Prize-Linked Savings:
Balancing Near-Term Gains with Longer-Term Consequences

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Dedication

To Bill, for giving me a passion for behavioral economics;

To Matt, who was my friend long before this thesis was even a haiku;

And, most of all,

To my parents, with whom I won the ovarian lottery.

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Abstract of Thesis

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Many Americans have little or no savings set aside to help them weather income and consumption shocks. Prize-linked savings (PLS) – an innovative personal finance tool in which returns to saving are meted out as raffle prizes rather than interest – aims to encourage saving by capitalize on existing gambling behavior. However, while this exciting model can help increase participants' financial security, it comes with some tradeoffs that are not fully addressed in the existing literature. In this paper, I raise concerns about the extent to which PLS substitutes for traditional gambling; its long-term sustainability; and its ethical implications. Drawing on behavioral economics and philosophical principles, I make several suggestions for ways to improve PLS so that it better serves its target audience.

Table of Contents

Chapter 1: Introduction

It's easy to understand the importance of saving – whether for retirement, for unexpected job loss, for an emergency car repair, or just for a new TV – but it can be difficult to follow through. Over 60 percent of Americans have less than $1,000 in savings, and roughly two-thirds of those people don't have a savings account at all (Kirkham, 2015). Just under half of us save 5 or more percent of our earnings (Bryan, 2016). Even if you desperately want to save for a rainy day, doing so may be downright impossible if you live paycheck-to-paycheck, have an irregular income, and/or earn the minimum wage (or less).

Of course, many people could save, but choose to spend their money instead. Part of this can be explained by a simple lack of financial literacy. Only 60 percent of U.S. adults would grade their own personal finance knowledge as at an A or B level, and almost 100 percent of adults agree or strongly agree that they could benefit from professional financial advice (Harris Poll, 2015). Part of it, however, is explained by deep-seated personality traits, including preferences regarding risk, planning, and compromise (MetLife, 2011). For someone who is comfortable with risk and who prefers to live in the moment, no amount of financial literacy awareness could completely overcome his or herv natural preferences to save little or nothing.

Prize-linked saving (PLS) is an innovative model that encourages the financially vulnerable to save by rewarding them with the chance to win monthly or quarterly raffle prizes – undoubtedly more “fun” than watching your savings account balance tick up at pennies per month.

This exciting model can help increase participants' financial security, but it comes with some tradeoffs that have not yet been fully addressed. In Section II, I use behavioral economics to explain how and why PLS works. I also show that the same behavioral principles that allow PLS to function may also limit its overall effectiveness. Specifically, it may substitute poorly for leisure gambling and may not actually reduce expenditures on traditional lotteries. It may also become less and less sustainable over time thanks to jackpot fatigue. I also hypothesize that large and/or frequent PLS wins could promote risk-taking in the areas of participants' lives, though I concede that there is limited evidence of this so far. I conclude this section with four mechanical recommendations for PLS; the first two are designed to increase the extent to which it substitutes for the traditional lottery, and the second two are designed to manage the tradeoffs that are implicit in the PLS model.

In Section III, I analyze the PLS model through two philosophical lenses. First, I use a modern interpretation of liberalism, as envisioned by Oren Levin-Waldman in his 1996 *Reconceiving Liberalism*, to demonstrate some of the ethical concerns associated with PLS. While Levin-Waldman offers a much narrower conception of liberty than his classic predecessors such as John Locke and John Stuart Mill, this brand of liberalism is more relevant to the globalized, legislation- and regulation-rich world in which we live today. Second, I use John Rawls' principles of justice, as laid out in his 1971 *A Theory of Justice*, to raise questions about fairness in PLS implementation. I conclude this section by revisiting the two tradeoff-minimizing recommendations developed in Section II, and by offering a final recommendation to improve PLS equity.

Finally, in Section V, I reiterate the practical and ethical quandaries that PLS presents, review five recommendations for mitigating these quandaries, and offer concluding thoughts.

Chapter 2: How and Why PLS Works

In this section, I explain how PLS works and show how the PLS model capitalizes on our cognitive processes. The latter part of this exercise draws on the behavioral economics literature, which strives to incorporate psychological insights into our understanding of economics. While the traditional economics literature assumes that humans have unbounded rationality, willpower, and selfishness, the behavioral economics field acknowledges that, for a variety of reasons, humans often make sub-optimal choices (Thaler and Mullainathan, 2008). Unlike the *Homo economicus* imagined by traditional economists, we make decisions with our gut: We buy candy bars while waiting in the check-out line at the grocery store, pay more for name-brand products when the generic would be just as effective, and are forever planning to start a new diet "tomorrow." Even in situations where we feel confident we are acting rationally, we often make decisions with heuristics (or "rules of thumb") rather than data; one famous (and relevant) example is the availability heuristic, in which we judge the probability an event will occur based on the number of examples that come to mind.[1] Behavioral economics strives to understand these cognitive processes and harness them for better outcomes.

One illustrative example of behavioral economics at work is automatic enrollment into 401(k) plans. For decades, new hires were given the opportunity to enroll in their employer's 401(k) plan (if one existed). Even though most workers knew that saving for retirement is an important part of maintaining one's financial health, few actually did so. However, in the early 2000s, some employers started automatically enrolling new hires in

[1] As Tversky and Kahneman (1973) put it: "Many readers must have experienced the temporary rise in the subjective probability of an accident after seeing a car overturned by the side of the road."

the 401(k) plan and giving them the choice to unenroll if they preferred not to save. By changing the default in this way, these employers dramatically increased 401(k) participation among their employees (Choi et al., 2004). Automatic enrollment counteracts the problem of limited willpower and takes advantage of our "inertia" or desire to stick with the status quo.

For the remainder of this chapter, I: describe the mechanics of PLS; address common gambling behaviors and preferences; consider the extent to which PLS substitutes for conventional lotteries such as the Mega Millions or Powerball; and explore the possibility that PLS may create perverse incentives and encourage participants to take risks in other areas of their lives. Finally, I offer four recommendations for improving the short- and long-term feasibility of PLS.

