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UNEMPLOYMENT INSURANCE SAVINGS ACCOUNTS

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ABSTRACT

We examine a system of Unemployment Insurance Saving Accounts (UISAs) as an alternative to the traditional unemployment insurance system. Individuals are required to save up to 4 percent of wages in special accounts and to draw unemployment compensation from these accounts instead of taking state unemployment insurance benefits. If the accounts are exhausted, the government lends money to the account. Positive accounts earn the return on commercial paper and negative accounts are charged that rate. Positive UISA balances are converted into retirement income or bequeathed if the individual dies before retirement age. Negative account balances are forgiven at retirement age.

Money taken by an unemployed individual from a UISA with a positive balance reduces the individual's personal wealth by an equal amount. In this case, individuals fully internalize the cost of unemployment compensation. UISAs provide the same protection to the unemployed as the current UI system but with less of the adverse incentives.

The key empirical question is whether accounts based on a moderate saving rate can finance a significant share of unemployment payments or whether the concentration of unemployment among a relatively small number of individuals implies that the UISA balances would typically be negative, forcing individuals to rely on government benefits with the same adverse effects that characterize the current UI system.

To resolve this issue we use the Panel Study on Income Dynamics to simulate the UISA system over a 25 year historic period. Our analysis indicates that almost all individuals have positive UISA balances and therefore remain sensitive to the cost of unemployment compensation. Even among individuals who experience unemployment, most have positive account balances at the end of their unemployment spell. Although about half of the benefit dollars would go to individuals whose accounts are negative at the end of their working life, less than one third of the benefits go to individuals who also have negative account balances when unemployed. These facts suggests a substantial potential improvement in the incentives of the unemployed.

The cost to taxpayers of forgiving the negative balances is substantially less than half of the taxpayer cost of the current UI system.

Our analysis of the distribution of lifetime UISA payments and taxes of household heads shows the top quintile gaining a small cumulative amount while those in the bottom quintile lose a very small cumulative amount. Other quintiles are small net gainers.

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Unemployment Insurance Savings Accounts

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Unemployment insurance exists to provide protection against the hardship that would otherwise be caused by unemployment. Unfortunately, it also distorts incentives in ways that cause inefficient increases in total unemployment. In this paper we analyze empirically a modification of the traditional unemployment insurance system. We show that this alternative, based on individual savings accounts, can substantially reduce the adverse incentive effects of the existing unemployment insurance system without any decrease in the protection of those who become unemployed.

Our analysis is therefore fundamentally different from previous studies investigating how the adverse incentive effects of the current tax-financed unemployment insurance system could be reduced by changes in basic program parameters such as the level and duration of benefits, the experience rating rules, and the provision of bonuses for hiring the unemployed (Baily, 1978; Meyer, 1995; Mortenson, 1994). Many others have no doubt considered the possibility of substituting individual saving accounts for the current tax-financed UI system (see, for example, Coloma, 1996; Orszag and Snower, 1997) but we know of no empirical research on its feasibility.

The basic system that we examine requires each individual to save a fraction of his or her wage income in a special Unemployment Insurance Saving Account (UISA). If the individual loses his job and would be eligible for unemployment benefits under the current UI rules, he withdraws an

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amount equal to the regular UI benefits from his personal UISA. If the funds in the account are not sufficient to pay the benefit, the government lends the necessary amount to the account. Accounts earn a market rate of return on existing balances and pay the government the same return on borrowed amounts. At retirement age the funds in the UISA are merged into the individual's IRA or other investment-based retirement saving plans. An individual who dies with a positive account balance bequeaths that amount to his spouse or other heirs. The government cancels the debt of those who reach retirement age (or die before then) with negative account balances. More details of the plan are described in section 2 below.

All unemployed individuals would therefore receive the same cash amounts during spells of unemployment from their UISAs as they would under the existing unemployment insurance rules. Their full current protection is thus maintained. Any individual whose UISA always has a positive balance (and who expects that it would remain positive) would completely internalize the cost of unemployment benefits and therefore would not have any incentive to increase in an inefficient way the frequency or duration of his unemployment spells because of the availability of those benefits. The adverse incentive problem would arise only for individuals who expect that they will retire or die with negative balances in their UISAs. For such individuals, the benefits received because of additional unemployment have no personal cost. They face the same incentives to excess unemployment that they would under the existing unemployment system, but without the discipline that comes from employer experience rating.[1]

