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MAKING SAVERS WINNERS:
AN OVERVIEW OF PRIZE-LINKED SAVINGS PRODUCTS

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ABSTRACT

For over three centuries and throughout the globe, people have enthusiastically bought savings products that incorporate lottery elements. In lieu of paying traditional interest to all investors proportional to their balances, these Prize Linked Savings (PLS) accounts distribute periodic sizeable payments to some investors using a lottery-like drawing where an investor's chances of winning are proportional to one's account balances. This paper describes these products, provides examples of their use, argues for their potential popularity in the United States —especially to low and moderate income non-savers—and discusses the laws and regulations in the United States that largely prohibit their issuance.

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Policy initiatives aimed at increasing household saving rates typically focus on things like mandating saving, changing the choice architecture of saving decisions, providing financial incentives, or embedding saving in a social network.[1]   In this chapter we review an alternative policy option: Prize Linked Savings (PLS) accounts. This mechanism adds a lottery-like feature to an otherwise standard saving account, creating an asset structure that might hold great appeal to the target low-saver segment of the population. While PLS accounts would be innovative in the United States, such accounts have already proven to be popular in other countries. In addition, such accounts are potentially a more cost-effective way of promoting saving compared to matching accounts or policies that use financial incentives to motivate saving behavior. The primary obstacle to the widespread adoption and offering of PLS accounts in the United States is the questionable legality of such products, which we discuss below.

Prize Linked Savings (PLS) accounts differ from standard saving accounts in one specific way. Instead of, or perhaps in addition to, offering a fixed interest return, PLS accounts offer a stochastic return in that depositors periodically receive a chance to win a specified (and potentially large) amount that is a function of deposit amounts. In this sense, this chance is similar to a lottery ticket. The products are unlike a traditional lottery in that the principal is returned to the investor, either at the maturity of the instrument or on demand. The random component of the return on saving can take the form of in-kind prizes – as is commonly offered by commercial banks in Latin America – or as a cash prize awarded to account holders as a part of a regular drawing, as is the case with Britain's Premium Bonds.

There are two features of PLS accounts that would likely be attractive to potential savers. First, they offer a skewed distribution of returns. Many potential investors desire some exposure

to upside risk (i.e. a chance to be rich). Second, to the extent that they offer a lottery-like component, PLS accounts potentially offer an element of entertainment or fun.

We present three pieces of existing indirect evidence in support of the view that PLS products would be popular among low- and moderate-income households in the United States. First, the propensity of many low- and middle-income US families to gamble on state lotteries indirectly suggests that a saving vehicle offering a low probability chance of a high payoff prize would be an attractive asset, particularly among low- and middle- income investors. Second, PLS assets are popular in several other countries and have been popular for over three centuries. Third, two recent PLS demonstration experiments in the United States show promising initial results in terms of consumer take-up. There is an important caveat to interpreting this evidence on the popularity of PLS products: to date, there is no evidence on the fundamental issue of whether these products increase total household saving. This remains an important question for future research.[2]

The Appeal of PLS Accounts

A consensus has emerged among academics and policy-makers that traditional vehicles for increasing saving, including IRAs and 401(k)s, are not generally successful at raising saving by individuals at the lower end of the wealth distribution. Recent initiatives such as the Saver's Credit and Individual Development Accounts, which use matching funds as an additional enticement to save, are promising but require substantial government financial support (Tufano and Schneider 2008).

The promotion of prize-linked saving products takes seriously the idea that potential savers place a high value on the chance to 'win big'. We speculate that there is unmet consumer

demand in America for saving products that offer the (remote) prospect of changing current wealth status, rather than incrementally building wealth with certainty. If this speculation is correct, then an otherwise standard investment vehicle offering a financial return in the form of a chance to win a large prize, rather than a guaranteed modest return, would be an even more effective way to motivate individuals to contribute current income to investment accounts than schemes such as contribution matching. Furthermore, the lottery component of the PLS account might have direct appeal beyond the chance to win large prizes. For those who consider playing the lottery to be fun, a saving account with a lottery component may be more attractive than a standard saving account with stable returns.

The potential appeal of PLS accounts to U.S. households. A fundamental policy question behind a prize-linked saving policy is whether observed preferences for uncertain payoffs could be leveraged to encourage saving. Our conjecture that it could is based on two sets of observations. The experience of lottery gambling in the United States demonstrates that there is widespread demand for low-probability, high-prize gambling products, in particular among low-income individuals and households. In the year 2008, 42 states and the District of Columbia offered state lotteries, bringing in roughly $60 billion in sales or more than $540 per household nationwide.[3] In the same year, American households spent $430 per household on all dairy products, and $444 on alcohol.[4] We buy more lottery tickets than milk or beer.

Lottery gambling is also popular among US low- and moderate-income households. The 1998 National Opinion Research Council (NORC) survey of gambling, the most recent nationally-representative survey of gambling behavior in the United States, reveals three general facts (Kearney 2005). First, lottery gambling extends across races, sexes, income, and education groups. Second, with regard to race, black respondents spend nearly twice as much on lottery

tickets as do white and Hispanic respondents, and the highest rates of participation and expenditures are recorded among black male high school dropouts. Third, average annual lottery spending in dollar terms is roughly equal across the lowest, middle, and highest income groups. This implies that on average, low-income households spend a larger percentage of their wealth on lottery tickets than other US households.[5]

Much has been written about potential explanations for gambling among consumers. The case of state lottery gambling is particularly interesting to consider because state lottery tickets offer a negative expected return. On average, state lotteries offer a (negative) return of roughly 52 cents on the dollar (La Fleur 2001). Given such a large negative return, why do more than half of American adults participate in lottery gambling? There are numerous possible explanations. Many casual observers associate lottery gambling with misinformation or confusion on the part of lottery gamblers. The choice to buy lottery tickets need not be a mistake, however. Traditional economic consumer choice theory would permit such gambles among risk-averse consumers, if these consumers received sufficient entertainment value from gambling or utility from giving in this way to a charity, since most states use the money for education or other public goods. Behavioral economists offer as a possible explanation that lottery gamblers overweight the small probabilities associated with winning.

