social preferences.

As winning the lottery is random conditional on the strata variables, and as we measure the effects of winning the lottery using individuals who participated in the same lottery, the internal validity of our estimates is strong. How well these results generalize to other types of wealth gains and to other settings is an open question. We hope that future studies will investigate the effects of similar and different shocks in other settings so that we learn more about the general effects of wealth on political preferences.

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## APPENDIX: FOR ONLINE PUBLICATION

## A Registrants and lottery winners

Table A.1: Population and number of applicants from different subcities

| Subcity | Population | Households | Applicants | Share of <br> population | Share of <br> households |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Addis Ketema | 255,092 | 62,218 | 42,024 | $16.5 \%$ | $67.5 \%$ |
| Akaky Kaliti | 181,202 | 44,196 | 8,037 | $4.4 \%$ | $18.2 \%$ |
| Arada | 212,009 | 51,710 | 39,491 | $18.6 \%$ | $76.4 \%$ |
| Bole | 308,714 | 75,296 | 23,329 | $7.6 \%$ | $31.0 \%$ |
| Gullele | 267,381 | 65,215 | 21,922 | $8.2 \%$ | $33.6 \%$ |
| Kirkos | 220,991 | 53,900 | 50,243 | $22.7 \%$ | $93.2 \%$ |
| Kolfe Keranio | 428,654 | 104,550 | 26,224 | $6.1 \%$ | $25.1 \%$ |
| Lideta | 201,613 | 49,174 | 42,636 | $21.1 \%$ | $86.7 \%$ |
| Nifas Silk-Lafto | 316,108 | 77,100 | 26,056 | $8.2 \%$ | $33.8 \%$ |
| Yeka | 346,484 | 84,508 | 27,500 | $7.9 \%$ | $32.5 \%$ |
| Total | $2,738,248$ | 667,865 | 307,462 | $11.2 \%$ | $46.0 \%$ |

Notes: The reported number of inhabitants comes from the Ethiopian Population and Housing Census of 2007, and the number of households is based on a household size of 4.1 (which was the average for Addis Ababa in 2007).

Table A.2: Apartments awarded through 13 rounds of the lottery

| Round | Year | Studio | 1-Bedroom | 2-Bedroom | 3-Bedroom | Total |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| 1 | 2006 | 4,118 | 5,677 | 6,548 | 2,645 | 18,988 |
| 2 | 2007 | 2,592 | 5,070 | 6,263 | 1,106 | 15,031 |
| 3 | 2009 | 2,695 | 3,679 | 3,626 | 735 | 10,735 |
| 4 | 2010 | 2,797 | 6,755 | 4,108 | 1,372 | 15,032 |
| 5 | 2010 | 3,088 | 4,719 | 2,028 | 934 | 10,769 |
| 6 | 2011 | 1,255 | 4,467 | 2,747 | 1,531 | 10,000 |
| 7 | 2012 | 2,952 | 3,594 | 433 | 321 | 7,300 |
| 8 | 2013 | 1,326 | 4,665 | 2,952 | 1,155 | 10,098 |
| 9 | 2013 | 2,570 | 4,423 | 2,330 | 934 | 10,257 |
| 10 | 2015 | 6,734 | 15,670 | 7,309 | 4,327 | 34,040 |
| 11 | 2016 | 2,449 | 6,262 | 3,316 | 2,489 | 14,516 |
| 12 | 2018 | 246 | 1,041 | 125 | 1,195 | 2,607 |
| 13 | 2019 | 1,248 | 18,823 | 7,127 | 5,455 | 32,653 |
| Total |  | 34,070 | 84,845 | 48,912 | 24,199 | 192,026 |

Notes: So far, all winners have been drawn from among the 2005 registrants, with the exception of three-bedroom apartment winners of the $13^{\text {th }}$ lottery, who were drawn from among the 2013-registrants, because the 2005 registrants for this apartment type had all received their apartment by round 12 .

Table A.3: Housing cost, price, value, and subsidies.

|  | Studio | One-bedroom | Two-bedroom |
| :---: | :---: | :---: | :---: |
|  | Mean | Mean | Mean |
| Construction costs | 112 | 187 | 278 |
| Land costs | 67 | 112 | 166 |
| Infrastructure costs | 46 | 77 | 115 |
| Provision cost (excl. infrastructure) | 179 | 299 | 444 |
| Estimated value | 354 | 629 | 813 |
| Purchase price | 73 | 169 | 321 |
| Subsidy (pct. - based on cost of provision) | 145 | 77 | 38 |
| Subsidy (pct. - based on estimated value) | 379 | 275 | 155 |
| N | 299 | 793 | 393 |

Notes: Cost, price, and, value are in 1,000 ETB. Subsidy is given as percentage of purchase price. Provision costs estimates are based on Franklin (2018). Estimated value is obtained from the survey. Purchase price is calculated from the sqare-meter price for each unit type and the exact size of each unit.

## B Balance

In column one of Table A.4, we report the t-tests of equal means between losers and winners for each of the variables included in Table 2. The second column shows the estimates from regressing "winner" on all variables simultaneously. We see that some variables are correlated with winning. In particular, the bivariate correlation indicates that winners are slightly older, less likely to be Oromo, Muslim, and born in Addis Ababa, while they are more likely to be Tigray and born in the Tigray region. However, as shown in the right panel of Table A. 4 the variables taken together do not predict winning (as seen by the F-test).

Table A.4: Balance test: Relationship between control variables and winning.

|  | (1) | (2) |
| :---: | :---: | :---: |
|  | Winning (regressions one by one) | Winning (multivariate regression) |
| Age | 0.0020** | 0.0016 |
|  | (0.00093) | (0.0012) |
| Oromo | -0.048** | -0.075** |
|  | (0.024) | (0.035) |
| Amhara | 0.0038 | -0.025 |
|  | (0.018) | (0.030) |
| Tigray | 0.071** | -0.088 |
|  | (0.032) | (0.062) |
| Gurage | -0.032 | -0.049 |
|  | (0.024) | (0.037) |
| Orthodox | 0.018 | -0.030 |
|  | (0.020) | (0.080) |
| Muslim | -0.077*** | -0.083 |
|  | (0.027) | (0.086) |
| Protestant | 0.034 | -0.026 |
|  | (0.028) | (0.084) |
| Born in Tigray | $0.14 * * *$ | 0.13 |
|  | (0.036) | (0.095) |
| Born in Amhara | 0.034 | -0.0084 |
|  | (0.023) | (0.078) |
| Born in Oromia | 0.018 | -0.0089 |
|  | (0.025) | (0.079) |
| Born in SNNP | 0.018 | 0.028 |
|  | (0.026) | (0.083) |
| Born in Addis | -0.072*** | -0.066 |
|  | (0.018) | (0.075) |
| Earnings at reg. | -0.00099 | -0.0037 |
|  | (0.0030) | (0.0035) |
| Earnings 2015 | 0.0028 | 0.0059 |
|  | (0.0034) | (0.0039) |
| Pa. earn. at reg. | -0.0037 | -0.0069 |
|  | (0.0037) | (0.0057) |
| Pa. earn. 2015 | 0.00011 | 0.0031 |
|  | (0.0028) | (0.0033) |
| Partner at reg. | -0.017 | -0.0034 |
|  | (0.019) | (0.031) |
| Mean dep. var. | NA | 0.49 |
| No. of observations | NA | 2388 |
| R-squared | NA | 0.09 |
| Strata | Yes | Yes |
| F-test and p-value of F-test | NA | 0.45 (p=0.50) |

Notes: The first column shows the relationship between the covariates and winning, one by one, and then together. All regressions include the strata variables.

In Table A.5, we show the balance for the three types of winners discussed in the mechanism section.

Table A.5: Balance test for winners: Relationship between control variables and moving status.

|  | (1) | (2) | (3) |
| :---: | :---: | :---: | :---: |
|  | Movers | Non-movers | Sellers |
| Age | $0.0024^{* * *}$ | -0.00078 | -0.00049 |
|  | (0.00088) | (0.0011) | (0.00030) |
| Oromo | -0.051** | -0.024 | -0.0039 |
|  | (0.024) | (0.034) | (0.0092) |
| Amhara | -0.015 | -0.0099 | -0.0069 |
|  | (0.022) | (0.030) | (0.0087) |
| Tigray | -0.072** | -0.016 | -0.014* |
|  | (0.032) | (0.060) | (0.0075) |
| Gurage | -0.029 | -0.020 | 0.013 |
|  | (0.025) | (0.035) | (0.013) |
| Orthodox | 0.013 | -0.043 | 0.021*** |
|  | (0.052) | (0.078) | (0.0052) |
| Muslim | -0.030 | -0.054 | 0.028** |
|  | (0.056) | (0.083) | (0.014) |
| Protestant | 0.054 | -0.080 | $0.025^{* * *}$ |
|  | (0.056) | (0.082) | (0.0092) |
| Born in Tigray | 0.100 | 0.031 | 0.00070 |
|  | (0.079) | (0.088) | (0.025) |
| Born in Amhara | $-0.078$ | $0.070$ | $-0.011$ |
|  | $(0.070)$ | $(0.072)$ | $(0.025)$ |
| Born in Oromia | -0.12 | 0.11 | -0.011 |
|  | (0.071) | (0.073) | (0.026) |
| Born in SNNP | -0.080 | 0.11 | -0.024 |
|  | (0.073) | (0.077) | (0.028) |
| Born in Addis | -0.15** | 0.085 | -0.019 |
|  | (0.068) | (0.069) | (0.025) |
| Earnings at reg. | -0.0012 | -0.0025 | 0.00078 |
|  | (0.0024) | (0.0034) | (0.00100) |
| Earnings 2015 | 0.00091 | 0.0050 | 0.00041 |
|  | (0.0028) | (0.0037) | (0.00099) |
| Partnner earnings at reg. | -0.00027 | -0.0067 | $-0.0027^{*}$ |
|  | (0.0044) | (0.0055) | (0.0016) |
| Partner earnings 2015 | 0.0038 | -0.00076 | 0.00059 |
|  | (0.0025) | (0.0032) | (0.0011) |
| Partner at reg. | 0.027 | -0.031 | 0.0093 |
|  | (0.023) | (0.030) | (0.011) |
| Mean (losers) |  |  |  |
| N | 2388 | 2388 | 2388 |
| Notes: Multivariate regressions of dummies for "Movers" (column 1), "Non-movers" (column 2), and "Sellers" (column 3) on the set of covariates controlling for the strata variables. |  |  |  |
|  |  |  |  |