[1]Experience rating can affect firms' decisions to lay off employees and the duration of unemployment among those on temporary layoff. Although the U.S. unemployment insurance rules provide for experience rating, many firms do not face effective experience rating. We return

The feasibility of this savings account approach to unemployment insurance depends on the extent to which insured unemployment is concentrated in a subgroup of the population. Some individuals experience a disproportionate share of the total unemployment days and this concentration applies to insured unemployment as well as to unemployment in general (see, e.g., Meyer and Rosenbaum, 1996). If the insured unemployment is sufficiently concentrated, individuals may not be able to finance their own unemployment benefits by saving moderate shares of their earnings in the UISAs.[2] The use of individual savings accounts to finance unemployment benefits would be irrelevant if those who collect benefits would typically have negative balance accounts and therefore be drawing on the government guarantee.

Before carrying out the current research, we regarded this as a potentially serious problem that could make the savings account approach unworkable. It is important therefore to assess the proportion of individuals who develop negative account balances and the extent to which UI benefits are now paid to individuals who would have negative accounts. To do so we examine the extensive experience represented by individuals in the Panel Study of Income Dynamics (PSID). Our analysis of these data implies that approximately five percent of employees would retire or die with negative account balances and that only about half of all benefits from the UISAs would be paid to such individuals. The cost to the government of the unrecovered loans in the negative accounts is

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to these issues below, including an option that provides some of the incentive effects of experience rating.

[2] To the extent that the identities of those who will experience large amounts of lifetime unemployment are unknown at the start of their working lives, the social provision and subsidy of unemployment benefits would therefore be a kind of optimal catastrophic insurance.

substantially less than the cost of the current unemployment insurance system, permitting a reduction in the current distortionary payroll tax as well as in the distortionary effects of the existing benefit system. These findings tell us that the savings account approach to unemployment insurance, combined with a government guarantee, can be an economically viable policy option.

The first section of this paper summarizes the existing unemployment insurance system and discusses the various ways in which it causes a rise in the frequency and duration of unemployment. In section 2 we describe the operation of the Unemployment Insurance Savings Accounts and the several alternative funding options that we will analyze in the remainder of the paper. Section 3 then uses the Panel Study of Income Dynamics to show how a large group of individuals would have been affected by these alternatives to the existing unemployment insurance system over periods of up to 25 years. Section 4 analyzes the distributional effects of the UISA system and of the associated reduction in the UI payroll tax. Section 5 briefly discusses the potential mutually reinforcing effect of a behavioral response of unemployment to the improved incentives implied by the UISA system. There is a brief concluding section.

1. The Current Unemployment Insurance System and Its Problems

To discuss the distorting effects of the current UI system on the frequency and duration of unemployment, it is useful to begin by reviewing the current system's basic rules. Although unemployment insurance rules differ among the individual states, the basic structure is quite similar throughout the country. An individual who has worked a sufficient amount or earned a sufficient

amount of wage income during the past year is eligible to receive benefits if he or she is laid off.[3] Benefits are approximately 50 percent of the unemployed individual's previous gross wage, subject to a minimum weekly benefit floor that raises the percentage for low wage workers and a maximum weekly benefit ceiling that lowers the percentage for high wage works. Some states also provide supplementary benefits if the unemployed individual has a dependent spouse or children. The average weekly benefit in 1997 was $193. Benefits are generally payable for a maximum of 26 weeks.

Benefits are subject to federal personal income tax but not to the Social Security payroll tax (or the equivalent tax for self-employed individuals). Some states include unemployment benefits in taxable income for assessing the state income tax.

Unemployment benefits are financed by taxes levied on firms by the state governments. Each firm pays a percentage of the earnings of each employee up to a relatively low maximum level that varies among the states; the maximum taxable wage for the UI tax was only $7,000 in most states in 1997. The percentage that each firm pays depends on the past experience of that firm as a UI taxpayer and of its employees as UI benefit recipients. This "experience rating" system is intended to cause the firms to internalize the cost of the unemployment benefits of its employees. However, because there are both lower and upper limits on these state UI tax rates, many firms are not effectively experience rated, i.e., an additional layoff or an additional week of unemployment by a former employee would

[3]Individuals who quit a job may be eligible for benefits if their quitting is found to be "for just cause." In some states quitters are eligible after an extensive waiting period. Unemployed individuals who are new entrants to the labor force or reentrants without recent work experience are not eligible for unemployment insurance benefits.

have no effect on the firm's UI tax bill.[4]

The most obvious and most thoroughly researched effect of the existing UI system on unemployment is the increase in the duration of the unemployment spells. By reducing the cost of remaining unemployed, UI benefits induce individuals to have longer spells in order to search for a better job or simply to enjoy some leisure or the opportunity to work at home. There is substantial evidence that the level and maximum duration of UI benefits affects the level of reservation wages and the duration of unemployment spells (Feldstein and Poterba, 1984; Katz and Meyer, 1990; Moffitt, 1985).