Another possible explanation for lottery play, most relevant to this chapter, is that state lotteries provide some low-wealth would-be investors with a rare asset offering some chance at winning a life-altering amount of money. For those with few assets or who encounter other barriers – either real or psychological – to engaging in the world of traditional financial markets, a lottery ticket might fill the void of a 'missing market'. If a low- to moderate-wealth individual

hopes to win a large payout – say, to purchase a car or make a down-payment on a house– this might be the only vehicle at his disposal capable of remotely reaching that goal.

The introduction of prize-linked savings products could provide an alternative to lottery tickets that offers a higher (and certainly less negative) return on one's 'investment'. Survey data corroborate this quasi-investment framing by some lottery players. A 2006 survey by the Consumer Federation of America and the Financial Planning Association on a representative sample of more than 1,000 U.S. adults found that '21% of Americans, and 38% of those with incomes below $25,000, think that winning the lottery represents the most practical way for them to accumulate several hundred thousand dollars' (CFA 2006).

The potential appeal of PLS products must also be understood in the context of alternative products. Emergency savers who demand liquidity and no principal loss are usually limited to some sort of low-yielding demand deposit. While theory might suggest that the power of compound interest would provide strong motivations to save, for an emergency saver whose uncertain horizon might be a few years or a few months, compounding does not offer compelling reasons to save. To be concrete, in March 2010, the average American Money Market Account (which has limitations on withdrawals) earned an APR of 0.82 percent.[6] For an emergency saver with a balance of $1500, the monthly interest earned would be $1.05, before the payment of income taxes. These sums—smaller than most lottery tickets—provide small savers with scant motivation to keep their money in the bank. A PLS structure allows one to forego these small sums yet maintain liquidity and principal certainty, while offering a chance to win a large amount of money or a durable good.

In addition, in a series of experimental studies, Volpp et al. (2008a, b) have shown that in specific settings, subjects can respond more strongly to stochastic incentives than to piece rates.

The stochastic incentives they examine resemble the lottery portion of a PLS. In one experiment, subjects who were attempting to lose weight were eligible to be entered in a lottery, if at a monthly weigh-in their weight met personal weight-loss goals. Those in the lottery-incentive condition lost significantly more weight than subjects who had non-incentivized monthly weigh-ins, and slightly more weight than subjects who faced non-lottery incentives (though this latter difference was not statistically significant).

The potential appeal of PLS accounts to U.S. issuers. Products come to market if they are attractive to both buyers and sellers. There are a number of reasons why a PLS structure would be popular to issuers. Here we highlight four reasons why prize-linked savings accounts are relatively easy to design, operate, and market:

1. *Ease of Marketing:* Unlike an indexed-linked structure, a PLS structure does not require the buyer to have knowledge of, or the seller to educate the buyer about, financial markets. To the contrary, the concept of lotteries is well understood.

2. *Ease of production:* A financial institution offering a PLS product can invest the proceeds from PLS instruments into relatively simple investments, rather than employ a complex investment management strategy.

3. *Apparent transparency:* One can create and maintain salient prizes (e.g., $100,000) by adjusting the odds over time as underlying investment returns or the size of the pool changes.

4. *Ease of providing liquidity:* A prize-linked program provider can provide easy liquidity merely by denying those making withdrawals eligibility to win prizes.

It may be worth pausing here to ask why prize-linked savings accounts are not widespread, given the appeal both to potential savers and to issuers. One issue is that, though one

might think that all financial institutions would be eager to gather assets from all savers, real-world experience demonstrates this is not true. For example, minimum mutual fund investment amounts keep people with less than $2500 to $3000 from opening an account in many funds (Schneider and Tufano 2007). In addition, as we discuss below, there are currently significant legal and regulatory obstacles to PLS accounts in the U.S. Yet in places without such restrictions, prize-linked savings accounts have been both widespread and quite popular.

International Evidence on the Appeal of PLS Accounts

In this section we briefly review the historical evidence, broad international usage, and data from two modern version of PLS in the United Kingdom and South Africa.

A brief history. Prize-linked savings programs have existed since at least the 1694 'Million Adventure' in the United Kingdom (Murphy 2005). Initially proposed to cope with debt from the Nine Years' War (1689-97), the Million Adventure offered 100,000 tickets at £10 each.[7] A small number, i.e., 2,500 of the tickets (2.5 percent), would win prizes from £10 per year to £1,000 per year for 16 years. The Million Adventure was also a saving program, in that it paid ticket holders a £1 per year until 1710, or a 6.15 percent annual return. While a single ticket in the Million Adventure was out of reach of most citizens, tickets were also made available through syndicates to those with small incomes. Thomas Neale, the 'Groom Porter to their Majesties' who oversaw the program, commented on the success of the Million Adventure to attract even small investors, 'many Thousands who only have small sums, and cannot now bring them into the Publick, [may now] engage themselves in this Fund' (Murphy 2005, p. 231). The Million Adventure is reported to have attracted tens of thousands of investors (of the five to six million Britons at the time) making it an unprecedented large-scale financial saving tool.

Since 1694, many similar programs that combine gambling and savings have sprung up in many different countries all over the world. Levy-Ullmann, writing in 1896, surveyed PLS activity at that time. He found that PLS, in the form of lottery bonds, 'may be found in most of the financial markets of Europe, and of nationalities, German, Austrian, Spanish, Greek, Italian, Swedish and Swiss' (Levy-Ullman 1896). Lottery bonds are still used in some countries, for example Sweden.[8]

Current examples. Table 1 lists examples of PLS products offered internationally by various commercial banks and governments around the world.[9] Guillen and Tschoegl (2002) survey the history and institutional details of numerous international offerings. As described in their survey piece, commercial banks have been offering prize-linked accounts throughout Latin America since the 1990s. Banco Bilboa Vizcaya, a private bank in Latin America, launched a lottery-linked product in Mexico (1996), Colombia (1997), Venezuela (1997), and Argentina (1997). Since 1990, Spanish private banks have offered accounts with periodic lottery prizes. Private financial institutions also market prize-linked savings products in Germany, Indonesia, and Japan. In Germany, since 1952, savings banks have offered accounts where depositors can allocate any new inflow into the account between saving in the bank (which offers a traditional return) and purchases of lottery tickets from the regional association of saving banks. In 1986, BRI in Indonesia, a financial institution that specializes in microfinance lending to the poor, introduced accounts with stochastic interest rates between 0 and 1.25 percent per month (Morduch 1999). In 1994 the Jonan Shinkin Bank in Japan introduced prize-linked one-year time deposits, despite Ministry of Finance disapproval. These accounts attracted deposits worth about $US 305 million into the bank in a matter of days, attracting an additional 13 banks to immediately offer similar products (Guillen and Tschoegl 2002).