How PLS Works

As described above, in PLS returns to saving are distributed as raffle prizes rather than interest. Since PLS came to the U.S. in 2009, it has already shown great promise as a tool to help people save.[2] For example, data reported by Save to Win (StW) – the prevailing PLS organization in the U.S. – shows that between 86 and 90 percent of participants are financially vulnerable, meaning they earn a low or moderate wage, are/were considered asset-poor, and/or were previously non-savers (StW, 2016b).

[2] PLS is a relatively new addition to the U.S. financial security landscape but has a long, rich history in other parts of the world. The earliest recorded example of PLS was the United Kingdom's (U.K.'s) "Million Adventure," which began in 1694 (Murphy, 2005). The program paid ticket-holders a return of over 6 percent annually until 1710, and 2,500 of the 100,000 tickets won prizes ranging from £10 to £1,000 per year until 1710 (Kearney et al., 2010). Today, there are PLS programs all over the world, including in Brazil, Denmark, Pakistan, and Sweden (Kearney et al., 2010). The U.K. issues premium bonds, the modern equivalent of its Million Adventure, and has done so for over 50 years. About one in three U.K. citizens participate and receive an average annual return of about 1.3 percent (Butler et al., 2013, Trudeau, 2014). A program in South Africa helped participants increase their savings by an average of 1 percent of income (Cole et al., 2014). Unfortunately the South Africa program was discontinued after just three years, following a lawsuit filed by the lottery board (Oxman, 2013). Experimental evidence suggests that PLS can help everyone, especially the financially fragile, increase their savings (Atalay et al., 2012).

Between 53 and 69 percent had never had a certificate of deposit (CD) account before (StW, 2016b). The savings in each participant's account have increased significantly. In 2009, the average StW account balance was just under $735; in 2013, typical year-end balances ranged from $1,274 to $2,744 (StW, 2010, 2016b). About 80 percent of StW accountholders renew their account each year (StW, 2016c). Additionally, because most PLS accounts charge a fee for early withdrawals, the program encourages savers to leave their money untouched until they really need it. The program doesn't simply offer an alternative way to save; it also helps participants change their behaviors and increase their financial security.

Meanwhile, access to the program has grown markedly over the past 7 years. In 2009, only 8 credit unions in 1 state offered PLS; there were fewer than 12,000 accountholders with a modest $8.6 million in total savings (StW, 2016b). By 2015, 63 credit unions in 6 states offered PLS; there were over 60,000 accountholders with approximately $138 million in total savings (StW, 2016b). As of January 2016, another 10 states allow credit unions and other financial institutions to offer PLS, but do not yet have programs in place (NCSL, 2016). Four other states had PLS legislation introduced in 2015, with mixed results (NCSL, 2016). Of note, the American Savings Promotion Act, which President Obama signed into law in December 2014, removed federal barriers to PLS (Butler, 2014).

Importantly, the PLS model imposes no or low costs on the credit unions that choose to offer it. In the aggregate, the credit union pays out in prizes the same amount that it would otherwise pay in interest. Imagine, for example, a credit union with 10,000 savers, each of whom has on average $200 in their savings account. If the credit union

pays 1 percent in interest annually, at the end of the year it will owe $20,000 in interest.[3] This same credit union would "break even" if it converted these accounts to PLS accounts and paid out $20,000 in prizes annually. (In theory, it could even pay out some *$20,000 – n* value of prizes and reap a small "profit" – but doing so would seem not to be in the spirit of a savings lottery program.) While a PLS model has more administrative costs than a traditional model, these costs are most likely manageable. Aside from variations in administrative costs, PLS introduces heterogeneity among accountholders' earnings; while the *average* PLS accountholder is likely to win prizes equivalent to 1 percent of his or her savings, some accountholders will win nothing and others will win cash prizes that represent a 2,000-fold increase (or more) in their savings.

Gambling Behavior and Socioeconomic Disparities

Saving is important, but it isn't always easy or appealing. PLS exploits human preferences regarding risk and reward and turns saving into a game. Instead of watching their savings accumulate interest at today's low rates, participants have the chance to win cash prices.[4,5] StW participants receive one lottery entry for every $25 they save per

[3] 10,000 accounts * $200 mean balance * 0.01 interest = $20,000

[4] This is not to suggest, however, an inverse relationship between PLS and interest rates. As described in Subsection A, above, the aggregate value of prizes paid out to PLS accountholders is roughly equivalent to the value that would be paid out in interest to traditional accountholders. As interest rates rise, so will the aggregate value of PLS prizes. On average PLS is no more lucrative than traditional saving – but it is certainly more *fun*.

[5] This aside about interest rates also raises questions about the rationality of under-saving in an ultra-low-interest-rate environment like the one in which we've been living since the 2007-09 financial crisis. One function of low interest rates is to encourage consumption (which necessitates discouraging saving) in order to boost the economy. Thus, some might consider under-saving to be a desired outcome of keeping interest rates low. To counter this assumption, remember that the consequences of under-saving to the individual can be dire. If a family needs to make an emergency $400 purchase and does not have the cash available to do so, they will probably need to finance the purchase with a credit card (which likely carries an interest rate of 12+ percent or a payday loan (which likely carries an interest rate of 400+ percent) (Consumer Financial Protection Bureau, 2017). The cost to the individual of financing a consumption shock with credit far outweighs the opportunity cost of saving in a low-rate environment. That said, it is important to remember that the problem of under-saving is systemic, not only a matter of individuals making sub-optimal choices because of their bounded rationality.

month, and every month or quarter they have the chance to win anywhere from $25 to $5,000 (StW, 2016a). They also must pay a $25 fee if they withdraw their savings before a year passes (StW, 2015).