This evidence and the underlying search theory (e.g., Baily, 1977) would seem to provide a clear case that UI induces excessive search. Calculations for a typical employee imply that the combination of UI benefits and personal taxes reduces the net cost of search to about one-fourth of the unemployed individual's potential marginal product[5]. However, against this presumption that UI benefits cause excessive search it is sometimes argued that in the absence of unemployment benefits individuals would not search long enough because they lack access to the capital market and therefore could not finance the optimal amount of search. The Unemployment Insurance Savings Accounts

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[4]On experience rating and its potential effects, see Feldstein (1976).

[5]Consider an individual who can earn $100 a day and faces a federal marginal income tax rate of 28 percent, a state marginal income tax rate of 5 percent and a payroll tax rate of 7.65 percent. Taxes reduce the net take-home pay of that individual from the $100 gross pay to $59.35. If the individual is unemployed, he or she receives gross unemployment benefits of $50, subject to a 28 percent federal income tax; the resulting net benefit is therefore $36. The net cost to the individual of remaining unemployed for the day is the difference between these two net amounts or $23.35. By contrast the individual's marginal product of labor is the sum of the $100 gross pay and the additional $7.65 employer payroll tax. The net cost of remaining unemployed is thus only 22 percent of the marginal product of labor.

provide the access to funds to finance the optimal search with a reinsurance mechanism provided by the government in case the individual's fund is exhausted. Individuals with positive UISA balances are motivated to take the costs and benefits of search into account correctly[6] while those with permanently negative account balances are in the same situation as today's UI recipients. The current system of UI benefits not only increases the duration of unemployment of those who are unemployed but also increases the frequency of temporary layoffs. Because of the subsidy inherent in the current system of benefits, individuals will prefer to be unemployed rather than to work at a time when the marginal revenue product of their labor is depressed (Feldstein, 1976). Empirical research (Card and Levine, 1994; Feldstein, 1978) shows that this is true for seasonal unemployment and other forms of temporary layoffs. If individuals were instead to finance such spells of unemployment by drawing from their own UISAs they would have no incentive to choose excessive spells of temporary unemployment.

The current payment of benefits to workers who become unemployed reduces the wage premium required to compensate employees for the risk of being laid off. The unemployment insurance system thus lowers the cost of production in firms that have above-average layoff rates, whether for cyclical, seasonal or other reasons. The reduced cost of production in such unemployment-intensive firms lowers the price of the associated product and therefore raises its share in GDP relative to what it would be without the UI subsidy. This shift in the mix of products raises

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[6]The opportunity cost of search is still substantially less than the marginal product of labor but the gain from search is also reduced by the same set of marginal tax rates. With the capital market problem solved, the amount of search done by a rational and risk-neutral individual will be optimal.

the overall unemployment rate. Once again, the UISAs would eliminate the subsidy for those with positive balances, leading to an adjustment in wages that raises the cost of those products and of those firms that contribute most to overall unemployment.

2. Unemployment Insurance Savings Accounts: Five Alternative Options

In a UISA plan each individual (or that individual's employer[7]) would be required to contribute a fraction of wage income to a UISA. The magnitude of this mandatory saving is limited in different ways in the alterative options described in this section. The options specify different limits on the maximum annual income to which the saving fraction applies. Some options permit deposits to stop when the accumulated balance reaches a specified fraction of the individual's annual earnings.

The funds deposited to the UISA would come from pretax income, just as current UI tax payments do. They would accumulate tax-free. If the funds are withdrawn in lieu of UI benefits, they would be considered taxable income just as UI benefits are today. It would be natural to apply the tax to the funds withdrawn in retirement or by heirs, just as 401k and traditional IRA funds are taxed. Alternatively, the funds deposited in UISAs could come from after-tax income and subsequent withdrawals would be untaxed (as they are in Roth IRAs).