Many governments also offer some form of prize-linked savings products. Guillen and Tschoegl (2002) report that since 1918 the Swedish government has offered bonds with coupon payments determined by lottery; in recent years such bonds have accounted for approximately eight percent of the Swedish government's debt. Outside of Europe, government entities in Kenya and Pakistan, among others, have also offered such products. Below, we discuss one long-lived government program in the United Kingdom.

United Kingdom Premium Bonds. Prime Minister Harold Macmillan announced the invention of Premium Savings Bonds in April 1956, to encourage saving after World War II. Despite criticism from both parties in the House of Commons and religious groups, sales launched on November 1st, 1956 in Trafalgar Square with the byline 'Savings with a Thrill!' Macmillan reasoned that '[Premium Bonds] will appeal to those who are not attracted by the rewards of interest, but do respond to the incentives of fortune' (National Savings and Investments 2006, pp. 1, 4). Consumer response proved him quite right with £5 million (near £84 million in 2005 pounds) purchased on the first day. In 1956 the top prize was £1,000 or about £16,729.30 in 2005 pounds.[10] The bonds continue to be popular and have been immortalized in popular British culture, with one rocker's lyrics thanking the computer that picks the winners, 'Good old E.R.N.I.E; he coughed up a tenner on a Premium Bond win.'[11]

The Premium Bond program is administered by National Savings and Investments (NS&I), an Executive Agency of the Chancellor of the Exchequer. (NS&I is comparable to the U.S. Department of Public Debt, which is part of the U.S. Treasury.) As described on the NS&I website, 'Instead of paying interest, bonds are entered into monthly prize drawings…. When someone invests in Premium Bonds they are allocated a series of numbers, one for each £1 invested. The minimum purchase is £100 (or £50 when you buy by monthly standing order),

which provides 100 Bond numbers and, therefore, 100 chances of winning a prize.'[12] An individual investor can hold up to £30,000 in Premium Bonds. The monthly drawings include the chance at a £1 million jackpot prize as well as lower tier prizes ranging from £25 to £100,000. Note that this structure of a jackpot prize plus lower tier offerings is similar to the common structure of U.S. state lottery jackpot games. Each month's prize fund is equal to one month's interest on the total value of all eligible bonds. The February 2010 annual prize fund interest rate was 1.50 percent. The interest rate used to calculate the prize fund, the number of jackpots, the share of prize fund allocated to each prize band, and the odds of winning are all variable. These bonds can be purchased by UK residents over the age of 16 for themselves or for their children or grandchildren. Premium bond winnings are exempt from UK Income Tax and Capital Gains Tax.

Official figures report that there are 23 million bondholders holding £26 billion worth of Premium Bonds nationwide. The popularity of these bonds has soared in recent decades, with the amount invested rising from £4 billion in 1994 to £40 billion in 2008.[13] Tufano (2008) examines aggregate predictors of per capita Premium Bond sales considering the prize rate, top prize, and annual stock returns, among other aggregate series. The prize rate can be considered analogous to a bond yield, capturing information about the number and size of various prizes. Tufano notes that the prize rate has generally been lower than the rate paid on comparable government bonds, which (assuming that investors know this) suggests that Premium Bond investors are willing to forgo return to purchase this type of prize-linked instrument. His multivariate regression analysis finds that annual net sales are positively correlated with the size of the largest prize offered, the prize rate spread (prize rate less gilt rate), and annual stock returns. These correlated movements potentially suggest that Premium Bonds offer both an investment value (since demand moves

positively with prize rate spread) as well as gambling consumption value (since demand increases with the size of the largest prize, conditional on prize rate).[14] The positive correlation with annual stock returns might suggest that these are not considered substitute products or that they are purchased by different sets of investors.

The United Kingdom's Family Resource Survey (FRS) provides information about who is investing in Premium Bonds: the FRS 2004-2005 Annual Report tabulates information about the percent of households with different types of saving accounts.[15] Among two-adult households without children (sample size of 9,178), 96 percent have any type of account; 30 percent have a Premium Bond account: and 26 percent have stock holdings; and 5 percent with National Savings bonds. Among two-adult households with children (sample size of 5,714), 97 percent have any type of account; 19 percent have a Premium Bond account: 22 percent have stock holdings; and one percent with a National Savings bond. Among one-adult families with children (sample size of 2,050); 93 percent have any type of account; six percent have a Premium Bond account: five percent have stock holdings, and one percent have National Savings Bonds.

Our tabulations of the 2004-2005 FRS data show that Premium Bonds are held by households across the income distribution. Nineteen percent of families hold Premium bonds; the figure is 27 percent among families headed by a married couple, and 12 percent among single-headed families. Tabulations by income quintiles, reported in Table 2 below, reveal that the likelihood of holding Premium Bonds increases with income, as is typical of investments more generally. These bonds might thus be considered 'normal' goods. Still, low-income households participate in this market, with nearly nine percent of households in the lowest income quintile holding Premium Bonds and 12 percent in the second quintile. The general pattern of

participation by income group is maintained if we consider only households with any type of account.