## C Addressing survey attrition and nonresponse

As discussed in Section III, we did not manage to contact all the respondents initially sampled, and nonresponse appears to be correlated with winning the lottery. More losers (94 percent) than winners ( 90 percent) are willing and able to participate, and this difference is statistically significant (controlling for the vector of stratification variables). In the results presented below, we follow the correction of Kling and Liebman (2004) to account for this difference in nonresponse.

## A) Upper and lower bounds for main results

We obtain the lower bounds of the lottery effect by replacing missing observations among the winners (losers) by that group's mean value minus (plus) $0.05,0.10$, and 0.20 standard deviations of the losers group. The upper bounds of the effects are constructed in a symmetrical way. These results are presented in Table A.6. We see that the lottery effect on "Redistribution (real estate)" remains significant (at the 5 percent level) after replacing the missing observations with the mean of the losers/winners $+/-0.05$ standard deviations. When imputing the mean values $+/-0.10$ standard deviations, the 95 percent confidence interval crosses zero, but the result is still statistically significant at the 10 percent level. None of the results are statistically significant when using the broadest bounds (i.e. +/0.20 standard deviations).

## B) Upper and lower bounds for the wealth effect

One limitation of our wealth measures is that many people were unable to provide the market value of their real estate and many did not report the total value of their household debt, cash savings and bank savings. As a result, columns (1) and (2) of Table 3 only include 2,298 and 1,533 observations.

In the Table below, we follow the same procedure as in the previous subsection and construct the lower bounds by replacing the missing values in the losers' group by the losers' mean plus 0.05 standard deviations and by replacing the missing values in the winners group by the losers' mean minus 0.05 standard deviations. The higher bounds are obtained by replacing the missing values in the losers group by the losers' mean minus 0.05 standard deviations and by replacing the missing values in the winners group by the losers' mean plus 0.05 standard deviations. We repeat this process using 0.1 and 0.2 standard deviations instead of 0.05 to assess the sensitivity of the results to even more unfavorable assumptions about the missing values.

It is clear from this exercise that the lottery effect on wealth is very strong, even under the most unfavorable assumptions.

Table A.6: Main results - bounded estimates.

|  | Correction | lower/upper bound | b | (s.e.) |  | mean losers | $R^{2}$ | Obs. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Redistribution (General) | +/-0.05 s.d. | lower upper | -. 006 | (.015) |  | . 735 | . 005 | 3318 |
|  |  |  | . 045 | (.015) | *** | . 716 | . 009 | 3318 |
|  | +/-0.1 s.d. | lower | -. 01 | (.015) |  | . 737 | . 005 | 3318 |
|  |  | upper | . 094 | (.016) | *** | . 698 | . 017 | 3318 |
|  | +/-0.2 s.d. | lower | -. 017 | (.015) |  | . 74 | . 005 | 3318 |
|  |  | upper | . 19 | (.019) | *** | . 662 | . 037 | 3318 |
| Redistribution (Real estate) | +/-0.05 s.d. | lower | -. 034 | (.017) | ** | . 598 | . 002 | 3318 |
|  |  | upper | -. 086 | (.017) | ** | . 618 | . 009 | 3318 |
|  | +/-0.1 s.d. | lower | -. 03 | (.017) | * | . 597 | . 002 | 3318 |
|  |  | upper | -. 134 | (.018) | *** | . 636 | . 018 | 3318 |
|  | +/-0.2 s.d. | lower | -. 021 | (.017) |  | . 594 | . 001 | 3318 |
|  |  | upper | -. 23 | (.02) | *** | . 672 | . 039 | 3318 |
| Redistribution (Private) | +/-0.05 s.d. | lower | 1.164 | (.534) | ** | 17.958 | . 032 | 3318 |
|  |  | upper | 1.342 | (.533) | ** | 17.892 | . 032 | 3318 |
|  | +/-0.1 s.d. | lower | 1.035 | (.534) | * | 18.007 | . 031 | 3318 |
|  |  | upper | 1.39 | (.533) | *** | 17.874 | . 032 | 3318 |
|  | +/-0.2 s.d. | lower | . 775 | (.535) |  | 18.104 | . 03 | 3318 |
|  |  | upper | 1.486 | (.534) | *** | 17.838 | . 033 | 3318 |
| (Individual/Society) | +/-0.05 s.d. | lower | -. 005 | (.017) |  | . 491 | . 01 | 3318 |
|  |  | upper | . 047 | (.017) | *** | . 471 | . 011 | 3318 |
|  | +/-0.1 s.d. | lower | -. 009 | (.017) |  | . 492 | . 01 | 3318 |
|  |  | upper | . 095 | (.018) | *** | . 453 | . 016 | 3318 |
|  | +/-0.2 s.d. | lower | -. 018 | (.017) |  | . 495 | . 011 | 3318 |
|  |  | upper | . 191 | (.021) | *** | . 417 | . 031 | 3318 |
| (Meritocratic/Egalitarian) | +/-0.05 s.d. | lower | -. 005 | (.016) |  | . 311 | . 009 | 3318 |
|  |  | upper | -. 057 | (.016) | *** | . 33 | . 014 | 3318 |
|  | +/-0.1 s.d. | lower | -. 001 | (.016) |  | . 309 | . 008 | 3318 |
|  |  | upper | -. 105 | (.017) | *** | . 348 | . 022 | 3318 |
|  | +/-0.2 s.d. | lower | . 007 | (.016) |  | . 306 | . 008 | 3318 |
|  |  | upper | -. 201 | (.019) | *** | . 384 | . 043 | 3318 |

Robust standard errors are in parentheses. Statistical significance of the differences between the estimates and zero is indicated by $* p<0.1, * * p<0.05$, and $* * * p<0.01$. In all the estimations, we include the strata variables.

Table A.7: Wealth effects - bounded estimates.

|  | Correction | lower/upper bound | b | (s.e.) |  | mean losers | $R^{2}$ | Obs. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Housing wealth | +/-0.05 s.d. | lower | 12.319 | (.09) | *** | . 13 | . 876 | 3049 |
|  |  | upper | 12.385 | (.09) | *** | . 13 | . 877 | 3049 |
|  | +/-0.1 s.d. | lower | 12.286 | (.09) | *** | . 13 | . 875 | 3049 |
|  |  | upper | 12.419 | (.09) | *** | . 13 | . 878 | 3049 |
|  | +/-0.2 s.d. | lower | 12.219 | (.09) | *** | . 13 | . 874 | 3049 |
|  |  | upper | 12.485 | (.09) | ** | . 13 | . 879 | 3049 |
| Net wealth | +/-0.05 s.d. | lower | 3.79 | (.161) | *** | 7.417 | . 161 | 3049 |
|  |  | upper | 4.353 | (.161) | *** | 7.417 | . 202 | 3049 |
|  | +/-0.1 s.d. | lower | 3.508 | (.161) | *** | 7.417 | . 141 | 3049 |
|  |  | upper | 4.635 | (.161) | *** | 7.417 | . 223 | 3049 |
|  | +/-0.2 s.d. | lower | $2.945$ | $(.162)$ | *** | 7.417 | . 102 | 3049 |
|  |  | upper | 5.198 | (.162) | *** | 7.417 | . 263 | 3049 |

Robust standard errors are in parentheses. Statistical significance of the differences between the estimates and zero is indicated by $* p<0.1, * * p<0.05$, and $* * * p<0.01$. In all the estimations, we include the strata variables.

## D Treatment, strata and covariates

In order to check that there were no mistakes in the administrative lists of winners and losers that we received, we asked at the end of the interview whether the respondent had won the lottery (note that the interviewer did not know what list the respondent belonged to). Thirty individuals from the winners' list claimed that they did not win the lottery, while eight losers claimed that they did win. We can only speculate about the reason behind these answers. For instance, winners who were unable to acquire the money needed for the down payment may not have considered themselves to be winners, whereas people whose partners or close family members won may have done so. Regardless of the reasons behind this type of inconsistency, we treat everyone in accordance with their status from the list (and therefore estimate the intention-to-treat).