The funds in the UISAs might be invested by the individuals in a variety of ways similar to IRA or 401k investments. Since the government augments the funds in those accounts that have insufficient funds to meet benefits during spells of unemployment, the nature of the investments might

[7]The current UI taxes are paid by employers but the incidence of the tax would presumably be the same if the tax were paid by employees. Similarly, gross wages would adjust down if UISA deposits were made by employers rather than employees, since these deposits are the property of the individual workers and are similar to a form of tax-preferred cash compensation.

be more tightly regulated than the funds in IRAs or 401k accounts. We shall not explore this issue here but will discuss calculations based on two alternative investment strategies.

In the more conservative strategy, the UISAs are invested in money market mutual funds that earn the six-month commercial paper rate of interest. In an alternative investment strategy, the accounts are invested in a continuously rebalanced mixture consisting of 60 percent corporate stock (represented by the Standard and Poors 500 index) and 40 percent corporate bonds (based on the Salomon Brothers bond index). This portfolio produced a real rate of return of 5.9 percent for the period from 1946 to 1992 (Feldstein and Ranguelova, 1998). We reduce this yield by 0.4 percentage points (to 5.5 percent) to allow for administrative costs of the portfolio management.

We assume that individuals must choose permanently between the commercial paper strategy and the 5.5 percent strategy and may not change their rates of return at any time in the analysis. The individuals whose account balances are insufficient to pay the benefits to which they are entitled can borrow from the government at the same rate as they earn in their account. The results that we present below show that our conclusions are not sensitive to the choice between these two rates of return.

The amounts that individuals would withdraw from their UISAs when they are eligible for benefits under current UI rules are the same as the benefits that they would receive under the current UI system. Each of the five options that we study requires individuals to contribute 4 percent of their wages up to the maximum amount specified by that particular option. We assume a five year start-up period during which individuals contribute to their UISAs but during which the unemployed continue

to receive government UI benefits under the current system.

After describing these five alternatives, we use the Panel Study of Income Dynamics data to assess how the choice among these options affects the performance of the system.

Option 1 High Saving Base

Individuals contribute 4 percent of earnings up to a maximum of about three times the average weekly wage. For the first year of the PSID data (1967) , the annual wage ceiling for our UISA contributions is $15,000. This ceiling then grows in proportion to the growth of the average weekly wage, reaching about $52,000 in 1991.

Option 2 Low Saving Base

The saving base in option 1 permits a rapid accumulation of UISA balances by high wage earners but is arguably unnecessarily high for two reasons. First, the dollar limit on the level of weekly benefits is equivalent to providing a 50 percent replacement rate only up to a level that is approximately equal to the average weekly wage. Second, the frequency of unemployment declines as wages rise and is substantially less among individuals with above average wages.

Option 2 requires individuals to contribute 4 percent of all earnings up to a level only slightly above the median wage, a level that is also roughly equal to the level of wages on which UI benefits are currently based. For the first year of the PSID data (1967), the wage ceiling is taken to be $6,000. This ceiling then grows in proportion to the growth of the average weekly wage, reaching $21,000 in 1991.

Option 3 Target Account Fund

In the first two options, individuals are required to continue contributing to their UISAs

regardless of their unemployment experience and of the amounts accumulated in their accounts. Since benefits are 50 percent of wages (up to the ceiling) and last for no more than six months in a spell, the maximum benefit that can be drawn in a single spell is only one-fourth of a year's earnings. Most spells of unemployment are substantially shorter than six months, the median spell being less than ten weeks in almost all years. Spells would be even shorter with the change in incentives provided by the savings account approach.

Option 3 therefore provides that the individual stops contributing to the UISA when the accumulated balance reaches 50 percent of the individual's wage income in the previous year or 50 percent of the ceiling amount in option 2 if that is smaller.

Option 4 Experience-Based Target Account Fund

Individuals with substantial risk of unemployment should have larger account balances than those who are less likely to be unemployed. Option 3 can be modified to reduce the target level of the account fund for those with low unemployment experience and to increase it for those with substantial unemployment experience. Option 4 provides one such modification. Individuals save until the fund reaches the sum of (1) 30 percent of the individual's annual wage (or of the wage ceiling specified in options 2 and 3 if that is lower) plus (2) twice the individual's total UI withdrawals during the past two years.