Unlike conventional savings accounts, PLS capitalizes on some individuals' desire to take chances, including with their finances. This same risk propensity is behind the fact that Americans collectively spend $70 billion on the lottery and $5.3 billion on gambling at casinos on the Las Vegas strip each year (Thompson, 2015, University of Las Vegas, 2013). Nearly $140 million was wagered on the outcome of the 2016 Kentucky Derby and other horse races in a single day (Isidore, 2016). If you've never gambled, your gambling peers outnumber you by roughly six to one (NORC, 1999).[6] Gambling holds some appeal for nearly everyone, and for many Americans it is a regular part of life.

Americans from all walks of life play the lottery, but it plays a disproportionate role in the lives of certain demographic groups. Most telling is the limited variation in absolute lottery spending across the income distribution. Low-income households spend approximately the same on the lottery as their wealthier counterparts, but these expenditures account for a larger share of their income, making the lottery regressive (Kearney et al., 2010, NORC, 1999).[7] People who are black, have received public benefits, have been arrested and/or incarcerated, or who have declared bankruptcy are more likely to have problematic or pathological gambling behaviors (NORC, 1999).

[6] While the NORC (1999) survey is over 17 years old, it remains the most recent comprehensive, national survey of gambling behaviors in the U.S. Despite its age it has been cited in recent literature on PLS.
[7] Some research suggests that the problem is even worse. For example, Welte et al. (2002) suggests that gambling rates decline as socioeconomic status increases. McAuliffe (2012) describes the lottery as "double-regressive" because low-income families spend more on it in absolute dollars and in relative terms. I have used the more conservative estimates from NORC (1999) and Kearney et al. (2010) but acknowledge the possibility of a more severe inequality.

Incidentally, personal saving among these groups is already very low – far lower than the national average. Income is the biggest predictor of wealth accumulation, and the lowest-income households have little or nothing to set aside in savings. For example, in 1998 (when the NORC survey was conducted) families in the bottom decile of the income distribution earned less than $15,000 annually, compared to over $61,000 for families at the median (Urban Institute, 2015). That same year, families in the bottom distribution of the wealth distribution had $0 in accumulated wealth (and many had net debt), compared to nearly $103,000 for families at the median (Urban Institute, 2015). Also in 1998, median wealth among white households was six times greater than among black households (Kochhar and Fry, 2014). These statistics have become even more marked in recent years. In 2013, families in the bottom decile of the wealth distribution were actually $2,000 or more in debt,[8] and median wealth among white households was 13 times greater than among black households (Urban Institute, 2015, Kochhar and Fry, 2014).

The gambling rate disparity is part of a broader problem related to financial literacy. Indeed, financial illiteracy is connected to poor decision-making and financial insecurity (Gale and Levine, 2010). For example, those at the lower end of the income distribution cite the lottery as "the most practical [wealth accumulation] strategy" and the "best retirement strategy for all Americans" (Consumer Federation of America and The Financial Planning Association, 2006).

Other factors influence gambling rates. For example, experiments with low-income participants have shown that people who purchase lottery tickets one-by-one play more than people who make a single decision to purchase multiple tickets (Haisley et al.,

[8] Debt = negative wealth

2008). In the former strategy, the chance to win a major windfall is weighed against a small, one-time expenditure; in the latter strategy, that chance is weighed against a cumulative expenditure. A $1-per-week expense *feels* very different from a $52-per-year expense – and feelings account for a major part of our decision-making processes (Kahneman, 2002). Recent research suggests that recreational gambling has a small positive effect on happiness (Burger et al., 2016). The availability heuristic (described above) causes people to overestimate their chances of winning (Ip, 2016).

Playing the lottery is essentially a losing proposition for everyone. For example, the odds of winning the Powerball lottery jackpot in 2015 were extraordinarily long at 1 in over 292 million (McGinty, 2016). A 2012 analysis of the Powerball lottery showed that the average expected after-tax return on a $2 ticket is less than $1 (Glasspiegel, 2012). The average Powerball player loses about half of his or her investment. And yet, people keep playing.

PLS takes this propensity for gambling and turns it into a "no-lose" opportunity for participants. Instead of spending money that they may never see again on lottery tickets, PLS participants enter this lottery by saving their money. At best, they end up with some emergency savings, plus a cash prize or perhaps a new laptop. At worst, they end up with some emergency savings. Given that one in four U.S. households would not be able to scrape together $2,000 within 30 days if they had to, even a modest emergency savings account can dramatically improve a family's or individual's life (Lusardi et al., 2011).

Substitution Effects

Some suggest that PLS can displace some (or all) of an individual's gambling spending. Imagine that an individual – let's call her Mia – currently spends $25 per month on the state lottery. The lottery pays out roughly $0.50 per $1, but despite this net loss she derives some entertainment value from gambling. (For example, she may bond with her friends over the lottery, or simply enjoy the rush of adrenaline as she waits to see if she has won.) Proponents of PLS argue that once Mia has access to this new savings vehicle, she will divert her gambling budget. Instead of spending $25 on the state lottery, she will save it in exchange for an entry in the next PLS raffle. Indeed, this very concern motivated South Africa's lottery board to sue its PLS program.

However, there is conflicting evidence about how well PLS actually substitutes for the traditional lottery. For example, Clotfelter and Cook (1989) show that the introduction of a new gambling outlet results not in an decrease of consumption of pre-existing outlets, but rather in an increase of overall gambling consumption. Additionally, Kearney (2005) shows that when a state lottery is introduced, people reduce their non-gambling consumption – not their gambling consumption – in order to finance their participation in the new lottery. In fact, people typically reduce their non-gambling consumption by *more* than they increase their new state lottery spending.[9] These changes persist after the introduction of the state lottery and are most pronounced in the lowest third of the income distribution.

[9] From Kearney (2005): "The analysis finds that the introduction of a state lottery is associated with a decline of $137 per quarter in household expenditures on non-gambling items. This figure implies a monthly reduction in household expenditures of $24 per-adult, which compares to average monthly lottery sales of $18 per lottery-state adult. This suggests that for the average household, spending on lottery tickets is financed completely by a reduction in non-gambling expenditures."