We can get a sense of the relative appeal of Premium Bonds by income group, by analyzing the fraction of that group that owns the product relative to the fraction owning the most popular product for that group. For example, among households making £200 to 300 weekly, the most popular saving product is a society account, with 39 percent of households holding this account. In this same income group, 18 percent hold premium bonds, so that the fraction holding premium bonds scaled by the fraction holding the most common account type is 46 percent. Figure 1 below shows this scaled holding measure: it indicates that premium bonds' relative appeal seems strongest among lower-income households, with some increase in relative appeal among higher income households. The latter may reflect the fact that the bonds' winnings are exempt from taxation.

First National Bank of South Africa's Million a Month Account (MaMA). Next we review another example of a Prize Linked Savings account: the South African bank First National Bank's Million a Month Account (MaMA). This provides a nice contrasting example to the UK program described above for two reasons: first, the MaMA accounts constitute a privately-run PLS program. Second, whereas the government-run UK Premium Bond program is long-lived, the MaMA accounts were short-lived owing to legal and regulatory barriers.[16]

First National Bank (FNB), one of the four largest retail banks in the South African market, introduced its Million-a-Month-Account in 2005. The MaMA account was a no-fee savings account which paid a nominal interest rate (0.25 percent) and rewarded savers with one prize entry for every 100 rand invested.[17] Prize drawings were held monthly and at each drawing, 114 prizes were awarded ranging in value from 1 million rand to 1,000 rand. The

product was structured as a 32-day notice account, a common South African account form akin to a certificate of deposit in that the account holder had to give 32 days notice prior to withdrawing her funds from the program.

A bit of background on the South African financial services sector is useful in understanding this product. The majority (56 percent) of black South Africans are unbanked versus seven percent of white South Africans. Nearly three-quarters (72 percent) of low income South Africans were unbanked. In 2003, banks and the government entered into the Financial Sector Charter, in which banks committed to try to increase the fraction of low income banked South Africans from 28 to 80 percent. Banks expanded distribution outlets, designed low-fee small balance products, and created marketing campaigns to reach out to the unbanked.

FNB executives had studied the UK Premium Bond experience and visited other countries where PLS programs were in place. While there were no PLS programs in South Africa, they reasoned that a program of this sort would be successful in the country based on the widespread popularity of gaming and the national lottery in the country:

> In 2003, the national lottery had 99% consumer awareness and 72% of the population regularly entered to win the lottery's 20 to 30 million rand jackpot. In 2003, players purchased 3,772 million rand in tickets and the lottery board awarded 2,119 million rand in prizes to 31 million winners. Participation in the lottery was fairly evenly distributed across demographic groups, with little difference by education, race, income, gender, or education. Lower-income players spent less in absolute terms on the lottery than high income players, though they spent a larger proportion of income. Among those with less than 800 rand in disposable monthly income, monthly lottery expenditures averaged 33.40 rand, about 8.5% of disposable income. Among those with more than 12,000 rand in monthly disposable income, lottery expenditures were much higher, at 126 rand, but as a percent of income much lower, at just 0.8%. (Cole, Collins, Schneider and Tufano 2007, p. 7)

The program ran from January 2005 through March 2008. During this time, the bank used print and television advertising and in-branch promotion to sell the product. By March

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2008, FNB had opened over 1.1 million accounts and collected 1.4 billion rand in deposits.[18] Executives report that about 12 percent of the accounts were to KYC ('know your customer')-exempt accounts, a marker for the unbanked. They estimated that they opened accounts for 7.1 percent of all banked South Africans and brought 1.1 percent of the unbanked into the banking system.

The success of the system likely also brought about its ultimate closure, as the South African Lottery Board sued to have the program closed as an illegal lottery. Though the program no longer operates, the bank received ongoing benefits from the MaMA program. At the time the program was shut by the government, FNB offered to return monies to savers or they could elect to roll the funds into a more traditional 32-day notice account. Fourteen months after the program was shuttered, the bank continued to maintain 53 percent of the accounts and 83 percent of the balances.

Recent Prize Linked Savings (PLS) demonstration projects in the U.S.

Credit unions have been on the forefront of launching prize-linked savings products in the United States. Working with the non-profit Doorways to Dreams (D2D) Fund and other partners, credit unions have implemented two demonstration projects designed to test the feasibility and popularity of PLS accounts among low and moderate income populations.[19]

Centra Credit Union project in Indiana. In October 2006, with funding support from the Filene Research Institute and Affinity Plus Federal Credit Union, D2D assisted the Indiana-based Centra Credit Union in a launch of 'Super Savings,' a prize-based savings product. In order to comply with relevant law (reviewed below), this product was structured as a sweepstakes with 'no purchase required'. In January 2009, assisted by the D2D Fund, the Filene Research Institute,

the Center for Financial Services Innovation, and the Michigan Credit Union League, eight credit unions launched a PLS product called 'Save to Win'.

As part of the Centra Credit Union demonstration, a pre-pilot marketing survey was administered to gauge potential consumer interest in a PLS product. This survey was completed by 547 intercepted Wal-Mart customers in Clarksville, Indiana in November and December 2006. Clarksville is in Clark County, Indiana, which has a population of 103,569. According to U.S. census figures, median household income in the county is $41,719 (compared to $48,451 nationally). The survey's principal question was 'Would you be interested in a savings account that awarded chances to win prizes based on the amount of money you save? The account would also have no fees, no minimum balance, and still earn interest.' The survey sought to gauge local interest in the product. While neither nationally representative nor random, the demographic correlates of expressed interest are potentially revealing about who might take-up PLS products, should they be offered in the United States.

Among all respondents who completed the pre-pilot survey, 58 percent reported interest in the described PLS product; 26 percent reported not being interested; and 16 percent responded that they did not know. In multivariate analysis including traditional demographic information, Tufano, Maynard and De Neve (2008) find that expressed preference was stronger among people who claimed to not have regular savings plans, defined as those who either stated that they did not save or merely saved if they happened to have money that they hadn't spent that month. Compared to individuals or households with a saving plan, a non-saver was 70 percent more likely to show interest in the PLS product. PLS demand was also strongest with people with almost no saving ($1 to $2000), relative to those with no savings whatsoever or those with more. They also found that optimism, measured by the belief that one's financial well-being will

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improve over the next five years, was a positive determinant of interest in PLS accounts. Finally, survey participants reporting spending of $100 or more over in lottery games in the past six months were twice as interested as others.