Consider, for example, an individual with $30,000 of base period annual wage income who has had two eight-week spells of compensated unemployment during the past two years. The UISA

withdrawals during those 16 weeks would be $3,200.[8] Option 3 would require that individual to save 4 percent of wages until the fund balance reached $10,500. In contrast, option four would change this to the sum of $6,300 (30 percent of the specified earnings "ceiling") plus $6,400 (twice the benefits withdrawn in the past two years), a total of $12,700. The accumulation would still be at a rate of 4 percent of the first $20,000 of wages.

Accumulating more in this way should not be seen as a penalty since individuals own the funds in their UISAs and can eventually consume or bequeath them. The funds are there as a buffer to reduce the government's risk in guaranteeing that benefits will be paid even if the UISAs have insufficient funds.

Option 5 An Experience Rating Component

Although a system of UISAs can substantially reduce many individuals' incentives for longer or more frequent spells of unemployment, it does eliminate the effect of experience rating.[9] While experience rating is not needed to correct incentives when individuals have positive UISA balances, it would improve incentives when individuals have negative balances and are therefore motivated to act as if the government provides their unemployment benefits. Option 5 combines the basic contribution requirement of Option 2 with a requirement that employers pay the first five weeks of benefits in each spell.[10] This has two potentially favorable effects on incentives. First, by reducing

[8]The maximum weekly benefits are assumed here to be based on income up to $20,000 or a maximum benefit of $200 per week.

[9]On the nature and limits of experience rating, see above, page 5.

[10]This idea was previously suggested in Feldstein (1975).

the amount that individuals withdraw from their accounts during any given spell, they are more likely to have a positive balance and therefore to be sensitive to the cost of providing benefits. Second, even for those individuals with negative accounts, the employer has an incentive not to create excess unemployment, the traditional role of experience rating.[11]

3. Analyzing the Options with the PSID Data

The Panel Study of Income Dynamics (PSID) provides longitudinal data on individuals that are well-suited to analyzing the feasibility of substituting UISAs for the existing unemployment insurance system.[12] The PSID contains linked interview data on a national probability sample of households and subsequent split-offs for the period from 1967 through 1991. The data for each year and each head of household include the total UI benefits received as well as demographic and labor market information.

We focus our analysis on the individuals who were heads of households in 1967. The head of household can be either a single individual or the individual in a household who is designated as the head of the unit. We include only those individuals who were still in the sample and under age 65 in 1972, i.e., in the first year after the five-year period in which individuals make deposits to the savings accounts but draw benefits only from the regular state UI program. We then follow these 2,773 individuals until the end of the data sample in 1991 or until the year in which they die, retire or otherwise leave the sample. Separate tabulations are presented in the appendix for the subsample

[11]The experience rating could be strengthened under any of the options by using employers' experience with unemployment as the basis for the tax used to finance the cost of benefits paid to individuals with negative UISA balances.

[12]See Katz (1986) for an earlier use of the PSID data to study unemployment insurance.

of 1,990 individuals who by 1991 are no longer employed or in the PSID sample. We impute retirements at age 65 for all workers.

Our procedure is very straightforward. For each of the options, we accumulate funds according to the rules of that option. The accounts earn the commercial paper rate in one simulation and a 5.5 percent real return in the alternative simulation. Those are also the rates charged on negative balances. In each year, starting with the sixth year of the simulation, we subtract from each account the UI benefits that the individual received in that year.

The key results for the full sample based on the commercial paper rate of return are shown in Table 1 and for the 5.5 percent rate of return in Appendix Table A1. The corresponding results for the subsample of individuals who had died, retired or otherwise left the sample are presented in Appendix Tables A2 and A3.

All of the results in these tables assume no behavioral response to the change in unemployment incentives. We return to this issue in section 5 and present some results that suggest the sensitivity of our calculations to possible behavioral responses.

Consider first the results in Table 1 for Option 1. Row one shows that only 5.2 percent of all the individuals in the PSID sample of household heads had negative balances at the end of their time in the PSID. If employees correctly anticipated their final condition, almost 95 percent of employees would be fully sensitive to the cost of unemployment benefits. The figure is essentially the same (5.3 percent, from Table A1) if we look only at "finishers," i.e., those who had died, retired or left the sample by 1991.