The Clotfelter and Cook (1989) and Kearney (2005) findings described above suggest that our assumptions about Mia may be wrong. Perhaps Mia will not redirect her $25 gambling budget to PLS, but rather reduce her non-gambling spending to accommodate it. This is especially likely if Mia does not see PLS as a substitute for the state lottery. If she plays the state lottery recreationally, PLS may fail to entertain her. On the other hand, if she plays the state lottery to generate wealth, then PLS with its modest but positive average return would be the rational choice. (Of course, even if she does play to generate wealth, she may misunderstand the expected returns of these options, and continue to play the state lottery instead of or in addition to PLS.)

However, new analysis of data from Nebraska suggests that PLS participants *do* decrease their consumption of traditional gambling products when PLS is first made available to them (Cookson, 2016). This research uses a difference-in-differences approach to compare gambling expenditures immediately before and immediately after the January 2012 introduction of PLS accounts in Nebraska. Cookson (2016) shows that the introduction of PLS is correlated with a decline in casino gambling (as measured by cash withdrawals from ATMs located at casinos) and in scratch-off lottery ticket purchases. In particular, cash withdrawals from casino ATMs decline by 3.7 to 10.2 percent in the affected Nebraska county. This new analysis represents important empirical evidence that PLS can indeed substitute for traditional lottery products.

These findings should be corroborated with similar analysis in different states, particularly those that, unlike Nebraska, are densely populated and/or have a lower share of whites. Additionally, the Cookson (2016) paper uses data from May 2010 through June 2012. The collection of 20 months of pre-PLS data validates the paper's findings by

mitigating the possibility that the post-PLS effects were part of an unrelated, longer-term trend. However, with only six months of post-PLS data, it is difficult to say if the effects Cookson reports are likely to persist in the long term. He notes that the effects are more marked at the six-month mark, but longitudinal data showing the effect size at 12-month intervals through January 2017 would be more powerful and persuasive. Regardless, Cookson's findings represent a landmark moment in the PLS landscape and must not be discounted.

It is also possible that engagement with PLS will diminish over time. Matheson and Grote (2004) show that there is a positive relationship between the number of U.S. state lottery ticket sales and the size of the current jackpot. They also show that lottery players' definition of a "big" jackpot has been increasing over time. A jackpot that would have driven up the number of ticket sales in 1996 no longer has the same effect today. Goldberg (2015) testified that the threshold for a surge in playing had increased from $100 million to $300-400 million over the preceding 2-3 years. Some of this change can likely be attributed to the decline in the dollar's purchasing power over time, combined with the relatively flat nominal cost of a lottery ticket. However, lottery industry experts also point to "jackpot fatigue," in which the public simply requires bigger and bigger prizes in order to derive the same entertainment value from playing (Barker, 2014, Leubsdorf, 2015, Symons, 2015). Such a trend could make PLS unsustainable in the U.S., at least among its target demographic of current gamblers.

Perverse Incentives

Another concern with PLS is that it may encourage risk-taking behaviors among participants. For example, enjoying periodic wins through PLS might distort Mia's

perception of the probability of winning in other lotteries. Although the typical return of PLS is quite modest, it is significantly greater than the average negative return to state lotteries. The availability heuristic mentioned above might cause Mia to artificially overestimate her chances of winning the state lottery. Even though her state lottery wins would not have actually increased, a series of small PLS wins could give her the impression that lotteries in general can be more profitable than she previously thought. This could, in turn, inspire Mia to further reduce her non-gambling expenditures in order to increase her state lottery participation. Indeed, when Cindi Campbell won the $30,000 grand prize at her North Carolina credit union, she described herself as "addicted" to PLS (Cohen, 2014). While a PLS addiction certainly seems more financially healthy than a state lottery addiction, it is not clear how such an addiction could affect other parts of a participant's life.

Behavioral economics measures have not provided conclusive evidence that PLS can increase net savings without increasing risk-taking behavior. On one hand, the gambling literature confirms that wins encourage players to take bigger risks going forward (Thaler and Johnson, 1990, Fafchamps et al., 2013, Ranieri, 2015). On the other, it is certainly possible that the effects of these wins would be more widespread, causing PLS winners to take bigger risks in other parts of their lives. To reach consensus, the field must survey the general population and PLS participants about their risk-taking behaviors.

Mechanical Recommendations

As addressed above, the PLS model is predicated on the idea that participants will abandon some or all of their traditional gambling expenses in favor of PLS. Cookson

(2016) shows that at least in Nebraska, this substitution effect is real and measurable. However, the substitutability could be increased by implementing the two recommendations described below. Should the Cookson (2016) analysis fail to generalize to other states or fail to persist in the long run, these recommendations could still be useful ways to increase PLS uptake while hopefully reducing gambling expenditures at the same time.

Recommendation 1: Explicitly market PLS as an alternative lottery. To ensure that the public views PLS as a viable alternative to the traditional lottery, it must be advertised in the same style and locations as state lotto products, and its advantages over these products must be made very clear. Save to Win already does this to some extent; it relies on attention-grabbing text and graphics, and sometimes uses scratch-off imagery. It could go even further in three other ways:

1. Advertising in or near places that sell state lotto products, such as convenience stores.
2. Incorporating elements of lottery play into its advertising products. For example, credit unions could sell scratch-off tickets behind the counter at convenience stores. Each ticket would yield a prize (varying, perhaps, from $5 to $25) that the bearer could use as an initial deposit in a new PLS account. To avoid misuse, credit unions could make these prizes only available to new accountholders.
3. Explicitly comparing average returns on PLS versus other lottery products. For example, the scratch-off tickets described above might state that the average rate of return for a PLS account is (say) 3 cents per dollar, compared to negative 50 cents per dollar spent on the state lotto.