When estimating the impacts of winning the lottery, we control for the strata that are used in the lottery:

S1. A binary variable equal to one for female applicants. This is from the administrative register for winners and coded from names for the losers. We update the information for the losers with the enumerator coding of the respondent's gender during the interview (they asked at the end of the interview if they were unsure). While 151 of the 1,564 losers were misclassified, based on their name, 39 of the 1,485 winners were also misclassified in the registers. ${ }^{25}$

S2. A binary variable equal to one for government employees. This is from the administrative register for the winners and based on the following question for the losers: "What was your occupation in 2005 (at the time of housing registration)". We coded this as one if they reported to be a public employee and zero otherwise. The question about occupation in 2005 was asked to everyone. To check the correspondence between the two sources, we

[^15]compared the answer to this question to the actual employment status registered for the winners. We see that more people were classified as government employees in the registers than in the survey. Of the 447 individuals who were registered as government employees, only 292 claimed to have been so in the survey. Furthermore, 70 of the 362 individuals who claimed that they were government employees in 2005 were not registered as such.

S3. A set of binary variables indicating which type of housing the applicant applied for (i.e., a studio, a one-, or a two-bedroom apartment). This is from the administrative registers for both winners and losers.

S4. A binary variable equal to one for people with physical disabilities. This is from the administrative register for the losers but for the winners it is based on the following question: "Did you have any physical disability at the time of registration (in 2005)?". Again, we compared the responses to the question with the actual registered status for the losers. The survey questions appeared to overclassify people as disabled, perhaps because people are considering minor disabilities when answering the question. As many as 36 individuals claimed to have had physical disabilities, while only five were registered as disabled.

## A) Main results with alternative coding of strata

To check whether our coding of the strata variables matters for the results, we also used a version of the strata variables, where the survey responses are used for everyone. Given the inconsistencies observed in S2 and S4, we also use two alternative specifications in our estimations; one where the survey response is used for everyone, and another where these two strata variables are omitted. The main results obtained with these alternative definitions of the strata variables are presented in the tables A. 8 and A. 9 below. The results are not sensitive to using the survey responses for everyone, and even leaving out two of the strata variables entirely only has a small impact.

Table A.8: Main outcomes: Strata based on survey only.

|  | (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Redistribution (general) | Redistribution (housing) | Redistribution (private) | Individual/Society | Meritocratic/Egalitarian |
| Winner | 0.00038 | -0.036** | 1.33** | -0.000042 | -0.0094 |
|  | (0.016) | (0.018) | (0.57) | (0.018) | (0.017) |
| Mean (losers) | 0.73 | 0.60 | 17.91 | 0.49 | 0.31 |
| N | 3049 | 3049 | 3049 | 3049 | 3049 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables in all estimations. P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.9: Main outcomes: S2 and S4 omitted.

|  | (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Redistribution (general) | Redistribution (housing) | Redistribution (private) | Individual/Society | Meritocratic/Egalitarian |
| Winner | 0.0029 | -0.032* | 1.19** | 0.0020 | -0.0080 |
|  | (0.016) | (0.018) | (0.57) | (0.018) | (0.017) |
| Mean (losers) | 0.73 | 0.60 | 17.91 | 0.49 | 0.31 |
| N | 3049 | 3049 | 3049 | 3049 | 3049 | variables in all estimations. P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$

## E Main results with control variables

In this section we present the main results when adding pre-specified covariates and optimal controls (Belloni et al., 2014). The pre-specified covariates are: the respondant's age, ethnicity, place of birth, earnings in 2005 and 2015 (as recalled in 2016), civil status in 2005. The recall questions are missing for a significant pat of the sample, this was anticipated and it is why we pre-specified that the main specification would not include those variables. As before, all estimations include the strata variables.

The results are overall in line with the main estimates, but they are less precise (see Tables A. 10 to A.15. When we remove the four control variables that contain the largest share of missing variables (the recall questions about earnings at the time of registration and in 2015 for the individual and the partner), the results are again as precise as before as we show in Tables A. 16 to A. 19 .

Table A.10: Main outcomes with controls.

|  | (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Redistribution (general) | Redistribution (housing) | Redistribution (private) | Individual/Society | Meritocratic/Egalitarian |
| Winner | 0.011 | -0.042** | 0.90 | 0.0061 | -0.012 |
|  | (0.018) | (0.021) | (0.65) | (0.021) | (0.020) |
| Mean (losers) | 0.77 | 0.57 | 18.25 | 0.43 | 0.32 |
| N | 2388 | 2388 | 2388 | 2388 | 2388 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the additional covariates in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.11: Main outcomes with optimal controls.

|  | (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Redistribution (general) | Redistribution (housing) | Redistribution (private) | Individual/Society | Meritocratic/Egalitarian |
| Winner | 0.0086 | -0.039* | 0.83 | 0.0053 | -0.0089 |
|  | (0.018) | (0.021) | (0.64) | (0.021) | (0.020) |
| Mean (losers) | 0.77 | 0.57 | 18.25 | 0.43 | 0.32 |
| N | 2388 | 2388 | 2388 | 2388 | 2388 | variables and the optimal covariates in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.12: Wealth outcomes with controls.

|  | (1) | (2) | (3) | (4) | (5) | (6) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Housing wealth | Net wealth | Richer than 5y ago | Richer in 5y | Asset index | Perceived position |
| Winner | 12.3 *** | 3.88*** | 0.063*** | 0.016* | 0.044 | 0.097*** |
|  | (0.19) | (0.41) | (0.018) | (0.0088) | (0.037) | (0.019) |
| Mean (losers) | 0.12 | 7.62 | 0.71 | 0.95 | 0.01 | 0.64 |
| N | 1795 | 1272 | 2388 | 2388 | 2388 | 2388 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the additional covariates in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq$ $0.1^{*}$.

Table A.13: Wealth outcomes with optimal controls.

|  | $(1)$ | $(2)$ | $(3)$ | $(4)$ | $(5)$ | $(6)$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | Housing wealth | Net wealth | Richer than 5y ago | Richer in $5 y$ | Asset index | Perceived position |
| Winner | $12.3^{* * *}$ | $3.94^{* * *}$ | $0.062^{* * *}$ | $0.016^{*}$ | 0.048 | $0.094^{* * *}$ |
|  | $(0.19)$ | $(0.41)$ | $(0.018)$ | $(0.0088)$ | $(0.037)$ | $(0.019)$ |
| Mean (losers) | 0.12 | 7.62 | 0.71 | 0.95 | 0.01 | 0.64 |
| N | 1795 | 1272 | 2388 | 2388 | 2388 | 2388 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the optimal covariates in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.14: Impact on beliefs about the causes of poverty with controls.

|  | (1) Competence | (2) Luck | (3) <br> Character | (4) Effort | (5) <br> Discrimination | (6) Opportunities | (7) Poor family | (8) <br> Poorly educated parents | (9) <br> Ambitions |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Winner | $\begin{gathered} -0.0017 \\ (0.020) \end{gathered}$ | $\begin{gathered} -0.022 \\ (0.017) \end{gathered}$ | $\begin{aligned} & 0.050^{* *} \\ & (0.021) \end{aligned}$ | $\begin{gathered} 0.0055 \\ (0.0094) \end{gathered}$ | $\begin{gathered} 0.021 \\ (0.018) \end{gathered}$ | $\begin{gathered} 0.028^{*} \\ (0.017) \end{gathered}$ | $\begin{gathered} -0.037^{* *} \\ (0.017) \end{gathered}$ | $\begin{array}{r} -0.030^{*} \\ (0.018) \end{array}$ | $\begin{gathered} -0.0073 \\ (0.018) \end{gathered}$ |
| Mean (losers) | 0.68 | 0.21 | 0.54 | 0.93 | 0.77 | 0.78 | 0.22 | 0.24 | 0.76 |
| N | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the additional covariates in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.15: Impact on beliefs about the causes of poverty with optimal controls.

管

|  | (1) <br> Competence | (2) <br> Luck | (3) <br> Character | (4) Effort | (5) Discrimination | (6) Opportunities | (7) <br> Poor family | (8) <br> Poorly educated parents | (9) <br> Ambitions |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Winner | $\begin{gathered} 0.0015 \\ (0.020) \end{gathered}$ | $\begin{gathered} -0.021 \\ (0.017) \end{gathered}$ | $\begin{gathered} 0.053^{* *} \\ (0.021) \end{gathered}$ | $\begin{gathered} 0.0096 \\ (0.0093) \end{gathered}$ | $\begin{gathered} 0.019 \\ (0.018) \end{gathered}$ | $\begin{gathered} 0.025 \\ (0.017) \end{gathered}$ | $\begin{gathered} -0.035^{* *} \\ (0.017) \end{gathered}$ | $\begin{gathered} -0.026 \\ (0.018) \end{gathered}$ | $\begin{gathered} \hline-0.0043 \\ (0.018) \end{gathered}$ |
| $\begin{aligned} & \text { Mean (losers) } \\ & \mathrm{N} \end{aligned}$ | ${ }_{2388}^{0.65}$ | ${ }_{2388} 0.20$ | 2388 ${ }^{0.56}$ | $\begin{gathered} 0.94 \\ 2388 \end{gathered}$ | ${ }_{2388}^{0.77}$ | $\begin{aligned} & 0.79 \\ & 2388 \end{aligned}$ | $\begin{gathered} 0.23 \\ 2388 \end{gathered}$ | $\begin{gathered} 0.25 \\ 2388 \end{gathered}$ | $\begin{gathered} 0.74 \\ 2388 \end{gathered}$ |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the optimal covariates in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.16: Main outcomes with controls that are not missing.