In terms of consumer take-up, Centra opened over 1,300 Super Savings accounts and amassed over $500,000 in deposits within three months of launch even with limited marketing. This represented 1.3 percent of its member base in early 2007. Additionally, most customers maintained their deposit balances in the product following the first three months of the launch. As a small pilot run by a single credit union, Centra's program prize offerings were quite small, which likely limited its ultimate success.[20] Additional experimental research is needed to ascertain how the design of PLS products, including the size of the top prize, affects consumer interest and take-up.[21]

***Save to Win* demonstration project in Michigan**. Another PLS demonstration project was launched in 2009 in Michigan. The '*Save to Win*' demonstration was run as a saving promotion in eight participating credit unions in the state of Michigan from late January 2009 to end December 2009. This demonstration was legally permissible under a unique provision in Michigan law that permits credit unions in the state to offer 'savings promotion raffles,' with only those who save eligible to win prizes (in contrast to a sweepstakes). The *Save to Win* project enabled several credit unions to join forces in order to offer a prize-linked savings product with a headline-grabbing $100,000 grand prize, in contrast to the small scale issue faced by the Centra Credit Union experience described above.

At any time during 2009, members of participating credit unions could open a qualifying share certificate account to enter the saving raffle. This certificate was a 12-month time deposit and required only $25 to open. Deposits were unlimited, but the number of entries in the raffle

was capped at 10 per month. The amount of interest paid on these certificates varied by credit union, but in 2009, ranged from one to 1.5 percent. Monthly prizes ranged in value from $15 to $400, and the number of prizes varied by month. The grand prize of $100,000 was awarded in early 2010. One withdrawal was allowed during the 12-month period, and standard certificate early-withdrawal fees applied. However, unlike most CDs, savers could add money to their certificates over time.

In the 11 months in which *Save to Win* operated, the participating credit unions opened 11,600 accounts and generated over $8.6 million in deposits. To put this in context, the credit unions are located in some of the more economically depressed parts of the Mid-West. In locations such as Flint and Detroit, the demise of the auto industry has lead to high unemployment and economic hardship. In terms of the rate of saving and the cost of delivery, this compares favorably to other efforts to foster new savers and new saving, such as Individual Development Account (IDA) matched saving programs.[22]

Each *Save to Win* certificate holder was also invited to complete a voluntary survey when he or she opened an account. By end December 2009, over half of certificate holders, some 6,027 credit union members, had completed this survey. Results show that certificates have been opened among credit union members of all ages, income levels, and past saving behavior. In particular, 56 percent of *Save to Win* certificate holders reported they had not saved money regularly before opening the *Save to Win* account; 39 percent reported financial assets (excluding home equity) of $5,000 or less; 59 percent reported spending money on the lottery in the last 6 months; and 68 percent reported household income of less than $60,000; and 44 percent reported household income under $40,000.

The survey data from the *Save to Win* demonstration do not allow us to determine how effective the program was in generating new savings. Nonetheless, the apparent appeal of the PLS products offered in the Centra and *Save to Win* demonstrations, especially among people who claimed to have no other regular savings plans, suggest that a PLS product holds appeal for demographic groups that tend to have low levels of formal savings.

Legal barriers to PLS programs in the United States.[23] As defined by the National Bank Act, there are three essential components of a lottery: (1) the offering of a prize, (2) the awarding of the prize by chance, and (3) consideration (i.e., money or other thing of value advanced in exchange for the opportunity to win the prize). If prize-linked savings programs are deemed lotteries, they are shut down almost entirely. This legal prohibition arises from state anti-lottery laws, as well as state and federal banking regulations. The former, state lottery laws, prohibit private lotteries, in part to enable states to maintain a monopoly over these activities so as not to jeopardize the funds raised by lottery programs. The latter set of laws, for example, the National Bank Act, prohibit federally-chartered banks and thrifts (regulated by the Office of the Comptroller of the Currency or Office of Thrift Supervision respectively) from participating in lotteries to protect the safety and soundness of the banking system.[24]

The two United States experiments cited above were able to exploit two legal loopholes. The Centra offering was structured as a sweepstakes, not a lottery. People did not need to save to enter but rather could mail in a card in lieu of saving. This explicit lack of 'consideration' supports a variety of bank promotions that use sweepstakes, such as JPMorgan Chase's 'Double your Deposit' promotion offered in early 2009, and the Maryland Saves' 'Roll in the Dough' savings campaign offered in early 2010.[25] Sweepstake solutions permit non-savers to win, add operational complexity to the program, and tend to be used primarily for *ad hoc* marketing

campaigns. The *Save to Win* program rests on a different and unique state law. Section 411 of the Michigan Credit Union Act allows state-charted credit unions to employ 'savings promotions raffles' defined as 'raffle(s) conducted by a domestic credit union where the sole consideration required for a chance of winning designated prizes is the deposit of at least a specified amount of money in a savings account or other savings program offered by the domestic credit union.'[26] Even if this carve-out were extended to other states, the ability to scale these programs is limited. Credit union charters require that their membership be limited to a certain designated populations, such as people affiliated with specific employers or organizations, or residing in defined geographic areas. These limits tend to preclude scale economics, making the prize structure less desirable to would-be participants. Running PLS through a consortium of credit unions, as is the case with *Save to Win*, helps to generate a larger deposit base. However, there would be inevitable coordination costs. In mid-2010, two additional states passed laws similar to Michigan's.

State-run PLS programs? PLS products could be offered in the United States by the federal government (a federal premium bond) or by state governments. Given the lack of federal policy interest in the first option, we focus on state alternatives.