These small marketing adjustments can help make PLS a better substitute for the traditional lottery and, in turn, increase uptake and retention.

Recommendation 2: Raise the price of the state lottery. Another way to encourage individuals to substitute PLS for traditional gambling is by raising the price of the state lottery, making it less attractive overall. As described above, PLS may be a weak substitute for the traditional lottery; people may have a strong preference for one over the other, and not see them as interchangeable. Even so, demand for PLS may rise if the price of the state lottery rises.[10] Because they are weak substitutes, PLS contributions will not rise by the same amount that lottery sales decline, but they are likely to rise at least somewhat.

However, this solution is easier to recommend than to implement. Nationwide, state lotteries generate some $17 billion in aggregate revenue (Hansen, 2010). As discussed in Section II.A, these lotteries remain very popular despite decades-old concerns that they are regressive and exploitative (Suits, 1977, Clotfelter and Cook, 1987, Mikesell and Zorn, 1988). State legislators may be reluctant to make dramatic changes to state lotteries, which are popular among constituents and budget officers. Therefore, it may be most feasible to only increase the price of state lotteries enough that the system still remains revenue neutral – that is, enough that fewer people purchase lottery tickets but because they pay more, they generate the same amount of aggregate revenue. This could at least guide lottery players at the margins towards PLS.

[10] To illustrate this, consider coffee and tea. These are weak substitutes; most people prefer one over the other. However, while I prefer coffee, a sharp rise in its price would make me more likely to accept tea. In my nearest café, a cup of coffee costs $2.50 and a cup of tea $1.75. If tomorrow I find that coffee now costs $9.00 and tea still $1.75, I will likely become a tea-drinker, at least until prices change again.

Even if PLS could be made a stronger substitute for traditional gambling, the problem remains that it may also create or exacerbate unhealthy relationships with money. As discussed above, frequent PLS wins may encourage participants to take risks in other areas of their lives, with far less success. The next two recommendations are designed to complement PLS and help participants develop their money savvy while also reaping the near-term benefits of savings gamification. Either of these recommendations could be implemented independently of PLS. If implemented alongside it, they would simply mitigate some of the negative behavioral consequences addressed earlier; if implemented in a market without PLS, they would still help to encourage responsible consumption.

Recommendation 3: Reform the Saver's Credit. The Saver's Credit allows low-income individuals and married couples to reduce their tax liability based on contributions to an IRA or an employer-sponsored retirement plan (IRS, 2016a). Because it is nonrefundable, it can only be used to reduce a filer's tax liability to zero; any "extra" is lost. Unfortunately, only about one-third of Americans know about the credit, so it is claimed infrequently (Transamerica Center for Retirement Studies, 2015).

Four specific reforms would make the Saver's Credit more attractive, and allow it to work in tandem with PLS to increase saving. First, it should be made refundable (Iwry et al., 2004). Most of the least-well-off have a very low tax liability to begin with; reducing this liability to zero is not a powerful incentive. Allowing filers to receive the "extra" from the credit would encourage more people to take the steps necessary to claim it. Second, any refund should be deposited directly into a savings account (Gale et al., 2016). Third, it should be claimable on any tax form, not just the long forms. Finally, it

should pertain not just to retirement savings accounts but also to other savings vehicles, such as PLS and certificates of deposit (CDs), provided there has been no leakage over the preceding year.

These reforms could help to close the wealth gap, and because they are progressive, could counteract the internal regressivity of the current PLS system (discussed in Section III on the ethics of PLS, below). Additionally, the fact that people anticipate and plan for their annual refund could help counteract the effects of jackpot fatigue (Weisbaum, 2013). Even if savers are underwhelmed by the PLS prizes (or the interest rate gains in the responsibility-rewarding model), they will still be motivated to save thanks to the Saver's Credit. This could also help these programs weather recessions or other periods of low average returns.

Recommendation 4: Implement a volunteer network of financial advisors. Since 2008, the IRS has administered the Volunteer Income Tax Assistance (VITA) and Tax Counseling for the Elderly (TCE) programs, which are designed to provide tax expertise to underserved populations in urban and rural areas (IRS, 2016b). In 2014, the VITA and TCE programs cost $18.1 million and allowed 96,000 certified volunteers at 12,000 sites to prepare 3.6 million tax returns (Greer and Sebastian, 2015). The programs generated nearly $4 billion in refunds for filers (Greer and Sebastian, 2015).

A similar volunteer network could be implemented to provide routine financial advice to underserved populations. This network could be an extension of the existing VITA and TCE programs, or a separate program administered by, perhaps, the Consumer Financial Protection Bureau, assuming it survives the current Presidential Administration. Services could include (a) budget development, (b) investment advice, (c) planning for

the coming tax year, and (d) credit report and score tracking and explanation. The VITA and TCE programs currently offer credit report analysis, but these programs are only active during tax season and most participants visit only once per year. Although such a network would be costly, it would result in a more financially-healthy population, reducing other government expenditures in the long run. To encourage uptake, PLS participants could receive routine information about these volunteer services in their PLS-related communications from their credit union.

Chapter 3: Philosophy, Ethics, and PLS

The previous section explained how PLS works and presented suggestive evidence from the behavioral economics literature. It remains unclear to what extent PLS truly substitutes for traditional gambling, and whether or not it has negative behavioral effects in the long run. In this section, I temporarily set aside these feasibility questions and reflect on the moral complexities of PLS using two philosophical frameworks. I this chapter I start by analyzing PLS through the modern concept of liberalism set forth by Levin-Waldman. Next, I address the related problem of infantilizing financially-vulnerable members of society. I go on to consider the mechanics of PLS through the Rawlsian lens. Finally, I revisit two policy recommendations described above (reforms to the Saver's Credit and a VITA-like program for financial advice) and offer a final recommendation to address the moral shortcomings of PLS.