|  | (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Redistribution (general) | Redistribution (housing) |  | Individual/Society | Meritocratic/Egalitarian |
| Winner | 0.0028 | -0.040** | 1.41** | -0.0078 | -0.015 |
|  | (0.017) | (0.019) | (0.58) | (0.019) | (0.017) |
| Mean (losers) | 0.73 | 0.60 | 17.91 | 0.49 | 0.31 |
| N | 3049 | 3049 | 3049 | 3049 | 3049 |

Table A.17: Main outcomes with optimal controls that are not missing.

|  | $(1)$ |  | $(2)$ | $(3)$ | $(4)$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :---: |
|  | Redistribution (general) | Redistribution (housing) |  | Individual/Society | Meritocratic/Egalitarian |  |
| Winner | 0.0029 | $-0.038^{* *}$ | $1.44^{* *}$ | -0.0083 | -0.018 |  |
|  | $(0.017)$ | $0.019)$ | $(0.57)$ | $(0.019)$ | $(0.017)$ |  |
| Mean (losers) | 0.73 | 3049 | 17.91 | 0.49 | 0.31 |  |
| N | 3049 | 3049 | 3049 | 3049 |  |  |
| The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the |  |  |  |  |  |  |

Table A.18: Impact on beliefs about the causes of poverty with controls that are not missing.

|  | (1) <br> Competence | (2) Luck | (3) <br> Character | (4) Effort | (5) <br> Discrimination | (6) Opportunities | (7) <br> Poor family | (8) <br> Poorly educated parents | (9) <br> Ambitions |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Winner | $\begin{gathered} -0.023 \\ (0.018) \end{gathered}$ | $\begin{gathered} \hline-0.033^{* *} \\ (0.015) \end{gathered}$ | $\begin{aligned} & 0.051^{* * *} \\ & (0.019) \end{aligned}$ | $\begin{gathered} 0.0056 \\ (0.0089) \end{gathered}$ | $\begin{gathered} 0.010 \\ (0.016) \end{gathered}$ | $\begin{gathered} 0.016 \\ (0.016) \end{gathered}$ | $\begin{array}{r} -0.024 \\ (0.015) \end{array}$ | $\begin{gathered} -0.026^{*} \\ (0.016) \end{gathered}$ | $\begin{gathered} -0.013 \\ (0.016) \end{gathered}$ |
| Mean (losers) N | $\begin{gathered} 0.68 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.21 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.54 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.93 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.77 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.78 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.22 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.24 \\ 3049 \end{gathered}$ | $\begin{gathered} 0.76 \\ 3049 \end{gathered}$ |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the additional covariates in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.19: Impact on beliefs about the causes of poverty with optimal controls that are not missing.

|  |  | (1) <br> Competence | (2) <br> Luck | (3) <br> Character | (4) <br> Effort | (5) <br> Discrimination | (6) Opportunities | (7) Poor family | Poorly educated parents | (9) <br> Ambitions |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\underset{\Xi}{\text { 感: }}$ | Winner | $\begin{gathered} 0.0015 \\ (0.020) \end{gathered}$ | $\begin{gathered} -0.021 \\ (0.017) \end{gathered}$ | $\begin{gathered} 0.053^{* *} \\ (0.021) \end{gathered}$ | $\begin{gathered} 0.0096 \\ (0.0093) \end{gathered}$ | $\begin{gathered} 0.019 \\ (0.018) \end{gathered}$ | $\begin{gathered} 0.025 \\ (0.017) \end{gathered}$ | $\begin{gathered} -0.035^{* *} \\ (0.017) \end{gathered}$ | $\begin{gathered} -0.026 \\ (0.018) \end{gathered}$ | $\begin{gathered} \hline-0.0043 \\ (0.018) \end{gathered}$ |
|  | Mean (losers) | ${ }_{2388}^{0.65}$ | 0.20 2388 | ${ }_{2} 0.56$ | 0.94 2388 | 0.77 2388 | 0.79 2388 | 0.23 2388 | ${ }_{2388} 0.25$ | ${ }^{0.74}$ |
|  | N | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the optimal covariates in all estimations. P-value are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

## F Results from lottery round 10

Table A.20: Results from lottery round 10. Adding strata variables.

|  | $(1)$ |  | $(2)$ |  | $(3)$ |
| :--- | :--- | :--- | :--- | :---: | :---: |
|  | Success due to luck | Income differences are needed | Raise taxes to help poor |  |  |
| Winner | $-0.580^{* * *}$ | -0.013 | 0.065 |  |  |
|  | $(0.154)$ | $(0.047)$ | $(0.050)$ |  |  |
| N | 1375 | 1343 | 1336 |  |  |
| Strata | Yes | Yes | Yes |  |  |
| Additional controls | No | No | No |  |  |

The table reports the estimate of the effect of winning in the 10 th round of the lottery based on data from Franklin (2019). We control for the stratification variables in all estimations. Robust standard errors are in parentheses. P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.21: Results from lottery round 10. Adding other controls

|  | $(1)$ |  |  |
| :--- | :--- | :--- | :--- |
|  | Success due to luck | Income differences are needed | Raise taxes to help poor |
| Winner | $-0.592^{* * *}$ | -0.016 | 0.070 |
|  | $(0.154)$ | $(0.047)$ | $(0.050)$ |
| N | 1375 | 1343 | 1336 |
| Strata | Yes | Yes | Yes |
| Additional controls | Yes | Yes | Yes |

The table reports the estimate of the effect of winning in the 10 th round of the lottery based on data from Franklin (2019). We control for the stratification variables and additional covariates in all estimations. Robust standard errors are in parentheses. P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

## G Treatment intensity

We have shown that winning the lottery implies a substantial increase in wealth. Given that winners were randomly assigned apartments in different areas, with different market prices, the size of the wealth shock differs. In the pre-analysis plan, we wrote that we would use this variation across winners to assess whether the size of the wealth shock is correlated with our main outcomes. An important caveat is that some people may be more optimistic in assessing their household wealth than others and such optimism may be correlated with many unobservable factors that themselves are correlated with our outcomes. In fact, we show in Table A. 22 that higher self-reported wealth is also correlated with higher self-reported earnings. Furthermore, around half the winners were unable to estimate the value of their property which leaves us with a small and plausibly non-random sample. Unfortunately, almost all of our winners won apartments in two areas, so we could not use variation in market prices to investigate these effects. We therefore decided not to do the planned analysis on different effects for winners of different amounts.

Table A.22: Household wealth and control variables, winners only.

|  | (1) |
| :---: | :---: |
|  | Housing wealth |
| Age | 0.00024 |
|  | (0.023) |
| Oromo | 0.0071 |
|  | (0.65) |
| Amhara | -0.29 |
|  | (0.51) |
| Tigray | -1.85 |
|  | (1.57) |
| Gurage | 0.000089 |
|  | (0.60) |
| Orthodox | -0.72 |
|  | (1.32) |
| Muslim | 0.48 |
|  | (1.39) |
| Protestant | 0.63 |
|  | (1.35) |
| Born in Tigray | 0.028 |
|  | (1.49) |
| Born in Amhara | -0.45 |
|  | (0.79) |
| Born in Oromia | -2.20** |
|  | (0.90) |
| Born in SNNP | -0.99 |
|  | (0.94) |
| Born in Addis | -1.19* |
|  | (0.69) |
| Earnings at reg. | -0.032 |
|  | (0.062) |
| Earnings 2015 | 0.25** |
|  | (0.10) |
| Partnner earnings at reg. | -0.15 |
|  | (0.10) |
| Partner earnings 2015 | 0.088* |
|  | (0.051) |
| Partner at reg. | 0.52 |
|  | (0.52) |
| Mean (losers) |  |
| N | 595 |
| Robust standard errors are in parentheses. |  |
| We control for the stratification variables. |  |
| P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq$ $0.1^{*}$. |  |
|  |  |

## H Heterogeneous effects

In this section, we test whether the lottery impacts vary along three dimensions: income above or below the median, ethnicity and religion. We do not find particularly important heterogeneous effects along those dimensions.

Table A.23: Main results by income.

|  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |

Table A.24: Causes by income.

|  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the additional covariates in all estimations. P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.25: Main results by ethnic group.