Shut down in the late 19th century as a result of fraud, and later revived by the State of New Hampshire in 1964, state lotteries have had a consistent mandate: to generate state revenue (Coughlin, Garrett and Hernandez-Murillo 2006). But this lottery mandate may be at odds with the limited revenue stream a state lottery-based PLS product is likely to produce. Beyond this fact, in most cases lottery commissions are required to pay out in prizes a certain fraction of sales proceeds. In a PLS program, if deposits or bond purchases were be counted as gross sales, it would be impossible to pay out in prizes the mandated portion of sales and still guarantee

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depositors that they will receive back their full principal investment. Only some of the *earnings* from a PLS pool could be paid out, with the remainder available for the payment of expenses and to deliver revenue to the state.

A real example highlights other legal constraints on a state-run program. The state of Maryland, in 1975 authorized a premium saving bond program modeled on the British Premium Bond, to be administered by the state lottery agency. Principal investments would be guaranteed and redeemable at any time, and bondholders would be eligible not for regular interest, but for what Maryland officials called a 'random interest award' (Phillips 1975). The size of a person's investment would determine the number of entries in the drawing for a large monetary prize. Yet after the initial feasibility study, legal opinion warned that it was in essence a 'cloaked lottery' and 'would be subject to existing lottery laws.' These included limitations on marketing, accepting bond investments from anyone outside of Maryland, and using banks to sell the bonds. Furthermore, the product would need to be sold through lottery agents who were used to receiving a commission of roughly five percent on all lottery sales (Phillips 1975). In short, even when defined as a lottery and run through the lottery-agency, other structural considerations made the product not viable at that time.

Even if PLS is a sensible economic structure, existing US laws and regulations would likely need to be changed to permit issues, whether private or public. The South African MaMA account provides reason to pause: when the product became popular, the South African Lottery Board brought suit against the bank to cease the offering of this 'illegal lottery,' and the South African Supreme Court ruled in the Boards' favor. While the case has no direct precedent for United States laws, the structure of the Court's arguments shows how laws similar to those in the United States could be applied to shut down a private PLS program.

Conclusion: What we do and don't know

Though no formal evaluation of United States-based PLS exists, several lessons are evident. First, the product has been offered for more than three centuries, continuously in some jurisdictions for over five decades. From an operational point of view, this is a well-tested product. Second, the product's appeal is fairly widespread, and in particular it seems to be of interest to those who might otherwise not be able to use (or be interested in using) more standard products. Third, without a change in laws and regulations, adoption of this product will be fairly limited.

The good news-bad news of PLS underscores the importance of new and rigorous research on this saving structure. One consideration we have not discussed thus far is what effect, if any, the availability of prize-linked saving products might have on traditional lottery demand. More fundamentally, the key question yet to be answered is whether the availability of prize-linked saving would generate new savers and new saving, and if so by whom. Future research should address this question. In order to answer the question of what impact PLS products have on household saving behavior, researchers would need information on saving outcomes for individuals who were given access to a PLS product and a comparable set of individuals who were not. Ideally, this would be investigated through an experimental research design, allowing researchers to determine whether it is the prize-linked nature of the product that is driving take-up and saving, as opposed to, for example, associated marketing efforts. And crucially for policy analysts, such a design, coupled with detailed data about individuals in both groups, would allow investigators to determine whether new PLS accounts represent new saving

at the individual or household level, and whether legal changes to allow wider adoption of PLS products is consistent with good public policy.

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[1] See Tufano and Schneider (2008) for an overview of existing policies aimed at promoting savings among low and moderate savers in the United States.

[2] This team of authors has attempted multiple projects designed to investigate whether prize-linked savings products generate new and increased levels of saving, as opposed to shifting assets from other vehicles. We have yet to implement a randomized design experiment, but we continue to seek research opportunities.

[3] http://www.naspl.org/index.cfm?fuseaction=content&PageID=3&PageCategory=3 (accessed March 16, 2010).

[4] http://www.bls.gov/cex/2008/Standard/age.pdf.

[5] Among those in the lowest income third of the NORC data – defined by having household income of less than $30,400 in 2005 dollars – reported annual lottery expenditures averaged $164. We can make an imperfect comparison of lottery gambling and savings by low-income individuals by comparing these numbers to the 1992, 1995, 1998, and 2001 waves of the Survey of Consumer Finances (SCF). Among individuals in the SCF with less than a high school degree, median assets in savings and checking accounts total $200 (in year 2005 dollars); likewise for median liquid assets. The SCF data suggest that this amount is comparable to median liquid assets and median savings and checking assets, both amounting to $200 for this income group.

[6] Bankrate.com (accessed March 2010).

[7] O' Donaghue, Goulding, and Allen (2004) report a consistent inflation series from 1750 through 2003. Using this period (and assuming no inflation prior to 1750), the ticket would have cost over £1400 in 2003 pounds.

[8] For an economic analysis of this program, see Green and Rydqvist 1997

[9] This table, taken from Cole, Collins, Schneider, and Tufano (2007), was collected through literature reviews, web searches, and conversations with practitioners. It is unlikely to be complete, as some of these programs are not widely advertised.

[10] http://www.nsandi.com/products/pb/premiumbondstory (accessed March 15, 2010)

[11] Jethro Tull, "Thick as a Brick" lyrics. http://www.collecting-tull.com/Albums/Lyrics/ThickAsABrick.html (accessed March 15, 2010).

[12] Information available here: http://www.nsandi.com/products/pb/index.jsp (accessed on February 5, 2010). NS&I stands for National Savings and Investments, an Executive Agency of the Chancellor of the Exchequer.

[13] Source: http://www.nsandi.com/products/pb/index.jsp (accessed on March 16, 2010).

[14] By way of comparison, Kearney's (2005) analysis of demand for U.S. state lottery products, estimated at the level of game and week, similarly finds that lottery sales are positively driven by expected return – suggesting an investment motive and evaluation – as well as non-pecuniary characteristics, including the nominal top prize, numbers of digits chosen, and age of the game.

[15] Department of Works and Pensions (UK), "Family Resources Survey: United Kingdom, 2004-05. Available at http://research.dwp.gov.uk/asd/frs/2004_05/index.asp (accessed March 16, 2010).