"Reconceived" Liberalism

Because PLS is non-coercive and basically voluntary, it is easy to justify through the classical liberalism lenses used by John Locke and John Stuart Mill.[11] However, problems arise when we subject it to a more modern liberal frame. In his 1996 *Reconceiving Liberalism*, Levin-Waldman suggests that while liberalism has traditionally been about protecting individuals from government interference, it should now place more emphasis on individuals' responsibilities to others. Additionally, where classical liberalism focused on personal autonomy and government neutrality Levin-Waldman suggests that modern liberalism should instead prioritize mutuality and (bounded) tolerance. As he puts it, "agency, while still critical to all permutations of liberalism,

[11] In fact, Locke was alive during the last decade of the U.K.'s "Million Adventure" (see fn.4 of this paper) and does not appear to have spoken or written against it.

becomes completely meaningless unless strong communities exist to nourish it" (1996, p.9). For communities to nurture their members' autonomy, they must foster a sense of dual obligation ("mutuality") in which communities have duties to their members *and individuals have duties to their community*.[12] For this mutuality to work properly, communities must promote a sense of tolerance; members must be free to exercise their autonomy, provided their actions bring no harm to others. Levin-Waldman goes on to tackle the tolerance paradox head-on by adding that we "must be intolerant of those forces that have the potential to fracture and divide… of those activities, whether intentional or not, that cause harm to others" (1996, p.50).[13]

He goes on to argue that in order to participate freely in society, individuals must be treated as capable of such participation. "Individuals can only be expected to do their fair share if they are regarded as equal members of the community and they are afforded the space to develop themselves as free-thinking human beings" (1996, p.7). Even the best-intentioned policy, if based on a premise that the less-advantaged are also less competent, would fail to meet his more nuanced standards of liberalism. Even though PLS is optional, a Levin-Waldman-style interpretation might find that it has coercive elements that could diminish an individual's full participation in society.

The problem with PLS isn't what it does explicitly, but rather what it does implicitly. It does not deprive anyone of choice, but it does deprive them in other ways. It gives the financially vulnerable and/or illiterate the opportunity to capitalize on rash behaviors, instead of the opportunity to learn and make better choices. It promotes saving

[12] This idea of mutuality was famously addressed in President Kennedy's 1961 inaugural address, in which he urged Americans to "ask not what your country can do for you – ask what you can do for your country" (Kennedy, 1961).
[13] The tolerance paradox asks, "Should we tolerate the intolerant?"

by making it recreational, not by teaching the (admittedly rather dull) powers of compound interest. Most of all, it reinforces the idea that these already-disadvantaged members of society want entertainment, not education. It diminishes their opportunity to think critically about their futures by giving them an easy solution, and in so doing perpetuates unsavory stereotypes about these individuals' capacity to learn and provide for themselves. Levin-Waldman goes on to add:

> Still, the question remains, how do we help those who are less fortunate without being too paternalistic in the process? [Political scientist Lawrence L.] Mead's discussion of the competence assumption is particularly interesting because, by abandoning it, liberals are effectively placing less faith in the ability of the poor to work than in those who assert their need to do so. Liberals are effectively assuming them to lack the ability to function appropriately, so let us just take care of them" (1996, p.123).[14]

It is not enough that individuals be free from overt coercion. They must also be *perceived* as equal and given the chance to grow. If someone's financial security is being artificially reduced to a game, is it truly possible for him or her to be seen as equal, to develop?

PLS feels a bit like throwing up one's hands in defeat. "The financially vulnerable aren't interested in saving, only in playing," you can imagine a (paternalistic) policymaker saying. "I guess we'll have to make saving a game for them!" The implication is that this demographic can't be motivated to save for security's sake, that they are interested only or at least primarily in leisure activities. Because financial vulnerability is associated with other markers of social disadvantage – such as being black or Hispanic, having no college education, and being food insecure – the

[14] Mead's competence assumption is the presumption that individuals know their own preferences (even if others think these preferences are wrong or misguided) and are able to advance their self-interest (Mead 1996).

"responsibility as a game" model reinforces troubling stereotypes. It infantilizes these groups and, because it rewards risk-taking, may even encourage risky behaviors.

Aside on infantilism. Many groups that tend to be financially vulnerable are already infantilized in the public discourse. For example, women are portrayed as children in advertisements (Goffman, 1979). They are called "girls" well into adulthood (Grigsby, 2015). Black men are persistently called "boys" (R.L.G., 2010). Adding the PLS narrative of "savings as a game" into the mix can only compound these problems.

Philosophers worry that infantilism can generate short-term benefits, but is not sustainable in the long run. Luc Bovens (2009) suggests that over time, infantilized people may hold themselves less and less responsible for their outcomes. Recent findings by economists Camelia Kuhnen and Brian Melzer (2017) support this concern; they find that individuals with low self-efficacy are more likely to be financially delinquent.[15,16] They also show that low self-efficacy is associated with higher rates of foreclosure, bankruptcy, asset repossession, and accounts in collections, and with decreased access to traditional credit products. This is compounded by previous research showing that self-efficacy – at least in the education and medical domains – is affected by gender and race (Huang, 2013, Ejebe et al., 2015). The implications for PLS are two-fold. First and foremost, the gamification of saving may reduce future financial literacy gains; it provides an easy "solution" but removes the impetus to learn about appropriate financial goals. This could in turn lower self-efficacy among affected populations, leading to

[15] Kuhnen and Melzer (2017) measure self-efficacy with the Pearlin Mastery score, which is calculated by presenting individuals with a list of seven statements and asking them to indicate the extent to which they agree with the statement on a scale of 1 to 4. These statements include, "I have little control over the things that happen to me" and "I can do just about anything I really set my mind to."

[16] In the Kuhnen and Melzer (2017) paper, individuals are considered financially delinquent if they are 60+ days behind on their recurring debt payments (such as credit card and auto loan payments) **and/or** 60+ days behind on their utilities, medical bills, or other bills.

higher rates of negative financial outcomes. Additionally, Bovens (2009) suggests that over time, infantilized populations may require bigger and bigger interventions to realize the same effect. Taken with the earlier concerns about the concentration of gambling spending as a share of income and gambling addiction among low-income individuals, these infantilism concerns are serious and could have lasting implications for PLS participants.