Table A.26: Causes by ethnic group.

|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Competence | Luck | Character | Effort | Discrimination | Opportunities | Poor family | Parents' education | Ambitions |
| Winner | -0.00062 | -0.023 | 0.10** | 0.027 | 0.024 | 0.046 | -0.038 | -0.087** | -0.014 |
|  | (0.043) | (0.033) | (0.045) | (0.020) | (0.037) | (0.035) | (0.036) | (0.038) | (0.040) |
| Amhara | -0.025 | -0.018 | 0.044 | 0.0070 | 0.0031 | 0.020 | -0.034 | -0.066* | -0.019 |
|  | (0.041) | (0.031) | (0.043) | (0.021) | (0.035) | (0.034) | (0.034) | (0.036) | (0.038) |
| Gurage | -0.089* | 0.035 | 0.094* | 0.0057 | -0.015 | -0.044 | 0.057 | 0.037 | -0.039 |
|  | (0.048) | (0.039) | (0.050) | (0.024) | (0.042) | (0.042) | (0.042) | (0.045) | (0.045) |
| Oromo | -0.019 | 0.096** | 0.12** | 0.0038 | -0.020 | 0.016 | 0.024 | 0.017 | -0.016 |
|  | (0.046) | (0.039) | (0.049) | (0.025) | (0.041) | (0.039) | (0.039) | (0.041) | (0.044) |
| Tigray | -0.056 | 0.074 | 0.092 | -0.035 | -0.050 | -0.0086 | 0.070 | -0.094 | -0.019 |
|  | (0.071) | (0.064) | (0.077) | (0.042) | (0.066) | (0.064) | (0.066) | (0.059) | (0.067) |
| Winner*Amhara | 0.0014 | 0.060 | -0.025 | -0.029 | 0.0064 | -0.026 | 0.013 | 0.082* | -0.012 |
|  | (0.053) | (0.041) | (0.055) | (0.025) | (0.046) | (0.044) | (0.045) | (0.046) | (0.049) |
| Winner*Gurage | 0.0044 | -0.0086 | -0.11 | 0.0082 | -0.046 | -0.011 | -0.034 | 0.031 | 0.024 |
|  | (0.066) | (0.054) | (0.067) | (0.028) | (0.057) | (0.056) | (0.057) | (0.060) | (0.061) |
| Winner*Oromo | -0.017 | -0.065 | -0.11 | -0.047 | 0.020 | -0.0078 | 0.022 | 0.066 | 0.058 |
|  | (0.064) | (0.051) | (0.067) | (0.033) | (0.055) | (0.051) | (0.054) | (0.056) | (0.057) |
| Winner*Tigray | 0.0089 | -0.13* | -0.063 | -0.050 | -0.029 | -0.061 | -0.028 | 0.11 | -0.028 |
|  | (0.083) | (0.066) | (0.085) | (0.034) | (0.075) | (0.073) | (0.072) | (0.074) | (0.072) |
| Mean (losers) | 0.68 | 0.21 | 0.54 | 0.93 | 0.77 | 0.78 | 0.22 | 0.24 | 0.76 |
| N | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the additional covariates in all estimations. P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.27: Main results by religion.

|  | (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Redistribution (general) | Redistribution (housing) | Redistribution (private) | Meritocratic/Egalitarian | Individual/Society |
| Winner | 0.020 | 0.035 | -1.00 | -0.14 | 0.12 |
|  | (0.10) | (0.16) | (5.82) | (0.14) | (0.16) |
| Orthodox | -0.11 | 0.030 | 1.33 | -0.031 | 0.090 |
|  | (0.072) | (0.11) | (4.02) | (0.10) | (0.10) |
| Protestant | -0.13 | 0.017 | 1.90 | 0.0049 | 0.076 |
|  | (0.079) | (0.12) | (4.23) | (0.11) | (0.11) |
| Muslim | -0.097 | 0.063 | -0.74 | -0.0058 | 0.13 |
|  | (0.080) | (0.12) | (4.21) | (0.11) | (0.11) |
| Winner*Orthodox | -0.024 | -0.061 | 2.91 | 0.20 | -0.12 |
|  | (0.10) | (0.16) | (5.75) | (0.14) | (0.15) |
| Winner*Protestant | 0.072 | -0.14 | 2.33 | 0.20 | -0.14 |
|  | (0.11) | (0.17) | (6.00) | (0.14) | (0.16) |
| Winner*Muslim | 0.00056 | -0.088 | 3.46 | 0.18 | -0.13 |
|  | (0.11) | (0.17) | (6.04) | (0.15) | (0.17) |
| Mean (losers) | 0.73 | 0.60 | 17.91 | 0.31 | 0.49 |
| N | 2388 | 2388 | 2388 | 2388 | 2388 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the additional covariates in all estimations. P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.28: Causes by religion.

|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Competence | Luck | Character | Effort | Discrimination | Opportunities | Poor family | Parents' education | Ambitions |
| Winner | 0.012 | -0.29** | 0.19 | 0.029 | -0.080 | 0.084 | -0.087 | -0.11 | 0.10 |
|  | (0.16) | (0.14) | (0.17) | (0.021) | (0.12) | (0.13) | (0.14) | (0.14) | (0.15) |
| Orthodox | 0.12 | -0.25** | 0.035 | $-0.061 * * *$ | -0.11 | 0.015 | -0.051 | -0.0068 | 0.098 |
|  | (0.11) | (0.11) | (0.12) | (0.011) | (0.070) | (0.091) | (0.097) | (0.097) | (0.11) |
| Protestant | 0.11 | -0.29** | 0.085 | -0.035** | -0.078 | 0.058 | -0.11 | -0.086 | 0.038 |
|  | (0.12) | (0.12) | (0.13) | (0.018) | (0.076) | (0.095) | (0.10) | (0.10) | (0.11) |
| Muslim | 0.091 | -0.25** | 0.11 | -0.058** | -0.093 | 0.037 | -0.055 | -0.037 | 0.035 |
|  | (0.12) | (0.12) | (0.13) | (0.024) | (0.078) | (0.098) | (0.10) | (0.10) | (0.12) |
| Winner*Orthodox | -0.0087 | 0.26* | -0.067 | 0.0063 | 0.11 | -0.022 | 0.047 | 0.023 | -0.13 |
|  | (0.16) | (0.14) | (0.16) | (0.016) | (0.12) | (0.12) | (0.14) | (0.14) | (0.14) |
| Winner*Protestant | -0.048 | 0.33** | -0.091 | -0.0071 | 0.091 | -0.098 | 0.10 | 0.050 | -0.11 |
|  | (0.17) | (0.15) | (0.17) | (0.026) | (0.13) | (0.13) | (0.14) | (0.14) | (0.15) |
| Winner*Muslim | 0.015 | 0.23 | -0.20 | -0.045 | 0.076 | -0.050 | -0.0065 | -0.0086 | -0.080 |
|  | (0.17) | (0.15) | (0.18) | (0.037) | (0.13) | (0.14) | (0.15) | (0.15) | (0.15) |
| Mean (losers) | 0.68 | 0.21 | 0.54 | 0.93 | 0.77 | 0.78 | 0.22 | 0.24 | 0.76 |
| N | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 | 2388 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables and the additional covariates in all estimations. P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

## I Effects on expenditures and income

Table A.29: Impact on expenditures.

|  | (1) <br> Rent | (2) <br> Mortgage | (3) <br> Other debt | (4) <br> Total |
| :---: | :---: | :---: | :---: | :---: |
| Winner | $\begin{gathered} -1.97^{* * *} \\ (0.17) \end{gathered}$ | $\begin{aligned} & 6.47^{* * *} \\ & (0.13) \end{aligned}$ | $\begin{gathered} 0.16^{* *} \\ (0.070) \end{gathered}$ | $\begin{aligned} & 2.28^{* * *} \\ & (0.13) \end{aligned}$ |
| $\begin{aligned} & \text { Mean (losers) } \\ & \mathrm{N} \end{aligned}$ | $\begin{aligned} & 6.16 \\ & 3049 \end{aligned}$ | $\begin{aligned} & 1.18 \\ & 3049 \end{aligned}$ | $\begin{gathered} 0.25 \\ 3049 \end{gathered}$ | $\begin{aligned} & 6.73 \\ & 3049 \end{aligned}$ |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables in all estimations. P-values are $\leq 0.01^{* * *}$, $\leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.30: Impact on various sources of income.

|  | $(1)$ | $(2)$ | $(3)$ |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Rental income | Self-employment | $(4)$ <br> Remittances | $(5)$ <br> Transfers | $(6)$ <br> Pension | $(7)$ <br> Other | $(8)$ <br> Total |  |  |
| Winner | 0.014 | $2.83^{* * *}$ | -0.11 | 0.040 | -0.015 | 0.037 | $0.21^{* *}$ | $0.39^{* * *}$ |
|  | $(0.18)$ | $(0.12)$ | $(0.18)$ | $(0.080)$ | $(0.027)$ | $(0.078)$ | $(0.089)$ | $(0.090)$ |
| Mean (losers) | 6.30 | 0.10 | 3.75 | 0.51 | 0.08 | 0.39 | 0.49 | 9.63 |
| N | 3016 | 3047 | 3026 | 3046 | 3048 | 3046 | 3047 | 3049 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables in all estimations. P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

Table A.31: Impact on income-generating activities.

|  | (1) <br> Agriculture | (2) <br> Own business | (3) <br> Manufacturing | (4) <br> Construction | (5) Service | (6) <br> Government job | (7) <br> NGO job | (8) <br> Other activities | (9) <br> Any activities |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Winner | $\begin{array}{r} \hline-0.0065 \\ (0.0073) \end{array}$ | $\begin{gathered} 0.010 \\ (0.018) \end{gathered}$ | $\begin{gathered} -0.00021 \\ (0.0056) \end{gathered}$ | $\begin{gathered} -0.012 \\ (0.0076) \end{gathered}$ | $\begin{gathered} 0.026 \\ (0.019) \end{gathered}$ | $\begin{gathered} 0.0051 \\ (0.013) \end{gathered}$ | $\begin{gathered} 0.00038 \\ (0.0077) \end{gathered}$ | $\begin{gathered} -0.023^{* * *} \\ (0.0065) \end{gathered}$ | $\begin{gathered} -0.024^{*} \\ (0.013) \end{gathered}$ |
| Mean (losers) | 0.04 | 0.33 | 0.02 | 0.05 | 0.31 | 0.17 | 0.04 | 0.04 | 0.88 |
| N | 2637 | 2637 | 2637 | 2637 | 2637 | 2637 | 2637 | 2637 | 3049 |

The table reports the estimate of the effect of winning the lottery. Robust standard errors are in parentheses. We control for the stratification variables in all estimations. P-values are $\leq 0.01^{* * *}, \leq 0.05^{* *}$, and $\leq 0.1^{*}$.