[16] Much of this section is drawn from Cole, Collins, Schneider and Tufano 2007.

[17] The rand is the South African currency. At the time of writing, one rand was worth about 0.14 U.S. dollars.

[18] Data on the program come from a public presentation by a senior FNB executive to the Prize Linked Subcommittee of the FDIC Advisory Committee on Economic Inclusion (ComE-In), Washington DC, July 30, 2009.
(http://www.vodium.com/MediapodLibrary/index.asp?library=pn100472_fdic_advisorycommittee&SessionArgs=0A1U0100000100000101)

[19] Coauthor of this chapter Peter Tufano is Chairman and Co-founder of the D2D fund. The mission of D2D is to expand access to financial services, especially asset building opportunities, for low-income families by creating, testing and deploying innovative financial products and services.

[20] Both Tufano (2008) and Lobe and Holzl (2007) demonstrate that large prizes are strongly related to sales of premium bonds.

[21] This is a feature that we have proposed testing in random design field experiments. As mentioned above, we have yet to successful implement such an experimental design in the field. Guryan and Kearney are currently developing a laboratory experiment to be conducted at the Experimental Laboratory in the Department of Economics at the University of Maryland that would test this concept.

[22] For instance, over four years, 2,364 participants in the landmark American Dream Demonstration (ADD) IDA program accumulated $1.25MM in savings (Schreiner, Clancy and Sherraden 2002).

[23] Andrea Ryan contributed to this section of this chapter. It draws upon work done by Angela Seensun Kang, Anooshree C. Sinha and Howell Jackson of Harvard Law School, from the insights of Jackson and Tufano's students in their JD-MBA course on consumer finance, especially Daniel Preysman, and from work done by D2D Fund and its legal advisors. Readers should not rely on this document for legal advice, as the law in this area is quite complex.

[24] *See* 12 U.S.C. § 25a (2008).

[25] As described at the FDIC Advisory Committee on Economic Inclusion Meeting in July 2009. http://www.vodium.com/MediapodLibrary/index.asp?library=pn100472_fdic_advisorycommittee&SessionArgs=0A1U0100000100000101 (accessed March 16, 2010).

[26] *See* Mich. Comp. Laws § 490.411 (2008)

Figure 1. Breadth of Premium Bond Ownership, UK, 2005-2006
This figure shows the fraction of British households holding Premium Bonds as a function of
weekly household income. It also shows this share scaled by the most widely held asset account
(excluding transaction accounts) held by that income category. The data as taken from the U.K.
Department of Work and Pensions, *Family Resources Survey 2005-2006* (Table 5.8). The survey
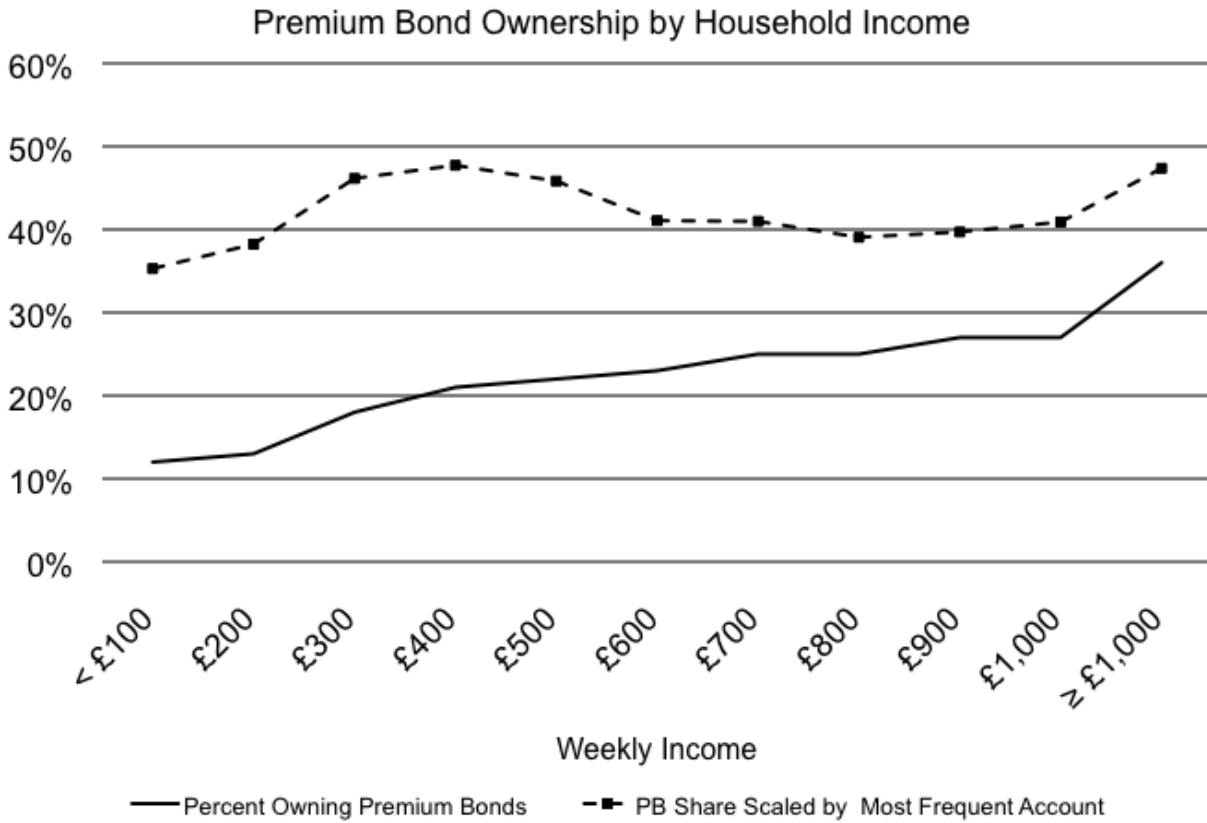covers a sample of 28,029 British households.