A stricter measure of sensitivity is the fraction of individuals whose accounts were ever

negative. Row 2 shows that only 6.8 percent of individuals ever had negative accounts. For the remaining 93 percent, receiving unemployment benefits would mean drawing from their own funds. Although many of these did not have any spells of unemployment, their positive UISA balance gave them a stronger inventive to avoid unemployment than they had in the existing UI system.

Most individuals who become unemployed have positive accounts at the beginning and at the end of their spell. Row 3 shows that in only one-quarter of the unemployment spells in which

Table 1
Analysis of Alternative Options with PSID Data

		Option 1	Option 2	Option 3	Option 4	Option 5
		----------Percentages ----------				
All Employees						
(1)	Negative Terminal Balance	5.2	6.6	6.7	7.0	5.6
(2)	Negative Balance Ever	6.8	8.8	8.9	9.4	7.1
Eligible Unemployment Spells						
(3)	Negative Balance at end of spell	24.3	30.5	30.9	33.1	27.3
(4)	Negative Balance & Negative Terminal Balance	19.9	25.2	25.5	26.8	21.6
Employees with Negative Balances Ever						
(5)	Return to Positive Terminal Balance	23.4	24.5	24.3	25.3	21.0
Unemployment Compensation Dollars						
(6)	Negative Balance & Negative Terminal Balance	31.1	38.7	39.3	42.2	34.5
(7)	Negative Terminal Balance	44.1	54.8	55.5	58.3	48.9
Net Government Payments						
(8)	Percent of Total UISA Payments	27.4	36.1	36.7	39.3	28.7

The analysis is based on the full sample of 2,773 original heads of households in the PSID sample from 1967 to 1991, including those still working in 1991. The calculations use the commercial paper rate of return on UISA balances, both positive and negative. See text for definitions.
Option 1: High Wage Base
Option 2: Low Wage Base
Option 3: Target Account Fund
Option 4: Experience-Based Target Account Fund
Option 5: Experience Rating: Employer Pays 5 Weeks

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benefits are received is the account negative at the end of the spell. This reflects the fact that most spells are short and come when the individuals have accumulated enough in their UISAs to finance the spell.

The result is similar when we look at the terminal UISA balances at the end of the PSID experience, taking into account future deposits to the UISA and future spells of unemployment; 20 percent of accounts in which individuals receive UI benefits are negative at the end of the spell and at the end of the PSID sample (shown in row 4 of the table).

Even individuals whose accounts are negative at some point in time (those shown in row 2) need not assume that they will remain negative. About one-quarter of those individuals (23.4 percent, shown in row 5) have positive terminal balances when they retire or leave the sample, or in 1991 when the sample ends.

When we turn from the numbers of individuals to the amount of UISA payments, we find that only 31.1 percent of UISA benefits are paid in spells that end with negative balances for individuals that also have negative terminal balances (row 6). This is the group most likely to assume that the costs of the UISA benefits will be borne by the government. A somewhat higher percentage of UISA payments go to individuals in spells that are not necessarily negative but that lead to a negative terminal balance (44.1 percent, shown in row 7). Members of this group may be sensitive to the cost of UISA payments during those spells (and years) when their balances are positive and they have not yet concluded that the terminal balance will be negative.

Row 8 shows the dollars paid by the government and not subsequently repaid by the individuals as a percentage of the total UISA payments received by all individuals. Because the

benefits in the UISA system are the same as the UI benefits in the current UI system, this ratio is also the ratio of the tax-financed UISA benefits to the total tax-financed benefits under the existing UI system. The estimate of 27.4 percent shown in row 8 means that the cost of the UISA to taxpayers with option 1 and no behavioral response would be only 27.4 percent of the cost to taxpayers of the existing UI system.[13] The distorting effects of the existing UI payroll tax are separate from the distorting effects of the benefits conditioned on unemployment.

In thinking about the incentive effects implied by these results it is important to consider the effects on both the duration and the frequency of unemployment. Individuals who have positive balances or who believe that they will end their careers with positive balances will not want to become unemployed and, if they do became unemployed, will have no incentive to remain unemployed. The evidence that most individuals have positive balance accounts and that they end their careers with positive balance accounts shows that (assuming they understand this likelihood) they generally face the cost of unemployment and, in contrast to the situation with the existing UI rules, would have little incentive for behavior that would increase either the frequency or duration of unemployment.