J The survey

## Living conditions and neighborhood survey

## I. Consent

Read: My name is $\qquad$ and I am working with the Ethiopian Development Research Institute (EDRI). We are conducting a phone survey to study the neighborhoods, social networks and livelihood in Ethiopia. We got your number from the housing agency. The survey usually takes between 20 and 25 minutes to complete. To compensate for your time, we will provide a 50 birr worth air time. Participation in this survey is voluntary and no information that may identify you will be shared to a third person. กे $\qquad$







If voluntary, start the interview.


Date of Interview (dd/mm.yyyy) ....../........./.........


## General Instruction

Please use the following codes for missing values:

$-77=$ Not applicable (including skipped questions)
-88 = Refusal
-99 = Don`t know

Please use the Ethiopian calendar and time throughout the survey.


Section A: Identification and tracking information


|  |  inc？ | $\begin{aligned} & \mathrm{A} .12 . \\ & \mathrm{b} \end{aligned}$ |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | A．12．c | Woreda／Kebele －டூ／ФПゥ |  |
| A．13． | Place of birth <br>  |  | ar ${ }^{2} 4$ ¢ <br> ray 7ので， <br>  <br>  <br> NP \＆กーク UHกగ <br> dis Ababa <br> ก <br>  <br> rari ULく <br> nishangul－Gumuz <br> d 7 ㅇor－ <br> mbella 2 תロロ入 <br>  <br> her（Specify） <br>  | $1 \_\ldots 1$ |
| A．14． | Do you have a concrete plan to move <br>  <br>  $\text { (0=No } \quad 1=\mathrm{Yes})$ <br>  | hin the Рロロ中Р $P C \text { 关中 }$ | ext years？ <br>  <br> そ入莈 |  |
| A．15． | If yes，what kind of housing do you expect to move into？ <br>  <br>  とがのゆれ？ |  | bele house々7 vernment owned <br> 入ヶ 几午 <br> rge／shared room ¢८ค 几7 <br> vate rental <br> 几． 0 万 <br> dominium house <br> LPgロ <br> n house PLK <br> mily house <br> 几午 <br> er（Specify） <br> לеา入ウ | $1-\ldots 1$ |
| A．16． | If yes，when do you expect to move？ （mm．yyyy） <br>  <br>  の吅和りくて） | （mm， |  |  |

$\square$

## Section B．Socio－demographic questions

B．1．Do you have a spouse or a partner that you live with？$\left|\quad \_\quad\right| \quad(Y e s=1, N o=0)$
 $\qquad$

B．2．How long have you lived together？

B．2．a Months｜ $\qquad$ 1
ロース
B．2．b Years $\qquad$ 1
その呩

I will know ask some questions about you and your partner：


|  |  | Respondent <br> ＋mアゅのー | Partner |
| :---: | :---: | :---: | :---: |
| B．3． | How old are you？（completed years） <br>  <br>  | $1 \_\ldots l$ | I＿＿＿l |
| B．4． | What is your ethnicity？ <br>  <br> $1=$ Oromo $九 \subset$ q $^{2}$ <br> 2 ＝Amhara <br> 3 ＝Tigray $\ddagger$ 〒し <br> 4 ＝Harari U．éo <br> 5 ＝Somalia గ的 <br> $6=$ Gurage $7<r 3$ <br> 7 ＝Sidama గ．яя回 <br> 8 ＝Welayta ■入．е <br> 9 ＝Other（specify）入入 hƯ ל ع7 <br> $10=$ Mixed P尸नी | $1 \_\ldots 1$ | $1 \_\ldots 1$ |
| B．5． | What is your religion？ <br>  <br>  <br>  <br> 3 ＝Protestant Tぐちえよろク <br> 4 ＝Catholic $\boldsymbol{\eta}$ 운． $\boldsymbol{h}$ <br>  <br> $6=$ Traditional กひ入Q <br>  | I___\| | $1 \_\ldots 1$ |


| B．6． | How many years of education have you completed？ <br>  | I＿code＿＿＿｜ | I＿＿code＿＿I |
| :---: | :---: | :---: | :---: |
| B．7． | During the last 12 months，have you engaged in any income generating activities？ (0 = No1 = Yes) <br>  <br>  (0 = え入คんn- | $1 \_\ldots 1$ | $1 \_\ldots 1$ |
| B．8． | If yes，what kind of（main）activities？ <br>  gr马ぎち心ー？ <br> （Probe：main in terms of income and time） <br>  לロー：： <br> 1 ＝Farming including urban agriculture <br>  <br> 2 ＝Non－farm own business including sale of home produced goods <br>  <br> ぃすくら） <br> 3 ＝Wage employment in manufacturing sector （private） <br>  <br> $4=$ Wage employment in construction sector，private <br>  <br> 5 ＝Wage employment in the service sector，private <br>  <br> $6=$ Government Job <br>  <br> 7 ＝NGO job <br>  <br> $8=$ Other（specify） $\qquad$ <br> 入入 h入 $\mathrm{L} 7 \mathrm{\lambda}$ 白 | $1 \_\ldots l$ | $1 \_\ldots l$ |

B．9．How many household members are there in your household in total？ $\qquad$ ｜

B．10．How many children do you have？｜ $\qquad$ －

B．10．a If any children，ask the following questions about your children：
（If more than 8 ，take the 8 youngest children）




|  | $\begin{aligned} & \text { Sex } \\ & \text { 行 } \end{aligned}$ | Age <br> ठ오묵 | Years of education completed so far <br> 方吅み市 | How many years of education do you expect this child to complete？ <br>  <br>  えのロよう？ |
| :---: | :---: | :---: | :---: | :---: |
| Child 1 <br> d㕉 1 |  |  |  |  |
|  |  |  |  |  |
| Child 3 <br> 6な 3 |  |  |  |  |
| Child 4 d重 4 |  |  |  |  |
| Child 5 <br> d호 5 |  |  |  |  |
| $\begin{aligned} & \text { Child } 6 \\ & \text { (홍 } 6 \end{aligned}$ |  |  |  |  |
| Child 7 dほ 7 |  |  |  |  |
| Child 8 <br> お事 8 |  |  |  |  |

## Section C．Intra－household income

C．1．Who was the primary breadwinner of the household during the last six months？
I＿＿＿I
（ $1=$ You 2 ＝Partner 3 ＝other person）

（ $1=+$ の
C．2．Who was the secondary breadwinner of the household during the last six months？
｜＿＿＿｜
（1－You $2=$ Partner $\quad 3=$ other person）



C．3．How much income（cash and in kind）did you and other household members obtain from the following sources during the last six months：

そん

| Net income（in birr） | Respondent | Partner | Other |
| :---: | :---: | :---: | :---: |
| 1．Wage employment И中かく คqР |  |  |  |
| 2．Rental income（e．g．from renting out a flat） <br>  7م） |  |  |  |
| 3．Self－employment or own business <br>  |  |  |  |
| 4．Remittances（individual transfers） <br>  ก入hの－） |  |  |  |
| 5．Government or NGO transfers <br>  Рアヶ |  |  |  |
| 6．Other（specify） $\qquad$入入 h入 е7入่ |  |  |  |
| 7．Pension Mrく |  |  |  |

C．4．How much have your household spent on the following items during the last six months：


| Net expenditure（in birr） Фณட（ก円ीС） | Household <br>  |
| :---: | :---: |
|  |  |
| 2．Other rents $\lambda$ 佼 $\lambda$ htre |  |
| 3．Mortgage repayments（incl．interest） <br>  |  |
| 4．Repayment of other debt to（incl．interest） <br>  |  |

C． 5 Do you own a house／apartment etc？（ $0=$ No1 $=$ Yes）

C．5．0 If yes to C．5，How many houses／apartments do you own？ $\qquad$

C．5．1 If yes to C．5．0，If you were to sell it，how much do you think you would get for it．

|  | Selling price of the house／apartment |
| :--- | :--- |
| House1 |  |
| House2 |  |
| House3 |  |
| House4 |  |
| House5 |  |


C．5．2．Do you own any land or other real estate（ $0=\mathrm{No} 1=\mathrm{Yes}$ ）
C．5．3 If yes to C．5．2，what would you estimate the value of this to be in birr？
C． 6 How much debt does your household have in total

C． 7 How much savings does your household have in cash

C． 8 How much savings does your household have in the bank

C．9．Does your household have the following．．．（Yes／No）？

1．Radio
Lhp
2．Television
ちんべすそ
3．Refrigerator

4． Car
बロh 9
5．Computer
クタローローム
6．Tablet
が－ヘ入れ
7．Satellite dish §

8．Smartphone

9．Electric mitad


C． 10 Does any member of this household have a bank account？

Change the order，before C8

C． 11 Using a scale from 0 to 10，where 0 means not at all satisfied，and 10 is completely satisfied，
how satisfied are you with your life as a whole these days？｜ $\qquad$ I