PLS is voluntary and non-coercive, but the gamification of savings sends undesirable messages about its participants that do not jibe with the modernized conception of liberalism that Levin-Waldman sets forth. A modest increase in savings is sure to improve participants' financial security and well-being. However, these gains may be offset by damage to their sense of self-worth and/or to others' perception of their self-worth.

Rawlsian Justice as Fairness

Finally, PLS must be analyzed through the Rawlsian framework of justice as fairness. In his 1971 *A Theory of Justice* and 1985 "Justice as Fairness" Rawls sets forth guiding principles for distributive justice and public policies that aim to redistribute resources equitably across society:

> 1. Each person has an equal right to a fully adequate scheme of equal basic rights and liberties, which scheme is compatible with a similar scheme for all.
> 2. Social and economic inequalities are to satisfy two conditions: first, they must be attached to offices and positions open to all under conditions of fair equality of opportunity; and second, they must be to the greatest benefit of the least advantaged members of society (Rawls, 1985, p.227).[17]

[17] This now-canonical version of the second principle represents a significant revision from earlier versions. In 1971, Rawls wrote that inequalities should be arranged "to be to everyone's advantage" (p.53).

Because PLS does not represent any impingement on any individual's basic rights or autonomy, it need not be further analyzed in relation to the first principle. For the remainder of this section, I focus on the second principle. On its face, PLS easily accomplishes both components of this principle. First, while not all banks and credit unions offer PLS at this time, those that do make it available to all accountholders. PLS participation is restricted geographically (because most credit unions serve a relatively localized population) but is otherwise open. Second, it encourages saving and helps participants create a small fund for emergencies and future expenses. Financially-vulnerable Americans, such as the 47 percent who would be unable to cover an unexpected $400 expense in cash, derive great marginal utility from even a modest savings account (Gabler, 2016). More-advantaged Americans would see little marginal benefit from a small increase in savings. Thus, PLS appears to arrange inequalities in such a way that they are of most benefit to the least-advantaged members of society.

However, closer examination reveals some problems. First, the current PLS structure promotes socioeconomic inequalities. Participants "purchase" an entry in the next raffle by saving $25. Participants with more disposable income are able to purchase more entries, thus increasing their odds of winning, over their less-well-off counterparts. Participants in the very lowest income and wealth brackets are the most vulnerable, but also the least able to generate a return through their savings. While PLS still improves these participants' financial security – even if they win nothing, at the end of the year they will have saved some money – it gives them a far lower absolute payout than their less-vulnerable peers. A typical StW model allows for up to 10 $25 entries per month. If the very least-well-off participant can purchase 1 entry in a good month, and 0 entries in

a lean month, then the best-off participant could be 10 or more times more likely to win a prize each month. Disenchanted by their low win rates, these least-advantaged participants may leave the program at faster rates than their more-advantaged counterparts.

Ethical Recommendations

PLS is an innovative tool for helping financially-disadvantaged Americans build up a savings account to protect themselves from income and consumption shocks. However, this exciting goal is offset, at least in part, by ethical considerations. Gamifying savings erodes individuals' faith in their own competence, and casts them as helpless in others' eyes. This erosion plays into a bigger problem of infantilization, which is incidentally particularly prominent around populations that tend to be financially vulnerable. Finally, PLS is regressive; the least-advantaged participants also benefit the least. These moral complications are all surmountable; the following recommendations aim to address them.

Recommendation 3: Reform the Saver's Credit. This recommendation was already discussed in depth in Section II.E, above, which listed practical PLS reforms. To recap, changing the Saver's Credit would encourage individuals to save. This would, in turn, help individuals stand on their own two feet (and overcome infantilization).

Recommendation 4: Implement a Volunteer Network of Financial Advisors. This recommendation was also discussed in depth above. To recap, this program would function much like the IRS VITA and VCE programs, providing no-cost financial advice to low-income individuals through the year. Like the preceding recommendation, this would help financially-vulnerable individuals better exercise their autonomy. However, it would have to be marketed and implemented very carefully to avoid exacerbating the infantilization problem.

Recommendation 5: Make PLS Progressive. As discussed above, the current PLS system is regressive because raffle entries have an absolute cost ($25) that gives the least-vulnerable participants fewer opportunities to win. Modest revisions to the PLS structure would allow it to provide the greatest benefit to those who need it most. The most obvious solution to the regressivity problem is to change the raffle pricing structure. Credit unions could allow participants to "purchase" 1 raffle entry for every 1 percent of their income saved.[18] Alternately, they could charge participants different rates per 1 raffle entry, depending on their income decile.[19] Either structure would encourage all participants to save, while giving the least-advantaged accountholders more chances to win. Unfortunately, both of these structures create cross-subsidies that would make them unsustainable over the long run. To illustrate the problems of cross-subsidization, imagine that Mia earns $1,700 per month and Melissa earns $2,900 per month. They both participate in PLS, but Mia wins more often because their credit union implements one of the options described above. Melissa shoulders the burden of increasing Mia's chances of

[18] For example, if Mia earned $1,700 in August and saved $100, she would save 5.9 percent of her income and therefore receive 5 raffle entries. If Melissa earned $2,200 in August and also saved $100, she would save 4.5 percent of her income and therefore receive 4 raffle entries.

[19] For example, those in the bottom decile could "purchase" 1 entry for $5; those in the second decile, for $10, and so on, with those in the top decile saving $50 per entry.

winning by sacrificing her own chances of winning. Over time, Melissa may decide to stop participating because she rarely wins and could earn a higher return in a traditional savings account. If that happens, then someone who earns less than Melissa will begin subsidizing Mia's participation. Eventually, Mia may be the highest-earning participant; she will in turn have to subsidize someone else's participation, and will likely close her PLS account when she stops winning.