Table 1: Prize-Linked Savings Products

Country	Name and Structure	Offering Institution	Year Start	Total Balances (US$)	Maximum Prize (US$)	Other Prizes	Frequency Prize Drawings
Brazil	HiperFundo account	Banco Bradesco	2003	R$ 1.4 billion (48.4 million US$)	Car	electric appliances, DVDs, travel, gold bars	daily[2]
United Arab Emirates	Mashreq Millionaire certificates	Mashreq Bank	1995	n/a	AED 1 million ($272,000)[1]	apartments	monthly, special draws
Ireland	Prize Bonds	The Prize Bond Company Ltd. (joint venture between An Post & FEXCO)	1956	€561.5 million ($701 million)	€150,000 monthly ($187,000)[1]	weekly prize of €20,000 5 prizes of €1,000 10 prizes of €250	weekly/monthly[2]
Great Britain	Premium Savings Bonds	National Savings and Investments	1956	£26.5 billion ($47 billion)	2 prizes of £1,000,000 ($1.79 million)[1]	£50 to £100,000 prizes	monthly[2]
Sweden	Swedish Lottery Bonds	Swedish National Debt Office	1918	SEK 40.9 billion ($5.7 billion)	SEK 1 million ($130,000)[1]	SEK 50	annually
Pakistan	Prize Bonds	State Bank of Pakistan, National Savings Organization	1972	PKR 170 billion ($2.8 billion)	PKR 50,000,000 ($833,333)	PKR 1000 to PKR 20,000,000	bi-monthly[2]
Pakistan	crorepati (multi-millionaire) maala-maal account CarAmad account ZarAmad account	Habib Bank, Muslim Commercial Bank, Bankers Equity, United Bank	1998	PKR 47 billion (banks combined) ($780 million)	PKR 10 million (190,000 US$)	cash, motorcycles, televisions, computers and electronic gadgets	n/a
Germany	Gewinnsparen account	Gewinnsparverein e.V. (and local branches)	1952	€6 million (approx) ($7.5 million)	€100,000 ($125,000)	cars cash prizes from 4€ to 10,000€	monthly[2]
Turkey	Lottery-linked accounts	Demirbank (now HSBC)	1950	n/a	cash prizes	gold, apartments, and household items	n/a
Kenya	Premium Bond	Kenya Post Office Savings Bank	1978	$560,000 (1998) (approx)	n/a	n/a	monthly[2]
Indonesia	BritAma account	Bank Rakyat Indonesia	2002	Rp 14.46 Trillion ($152.6 million)	Rp. 1 billion ($10,900)	5 prizes of Rp. 250 million 10 prizes of Rp.100 million 50 prizes of Rp. 50million 500 prizes of Rp.10million	semi-annually[2]
Spain	"el libretón" account	Banco Bilbao Vizcaya Argentaria (BBVA)	1996	n/a	100 cars (2004)	cars, trips, encyclopedias, and cash	n/a
Mexico	"el libretón" account	Bancomer BBVA	1996	$178 million (1998)	Car (daily)	19,000DVDs	daily and monthly
Argentina	"el libretón" account	BBVA Banco Frances	1997	$233 million (1998)	car	30 prizes of $1,000	weekly
Argentina	prize-linked savings	Santander Rio	1997	n/a	$220,000 (monthly)	$20,000 (daily)	daily and monthly
Denmark	Lottery bonds	Danmarks National Bank	1972	DKK 200 million (approx)	n/a	n/a	semi-annually

Country	Name and Structure	Offering Institution	Year Start	Total Balances (US$)	Maximum Prize (US$)	Other Prizes	Frequency Prize Drawings
				($34 million)			
Oman	Mandoos Savings Account	Oman International Bank	1992	RO 570 million (approx) ($280 million)	RO 135,000 ($54,000)	20 prizes of RO 20,000 Mercedes cars	monthly, special draws[2]
New Zealand	Bonus Bonds	ANZ Banking Group (Ministry of Finance and Post Office) Savings Bank until 1990)	1970	n/a	$1,000,000[1] ($650,000)	$100,000 / $50,000 / $5,000 / $500 / $100 / $50 / $20	monthly[2]
Sri Lanka	Ridee Rekha certificates	National Savings Bank	1997	n/a	Rs. 2 Million or a car ($20,000)	4000 prizes of Rs. 1,000 5000 prizes of Rs. 500	quarterly
India	Premium Prize Bonds	Reserve Bank of India	1963	n/a	n/a	n/a	twice every 5 years[2]

Sources: Cole, Collins, Schneider and Tufano (2007), Exhibit 8. Jan-Emmanuel de Neve and Emily Ekins assisted in the preparation of this table.

Notes:

[1] The following prize-linked savings schemes post prize money as tax-exempt: United Arab Emirates, Ireland, Great Britain, Sweden, New Zealand.

[2] Minimum holding periods vary between schemes: Brazil (7 days), Ireland (3 months), Great Britain (none), Pakistan (1 month), Germany (1 month), Kenya (3 months), Indonesia (none), Oman (1 month), New Zealand (1 month), Sri Lanka (1 year), India (5 years).

[3] Private prize-linked saving programs in Pakistan were halted in 2001 after an adverse court ruling.

[4] Prize-linked savings at Turkey's Demirbank were stopped in 1960.

Table 2: Percent of Families holding U.K. Premium Bonds by Income Quintiles

Income Quintiles	All Families	Married	Single	With Accounts (%) All Families	Married	Single
1	8.8	21.1	6.6	10.4	22.8	8.0
2	13.2	24.3	10.6	14.4	25.1	11.9
3	18.1	24.4	10.6	19.0	25.1	11.5
4	23.4	26.9	13.0	24.0	27.4	13.9
5	31.1	36.3	19.4	31.7	37.0	20.0
N	33,182	16,005	17,177	30,992	15,464	15,528

Notes: Families with accounts are defined as those who hold at least one type of account or investment. Income quintiles represent quintiles of total family income. The quintiles are calculated separately over samples of all families, married couples, and single adults. Tabulations are weighted to be representative of the UK population.
Source: United Kingdom's Family Resource Survey (FRS), Department of Works and Pensions (UK), 2004-5, see text.