

Empirical studies on prize-linked savings (study summaries and key results)

Paper	Study type	Lottery design	Data description	Results
Kuhn et al. (2010)	Observational study	The Dutch Postcode Lottery is the second largest in the Netherlands (26.6% market share) and involves almost 30% of the population (2005 data). Postcodes are six digits long. The weekly Street Prize randomly selects one postcode (out of ~430,000). All participants in the winning postcode receive €9,375 per lottery ticket post-tax. Tickets cost from €6.25 to €6.75. Within the winning postcode, one ticket is selected to win a BMW (worth ~ €25,000).	Data was collected Sept. 2003 – July 2006 via surveys sent six months after to all winning postcodes. For each winning postcode, a neighboring postcode was also surveyed. 419 postcodes were surveyed, with an overall response rate of 32.7%. $n = 2011$ households. The average amount won (incl. BMW) is €16,047 (or ~8 months salary for average household.)	<ul style="list-style-type: none"> Winning participants spend ~€40*** more on eating out and ~€200** more on total monthly expenditures than non-winning participants Winning participants are ~4.5** times more likely (4.48% vs. 1%) to renovate home exteriors since the lottery than non-winning participants Winning participants spend ~€450** more on non-car durable expenditures since the lottery than non-winning participants 16% of BMW winners had BMWs at survey date, evidencing BMW to cash transfer For nonparticipants: % of those in non-winning codes who bought a car since the lottery was 17.3%. Comparatively, nonparticipants in winning codes: more than 2 doors from a participant 24.2%, within 2 doors from a participant 23.4%**, next door to participant 26.5%***.
Atalay et al. (2014)	Online experiment	Series of portfolio decisions to allocate \$100 among: (1) cash 2 weeks later, (2) traditional savings, (3) lottery, and (4) PLS account. (2), (3), (4) paid 10 weeks later. (2) has three varying interest rates, 5, 10, or 20%. (3), (4) has three varying expected payoffs per dollar, \$0.9, \$1, or \$1.1. After 6 practice allocations were 9 allocations with options (1), (2), (3), and lastly 15 allocations with all 4 options. Each allocation problem displayed a different	Two sources for online recruitment: Study Response (SR, $n=113$) and MTurk ($n=449$). For SR, one allocation decision was randomly selected at end of study, and participant was paid according to allocation decision 10% of the time; otherwise, they were given fixed payment of \$8 or \$12. For MTurk, participants were paid by fixed amount of \$1.50; there was no chance that their allocation decisions were “real”.	<ul style="list-style-type: none"> After all controls (e.g. expected payoffs, interaction between interest rates and expected payoffs), LPM estimates introduction of PLS accounts to increase savings by \$12*** (around 25%) for entire sample, and by \$15*** (around 36%) for those with no reported savings. These findings are robust against the 1/N heuristic (i.e. allocation to the 4th option when it becomes available, whatever it is), the payment mechanisms (i.e. differences b/t SR and MTurk), and the discrete \$20 allocation increments.

		combination of rates and expected payoffs. Allocations were made in increments of \$20.		
Filiz-Ozbay et al. (2014)	Lab experiment	Ten decision problems (seven on savings, three on risk), each with ten binary questions (100 questions total). For instance, one decision problem on savings presented the participant with ten binary choices: between a certain payment of \$20 in three weeks, or \$20 + x in five weeks, $x \in \{1, \dots, 10\}$. Another presented ten binary choices but with a lottery element: \$20 in three weeks or \$20 with x probability and \$30 with $1-x$ probability in five weeks, $x \in \{0, 0.1, \dots, 0.9\}$.	University of Maryland undergraduate students. $n=96$. \$7 compensation, additional \$3 for completing post-experiment survey, and one random choice was selected and paid out accordingly. Average compensation was \$18.91.	<ul style="list-style-type: none"> ■ PLS induces more savings than traditional savings at same expected payoffs. For example, at the base level, 47% delayed payment under traditional savings, whereas 63%*** and 69% delayed payment under PLS. For all questions, the percentages for delaying payment are 76% (traditional), 82%*** (PLS type I), 81%* (PLS type II). (There is another set of traditional and PLS decision problems.) <p><i>Who participates in the lottery?</i></p> <ul style="list-style-type: none"> ■ Lottery players are 16.3%*** more likely to save under PLS than under traditional savings ■ Females are less likely to be lottery players (21% vs. 50%). No diff in savings between PLS and traditional for females, whereas for males, PLS induced 12.4%*** higher savings rate. ■ PLS induced 11.8% higher savings rate for those with savings under \$1000
Cole et al (2014)	Observational study	First National Bank (FNB) “Million-a-Month” (MaMa) accounts. Every R100 (~\$8.5) in a MaMa account corresponded to one ticket in the lottery. Once a month, one ticket selected to win R1,000,000, two to win R100,000, ten to win R20,000, and one hundred to win R1,000. The number of smaller prizes (i.e. excl. R1,000,000) was doubled in Sept. 2007. Withdrawals required 32 day notice. FNB also offers a	Data from FNB in three types: (1) monthly branch-level data for all bank branches ($n=604$), (2) account-level data for bank employees ($n=38,301$), and (3) account-level data for prize winners ($n=4,341$). FNB data from Jan 2003 to July 2008. Data augmented with 2005 FinScope financial survey (on financial literacy and attitudes).	<p><i>Branch-level results</i></p> <ul style="list-style-type: none"> ■ Negative relationship between median income and PLS demand: one standard deviation decrease in median income (R18,462/year) increases total balances held in PLS accounts by R184,618 at a branch (7.5% increase from mean balance) ■ One std dev. reduction in median age (5.6 years) associated with increase of R 137,503 in PLS deposits, (5.6% increase from the mean) ■ No effect of education ■ Increase in optimism and connectedness index (from FinScope dataset) decreases PLS deposits at branch by R534.317 ■ Increase in risk index by one std. dev. predicts increase of PLS deposits at branch by R138,122 (5.6% from mean). Increase in financial constraint

		regular interest-paying 32-day account, paying from 4% to 4.75% APR depending on the size of the account.		<p>index by one std. dev. predicts increase of PLS deposits at branch by R128,623 (5.2% from mean)</p> <p><i>Employee results</i></p> <ul style="list-style-type: none"> ▪ Older employees (>29 years) 9.3% less likely to have regular savings account but 5.6% more likely to have PLS account ▪ Men 8.8% less likely to have regular savings account and 4.2% less likely to have PLS account ▪ Employees with no savings and checking accounts at FNB 4.6% more likely to open PLS account ▪ Employees with high net borrowing from FNB (i.e. financially constrained) almost 18% more likely to open PLS account <p><i>Savings vs. PLS vs. gambling results</i></p> <ul style="list-style-type: none"> ▪ PLS participants save around 1% more annual income than non-participants, a 38% increase from average savings level of 2.9% annual income (evidence against savings cannibalization) ▪ PLS acts as substitute for lottery gambling: when national lottery prize in highest quartile, reduction of PLS deposits by 15.1%, and 7.7% decrease in opening of new PLS accounts. Results similar for lottery prize in second highest quartile. <p><i>Prize winner results</i></p> <ul style="list-style-type: none"> ▪ Across all prize amounts, winners keep more in their PLS accounts than non-winners ▪ One year after winning, 68% add net deposits to account, 7% maintain same amount, and 24% make net withdrawals <p><i>Buzz effect</i></p> <ul style="list-style-type: none"> ▪ Large prizes generate a local “buzz” which lead to an 11.6% increase in demand for PLS at a winning branch.
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