そんちよ え入のー नी入ろ

C． 12 Enumerator：＂Now follow some questions on how satisfied or dissatisfied you are with some different areas of your life．How satisfied or dissatisfied are you with．．．＂


（ $0=$ Very dissatisfied 1 ＝Rather dissatisfied 2＝Somewhat dissatisfied 3＝Somewhat satisfied 4＝Rather satisfied 5＝Very satisfied 6＝Not applicable）



| ．．．．your health？ .....月กรя | $1 \ldots$ |
| :---: | :---: |
| ．．．．your leisure time？ <br>  | I＿＿＿｜ |
| ．．．．your personal economy？ $\qquad$ <br>  | I＿＿＿｜ |
| ．．．．your friends？ ．．．．．．．．．ИДР审吊甲 | I＿＿＿｜ |
| ．．．．your relatives？ ．．．．．．．．．ПН回』年甲 | I＿＿＿｜ |
| ．．．．the home that you live in？ $\qquad$ <br>  | I＿＿＿｜ |
| ．．．．the neighborhood that you live in？ $\qquad$ <br>  | I＿＿＿｜ |
| ．．．．Ethiopian society？ <br>  | I＿＿＿｜ |
| ．．．．your work？（Not working＝6） <br>  | $1 \ldots$ |

C． 13 Think about the people Ethiopia in general．Do you think you are richer，equally rich，or poorer than the majority of them？ $\qquad$ ＿l
（1＝Richer $2=$ Equally rich3 $=$ Poorer $)$



И䋁
（1＝P П 入
C．14．Do you think you will be richer or poorer in 5 years from now？

1 ＝Richer 2 ＝poorer



C．15．Are you richer than 5 years ago？


Yes Or No Option here！
C．16．If you suddenly ended up in an unforeseen situation where you have to raise 20，000 Birr would you be able to？（Y／N）



C． 17 In the past six months，has your family had inadequate money to cope with the family expenses？（Never，Rarely，Sometimes，Always）


C． 18 In the past six months，has your family delayed the payment of bills because of financial difficulty？（Never，Rarely，Sometimes，Always）


C． 19 What has been the economic condition of your family in the past six months？（No financial difficulty，some financial difficulty，Considerable financial difficulty，much difficulty）
 えыלのくوロ לПС）

## Section D．Attitudes and Health

D．1．Generally speaking，would you say that most people can be trusted or that you must be very careful in dealing with people？｜ $\qquad$
（1＝Most people can be trusted $2=$ Must be very careful）




D．2．Enumerator：＂I will read some statements about men and women．Please say whether you strongly disagree，disagree，agree or strongly agree with these statements．＂
（ $1=$ Strongly agree $\quad 2$＝Agree $\quad 3$＝Disagree 4 ＝Strongly disagree）

 £の入Ө：：＂

1．It is okay for women to work outside of the home


2．It is okay for women to earn more money than their partners


3．A husband justified in beating his wife if she neglects the children？


D．3．＂Why，in your opinion，are there people in this country who live in need？｜ $\qquad$ 1
Here are two opinions：Which comes closest to your view？


1．People are poor because of laziness and lack of will power

2．People are poor because of an unfair society＂

D．4．＂In your opinion，do most poor people in this country have a chance of escaping from poverty（1），or is there very little chance of escaping it（2）？＂｜ $\qquad$ －



D．5．＂Please say whether you strongly agree，agree，disagree，or strongly disagree with these statements：
（1＝Strongly agree 2 ＝Agree 3 ＝Disagree $\quad 4=$ Strongly disagree $)$
 กпタロ


D． 6 In Ethiopia，the economic differences between the rich and poor are unfair．
$\qquad$

D． 7 In Ethiopia，the national government should aim to reduce the economic differences
between the rich and the poor． $\qquad$ 1

四中禺 そ入の年：
D． 8 In Ethiopia，the national government should have taxes on people owning houses to reduce the economic differences between the rich and the poor． ｜＿＿＿｜

入実中ל

D．9．＂In your opinion，to what degree do each of the following factors currently cause people to become poor？
（ $0=$ To a small degree $\quad 1=$ To a large degree）

eUfス？

Lack of ability of competence｜ $\qquad$
Р年パナ नी，
Bad luck $\qquad$ ｜

Poor character｜ $\qquad$ 1

Lack of individual effort｜ $\qquad$ ＿1

Biases or discrimination in societyl $\qquad$ 1

Lack of equal opportunity in societyl $\qquad$ ｜

Disadvantage of the economic system｜ $\qquad$ I

A too low education level $\qquad$ －

Growing up in a poor family｜ $\qquad$ I

Having poorly educated parents｜ $\qquad$ ｜

Lack of ambition $\qquad$


| D． 10 Enumerator：＂These questions concern how you have been days．During the last $\mathbf{3 0}$ days，about how often did＂ <br>  <br>  $\qquad$ <br>  <br> （ $1=$ None of the time2 $=$ A little of the time $3=$ Some of the time $4=$ Most of <br>  | feeling over the past 30 <br> みれ： <br> e time 5＝All of the time） |
| :---: | :---: |
| 1．you feel tired out for no good reason？ <br>  | ｜＿＿＿｜ |
| 2．you feel nervous？ <br>  | ｜＿＿＿｜ |
| 3．you feel so nervous that nothing could calm you down？ <br>  <br>  | I＿＿＿｜ |
| 4．you feel hopeless？ <br>  | I＿＿＿｜ |
| 5．you feel restless or fidgety？ <br>  | I＿＿＿｜ |
| 6．you feel so restless you could not sit still？ <br>  | I＿＿＿｜ |
| 7．you feel depressed？ <br>  | I＿＿＿｜ |
| 8．you feel that everything was an effort？ <br>  <br>  | I＿＿＿｜ |
| 9．you feel so sad that nothing could cheer you up？ <br>  | I＿＿＿｜ |
| 10．you feel worthless？ <br>  | I＿＿｜ |

D． 11 Which opinion about inequality comes closest to your view？

1．Large differences in people＇s incomes are acceptable to properly reward differences in talents and efforts．
 กロロリケ
十中へ®斿え入のー：
2．For a society to be fair，differences in people＇s standard of living should be small．
 ค7nd：

## Section E：Payment

E1a．Ask for respondent with odd numbered ID，As we stated in the start，you will be given 50 birr in airtime that we send to your phone．You are given the possibility to donate a share of this money to Mekodonia（disabled and elderly association）．If you want to donate，we will send the money to the organization．Do you want to donate any of the airtime？ $1=$ Yes $2=$ No E2a．if yes，how much？｜ $\qquad$ birr｜




E1b．Ask respondents with even numbered ID，As we stated in the start，you will be given 50 birr in airtime that we send to your phone．You are given the possibility to donate a share of this money to Mary Joy（an organization supporting poor people）．If you want to donate，we will send the money to the organization．Do you want to donate any of the airtime？ $1=\mathrm{Yes} 2=$ No

E2b．if yes，how much？｜ $\qquad$ birr｜





## Section F：The housing lottery

Now follows some final questions．We received your number from a list of applicants／participants in the low cost condominium housing lottery．



| F．1．a | Did you win the lottery？ <br>  |  |
| :---: | :---: | :---: |
| F1．b | What was your occupation in 2005 （at time of housing registration） <br>  ìr enc inc？ <br> 1．Government Рब『そのกケ |  |


|  | 2．Wage Employed（Private firm）РфЋС గん（Рの人） <br> 3．Own business Pๆオ กん <br> 品С高年 त <br> 5．House wife Р <br>  <br> 7．Pension Trくナ <br> 8．Other（Specify）$\lambda \lambda$ h $\lambda$ e7入白 |  |
| :---: | :---: | :---: |
| F1．c | Did you have any physical disability at time of registration（2005）？ <br>  ヶกくへのメネ？ |  |
| F1．d1 | What was your earnings per month at the time of the registration in 2005？ <br>  <br>  <br> That is，the earnings you reported on the registration form in2005？ $\qquad$ ｜－99：Do not know <br>  <br>  |  |
| F1．d2 | What was your earnings per month in 2015 （i．e．three years ago）？ $\qquad$ ｜－99：Do not know |  |
| F1．e1 | What was the earnings of your partner，if you had one at the time， per month at the time of the registration in 2005？ $\qquad$ －99： Do not know．－77：Not applicable <br>  <br>  <br>  |  |
|  |  |  |


| F1．e2 | What was the earnings of your partner per month in 2015 （i．e． three years ago），if you had one at the time？ <br> ｜＿＿＿－99：Do not know |  |
| :---: | :---: | :---: |
| F1．f | Did you have a spouse or partner that you lived with at the time of registration in 2005 ？ $\qquad$ ｜（Yes＝ $1, \mathrm{No}=0$ ） <br>  <br> ヶกロッ？ <br>  |  |
| F1．g | Write up if respondent is a man or a woman．Ask if unsure．Are you a man or a woman． <br> 1 woman 2 man <br>  <br> h |  |
| F1．h： | Do you perceive the lottery to be fair and transparent？ <br> Yes／No <br>  <br>  $1=\hbar \varphi \quad 2=\hbar, ~ ع$ |  |
| If no to question F1．a， skip to question 58 <br> If yes to F1．a answer questions F2－ F7 and then stop． |  |  |
| F． 2 | Are you living in the condominium that you won，or have you sold it， or rented it out？ <br>  <br>  |  |