Selling raffle tickets with an absolute cost introduces regressivity concerns. Selling tickets at different relative rates depending on participants' income introduces cross-subsidies. One possible way to mitigate (but not outright eliminate) the regressivity problem is to allow PLS participants to "buy" raffle entries by taking certain responsible financial actions. In this system, accountholders would be given a menu of optional actions with clear, accessible instructions. These actions could include behaviors such as: (1) Establishing an automatic recurring transfer to their savings account; (2) Having their employer divert a portion of their pay into their savings account; (3) Using budget software such as Mint (which is free) or You Need a Budget; (4) Going one calendar month with no non-emergency leakage; (5) Taking a (possibly free) online financial literacy class; and (6) Speaking regularly with a financial counselor. Thus, even if Mia is only able to save $25 in a month, she could be eligible for up to seven raffle entries.[20] This would give her roughly the same chances of winning in a given month as a participant who could afford to save $175. The ability to take any of these actions is correlated with financial well-being, so it is important to note that this recommendation could mitigate but not entirely eliminate the regressivity problem. Enterprising credit

[20] One entry for saving $25, and another six entries for completing the six actions.

union could make some activities available for free to low-income participants, to encourage uptake.

The system would be even more level if the number of raffle entries per month were still capped at 10, so that a participant could maximize his or her chances of winning by either (a) saving $250 and completing no activities or (b) saving $100 and completing all six activities, or (c) some other combination of savings and activities. Additionally, instructions for the activities requiring internet access could include resources for local no- or low-cost internet and computer access. As an added bonus, the financially responsible actions could also increase participants' self-efficacy and thus improve their financial outcomes in the long term. The optional nature of these activities keeps them in line with the philosophical ideals outlined in Section III.

One downside to this reform is that it would reduce the expected return per dollar saved. In other words, it would increase the number of entries while holding steady the available dollars for prizes. To illustrate this, let's imagine that a given credit union has 80 PLS accountholders, who on average save $50 per month or "purchase" two raffle entries per month. Assuming that the total value of all of the credit union's prizes in a given year is equivalent to 1 percent in interest, it has roughly $480 to award annually. The expected return on each $25 raffle entry is $0.25. Now, what happens if the credit union decides to allow PLS participants to "purchase" raffle entries by taking the financially responsible actions described above? Let's imagine that the average PLS accountholder now saves $50 and completes one activity, "buying" three raffle entries. The credit union still has $480 to be awarded annually, because net savings has not

changed. However, now there are 50 percent more raffle entries, and the expected return on each $25 entry falls to $0.17.

In the aggregate, this PLS variation is a less rational choice than a traditional savings account. However, a below-average saver may still prefer PLS, because the interest he or she would earn in a traditional account would be dwarfed relative to the potential winnings in a PLS account. Sustaining the program, however, requires that above-average savers continue to participate. There are two ways to do this. First, a state government could require that all credit unions offering PLS offer the same variation of the program. This would mitigate concerns that higher-income participants would simply switch to a different credit union in order to reap the same long-term return. Alternatively, federal, state, or local governments could subsidize the financial responsibility portion by paying $25 per action taken. This would ensure that the average expected return to a $25 return remains neutral. Of course, in a fiscally strapped environment, subsidization is likely to be a very challenging sell.

In its current form, PLS raises some important ethical quandaries. These complications are not, however, insurmountable. Complementing PLS with other programs designed to maximize financial literacy and well-being would help mitigate concerns that PLS actually diminishes accountholders' sense of self-sufficiency and self-worth. Changing the way PLS is implemented could partially overcome its internal regressivity.

Chapter 4: Conclusion

Americans don't save enough, and even a small financial cushion could protect families from dire consequences. PLS is a novel way to encourage the financially vulnerable to save by capitalizing on specific human tendencies. However, it has two main practical considerations and an additional two moral factors that must be considered.

First, PLS is predicated on the fact that individuals will reduce their gambling consumption in order to participate. However, despite some new evidence from Cookson (2016), it is not yet certain to what extent this is the case, and more research is needed. Two recommendations described above would help to mitigate the substitutability problem:

1. Explicitly market PLS as an alternative lottery; and
2. Raise the price of the state lottery.

Second, it is possible that PLS may increase risk taking elsewhere. In other words, frequent PLS wins may inspire someone to take chances in other areas of their lives, including in some less-productive ways. This is another area where more research is needed to better understand the long-run implications of PLS participation. Two recommendations described above would help to manage the risk-promotion problem:

3. Reform the Saver's Credit; and
4. Implement a volunteer network of financial advisors.

Third, PLS may degrade individuals' sense of self-sufficiency and negatively affect the way they are viewed by the general public. As Levin-Waldman notes, individuals in a liberal society must not only have rights, but feel empowered to exercise

them, if they are to become fully-fledged members of society. Relatedly, this degradation may be connected to the infantilization of certain demographic groups, many of whom are also likely to be financially vulnerable. The Saver's Credit and VITA-style financial advice network recommendations mentioned above could do double duty and help to mitigate these effects.

Finally, in its current state PLS is regressive. Participants with more income to spare can afford to "buy" more raffle entries every month, increasing their chances of winning. This creates a system where the very people who could benefit the most from PLS are the ones least likely to actually do so. The fifth and final policy recommendation strives to manage this regressivity:

5. Make PLS progressive.

Without more information about how participants view PLS, and how it affects their risk-taking behavior, it is impossible to say definitively that the program can have a powerful, meaningfully positive effect. However, in the near term, some tweaks to the system could result in higher uptake, improved financial literacy, and more informed decision-making. These tweaks should be accompanied by rigorous and ongoing measurement of their effects on PLS participants' financial security, self-efficacy, and consumption preferences. This analysis will allow policymakers to fine-tune the program to maximize its effectiveness and ensure that the benefits it produces are cost-effective and appropriate.

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