|  |  そhんと＋ローがる？ |  |  |
| :---: | :---: | :---: | :---: |
| F2．1a | If the answer for F2 is 02 or 07 ask ，How much do you earn per month from renting out the flat？ <br>  <br>  |  |  |
| F2．1b | Did you include the rental earnings from this flat when listing all your rental earnings before？ <br> 1 Yes， 2 No <br>  <br>  <br> そうャローネ ל П С ？ <br>  <br> え入れ十午々年品 |  |  |


| F2．3 | How much do you expect to earn per month from renting out the flat？ <br>  <br>  とのnनीゆ |  |
| :---: | :---: | :---: |
| F2．f | Do you have a plan to move in the condominium that you won？ <br>  <br>  え内人年？ |  |
| F．3m | If you have not moved yet，when do you plan to move in to your own condo？（Month） <br>  <br>  อาクス？（ロС） |  |
| F3．y | If you have not moved yet，when do you plan to move in to your own condo？（Year） <br>  <br>  <br>  |  |
| F4 | If not moved to your flat／condo， why have you not moved into your condo／flat？ <br>  <br>  | 1．Cannot afford <br>  <br> 2．Too far from work Place <br> 入べく安 <br> กロロゾ <br> 3．No adequate transport system from my work place <br> 午にそうフく年 ก入のロケィ <br> 4．Too far from community |


|  |  | ท鸟ยกくถกー <br> ก入四く＂ <br> 5．Not attractive <br>  <br> 6．Lack of basic infrastructure such as water and electricity そう゚ローム方の <br>  <br>  ア入四品入市 <br> 7．Never interested in moving <br>  P入気里 |
| :---: | :---: | :---: |
| F5 | IF 03 ON E．2，For how much did you sell it？ <br>  <br>  |  |
| F6 | IF 02 ON E．2，Do you plan to move in after you have rented it out？ <br>  <br>  |  |
| F7a | If you have not sold the house／flat／condo，how much do you think you would get for it if you were to sell it？ <br> AF． 2 बロムก் 01，02，04， 05 or 06 <br>  <br>  |  |
| F7b | Did you include this value when we asked you about all your houses before？ <br> 1 Yes， 2 No <br>  <br>  |  |



F．8．How likely on a scale from 1 to 10 ，where 1 is extremely unlikely and 10 is extremely likely，do you think it is that you will win the lottery in the future？
［1－10］



Sกへ৯？F．9．How much do you think a flat in the lottery is worth if you were to win it and then sell it？［XX Birr］


F．10．Do you know people that have won？


No

そ入のーダロロ

Yes，partner

Yes，family member

Yes，relative


Yes，friend．


Yes，other．

え $9 \square$ 门入


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[^1]:    ${ }^{1}$ The self-serving bias hypothesis originated in psychology (see e.g. Zuckerman (1979) and Mezulis et al. (2004) for reviews).

[^2]:    ${ }^{2}$ Recent studies have shown that preferences for redistribution may depend on culture (Alesina and Glaeser, 2004), institutions (Alesina and Fuchs-Schündeln, 2007), experiences with or prospects for mobility (Alesina and La Ferrara, 2005; Alesina et al., 2018), inequality acceptance (Almås et al., 2010; Alesina and Giuliano, 2011; Cappelen et al., 2010, 2013; Fong (2001); Möllerström et al. (2015)), perceptions about inequality and relative position in society (Kuziemko et al., 2015; Karadja et al., 2017), beliefs about behavioral responses and economic effects (Ballard-Rosa et al., 2017; Cappelen et al., 2018), and actual experienced inequality, e.g. generated in lab experiments (Bechtel et al., 2018; Cassar and Klein, 2019).

[^3]:    ${ }^{3}$ Another strand of the literature has studied the effects of cash transfers on incumbency support and trust in government (Blattman et al., 2018; Evans et al., 2019; Frey, 2019; De La O, 2013), often finding that voters reward incumbents for policies they gain from. Again, our study focuses on a broader set of preferences and beliefs.

[^4]:    ${ }^{4}$ For a thorough description of housing conditions in Addis Ababa see e.g. UN-HABITAT (2010) and Franklin (2019).
    ${ }^{5}$ In the capital, the Addis Ababa Housing and Development Project Office (AAHDPO) is responsible for organizing and financing the construction of the apartments. The construction is financed through the issuing of bonds from the Commercial Bank of Ethiopia (CBE). In principle, the IHDP was launched as a nationwide program; however, outside of Addis Ababa, the program has been suspended for long periods; see UN-HABITAT (2010). We therefore focus exclusively on the Addis Ababa program, which is also the largest in scale by far.
    ${ }^{6}$ Formally, the Addis Ababa Housing Development and Administration Agency (AAHDAA) is responsible for allocating the apartments, and the lottery draw is carried out by the Information Network Security Agency (INSA).
    ${ }^{7}$ In 2013, two new schemes were introduced; the so-called 10/90-program (with a down payment of 10

[^5]:    percent) targeted at lower-income groups, and the 40/60-program (with a 40 percent down payment) intended for middle- and upper-middle class households as well as members of the Ethiopian diaspora.
    ${ }^{8}$ By contrast, applicants for the $10 / 90$-program have to prove that they are low-income earners.
    ${ }^{9}$ The required monthly savings vary by apartment type, and the savings threshold applying to a particular lottery will depend on the supply and demand of the specific apartment type at the time of the lottery. For instance, in the 2018 lottery, the savings threshold was only three months for three-bedroom apartments, while it was 60 months for the other unit types.
    ${ }^{10}$ The applicant shares were highest in the four central subcities, which are characterized by densely populated slum areas; Addis Ketema (68 percent), Arada ( 76 percent), Kirkos ( 93 percent), and Lideta (87 percent).
    ${ }^{11}$ There was a new registration round for the $20 / 80$-program in 2013 , when the two new program types

[^6]:    were also introduced. In this round, existing registrants were also allowed to renew their subscription and change to a smaller unit type. It is estimated that 700,000 new registrants signed up for one of the three schemes during the second round.
    ${ }^{12}$ Furthermore, 1,200 of the apartments were three-bedroom units, and given the relatively low demand for this unit type, virtually all remaining applicants for this unit type won. This implies that only 1,400 units were allocated through an actual lottery.
    ${ }^{13}$ The most commonly reported reason for leaving the apartment empty is lack of basic infrastructure

[^7]:    ${ }^{14}$ We first deducted the individual's gender from their first name and later confirmed it during the interview.

[^8]:    ${ }^{15}$ This is unsurprising because the lottery participants registered in 2005 , i.e. 13 years prior to the data collection. However, outdated phone numbers on the participant lists do not imply that some winners miss out. Shortly after the lottery draws, which are subject to intense media coverage, the list of winners is published (both in print and online), so that winners can themselves contact the authorities to claim their apartment.
    ${ }^{16}$ Additionally, 15 people were not contacted after the quota of 3,000 individuals was reached.

[^9]:    ${ }^{17}$ In the following, the percentages always refer to shares of the losers, unless otherwise stated.

[^10]:    ${ }^{18}$ It should be noted that values for these variables are missing for around 40 and 60 percent of the respondents, respectively, due to missing or inconsistent information on one or more of the variables. As specified in the preanalysis plan, we calculate bounds on the lottery effects on wealth. Table A. 7 in the appendix shows that the difference in wealth between winners and losers of the lottery remains large and significantly different from zero, even if we make very extreme assumptions about the values of the missing observations.

[^11]:    ${ }^{19}$ In the table, the gender variable is updated based on the interview. If we instead use the gender variable based on the names (as we did for the sampling) we find that the shares are similar for both groups (44-45 percent).
    ${ }^{20}$ For all categorical variables, we pool small groups accounting for less than five percent of the population.

[^12]:    ${ }^{21}$ This and the following figures in parentheses refer to the lottery effect estimates, and the means refer to the mean among the losers.

[^13]:    ${ }^{22}$ We test five primary outcomes in the present paper. In addition we test two outcomes related to wellbeing in a companion paper. With seven primary outcomes and a five percent significance level, our result with the lowest p-value should have a p-value lower than $0.007(0.05 / 7)$. Our lowest p-value in the companion paper on well-being is lower than this. Our second lowest p-value should be lower than 0.014 . The second most highly significant estimate is the effect on donations, for which the p -value is variable is 0.021 . It does not pass. Our third lowest p-value is 0.038 (redistribution via a housing tax). It does not pass either, as it should be lower than 0.021 . All the effects mentioned above are, however, statistically significant at the 10 percent level even after adjustment for multiple testing.
    ${ }^{23}$ Correcting the p-values for the fact that we are testing ten variables in this table we note that only "poor character" is marginally statistically significant at conventional levels ( $\mathrm{p}=0.06$ ).

[^14]:    ${ }^{24} 24 \%$ of the people moved to any new place after the lottery: $12 \%$ of the losers and $37 \%$ of the winners.

[^15]:    ${ }^{25}$ The misclassification primarily concerns men being classified as women (30 and 102 cases, respectively). It is possible that some do this deliberately to increase their chance of winning.