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[13]This ratio is calculated as follows. The denominator is the total UISA payments to all participants over the period from 1972 to 1991. To calculate the numerator, we focus on those individuals who had negative terminal balances (at death, retirement, departure from the sample, or upon reaching 1991). We then identify the last year in which the balance of each of these "negative terminal balance" individuals was positive and ignore government payments in all prior years. We then calculate the sum of (1) the negative balance in that year (the difference between benefits in that year and the sum of the prior positive balance and the savings deposited that year in the account) and (2) any UISA benefits taken in subsequent years by the individual. We subtract from this cumulative total (3) the amounts that the individual paid to the account (actually directly to the government as repayment for past credit) in all subsequent years. The combination of these three terms is the net amount that the government pays to negative accounts in excess of the amounts repaid.

The percentage of funds withdrawn by individuals who end their working life (or are working when the PSID ends) with accounts that have negative balances appears to suggest that in about 44 percent of the unemployed weeks the individuals that currently receive unemployment insurance benefits would face the same adverse incentives under the UISA system as they do under the current UI system. While eliminating the distortion for the other 56 percent of the weeks would be a substantial achievement of the UISA approach, this 56 percent figure understates for several reasons the extent of the improvement in incentives that would occur. First, some of the spells of unemployment that now end with permanently negative balances would never occur if the individuals' incentives were different. Second, since the duration of the spells would be shortened by the change in incentives, fewer of the spells would actually lead to negative balance accounts. While we do not have an estimate of the effect of these behavioral responses, we believe that the evidence here indicates that the incentives would be improved for substantially more than half of the spells and weeks of current insured unemployment. We return below (in section 5) to consider the implications of a behavioral response to the improved incentives.

The results with the other options are generally similar to the results with option 1, although options 2, 3 and 4 involve a smaller saving base and therefore more frequent negative balances. More specifically, shifting to a lower wage base for the saving requirement (option 2 requires a 4 percent saving rate on wage income up to about the median wage) raises the percentages that become negative or end negative by about two percentage points. With the lower amount of saving, the percentage of spells that end with negative account balances becomes 30.5 percent instead of the 24.3 percent with option 1 (row 3). The number of spells that end with negative balances and

that also go on to negative terminal balances rises from 20 percent with option 1 to 25 percent (row 4). Capping the saving requirement for workers with above average incomes thus reduces the sensitivity but still leaves most individuals who experience unemployment with a positive account balance.

Option 3 allows workers to stop contributing to their accounts when the balance reaches 50 percent of their savings wage base under option 2. This has essentially no effect on any of the performance measures. For those who experience no unemployment, it reduces substantially the amount of lifetime saving that is required in the UISAs without changing the likely sensitivity of this group or others.

Option 4 makes the target level of accumulation for the UISA depend on the recent unemployment experience, lowering the basic target to only 30 percent of the savings wage base under option 2 but then adding the benefits drawn in the past two years to this amount. The positive and negative effects are reasonably balanced, causing little affect on the various performance measures shown in Table 1. For those with little or no unemployment, this option permits a substantially lower rate of saving.

Option 5 requires the employer to pay the first five weeks of unemployment benefits in every spell and is otherwise similar to option 2. Only after the five weeks does the individual draw benefits from the UISA. This makes the employer directly sensitive to the cost of unemployment for all employees, including those with negative balances. It also reduces substantially the probability that employees who experience unemployment will develop a negative balance or end their career with a negative balance. Thus row 4 shows that among unemployment spells resulting in negative

balances, the percentage of spells from individuals who end their careers (or the time in the PSID sample) with a negative balance falls from 25 percent with option 2 to 22 percent with option 5.

4. Distributional Effects of Switching to UISA System

The effect on each individual's disposable income of shifting from the current UI rules to a UISA system depends on the individual's unemployment experience and the level of the individual's income. There are three components of the effect: (1) the required saving contribution to the individual's UISA account; (2) the net balance in the UISA account at retirement age; and (3) the change in the payroll tax payment. The benefits paid during unemployment can be ignored because they are always the same in the two systems.

Any analysis of the distributional effect of shifting from one system to another involves the usual incidence issues about the effect of induced behavioral changes on wages and other pretax factor incomes. These incidence issues are particularly difficult in the current case because the program change involves not only taxes but also transfers conditioned on unemployment experience. We limit our analysis therefore to the nominal analysis, i.e., to the estimated distribution of individual payments with no changes in gross wages or other factor incomes. We assume moreover that all payments are born by the individuals, regardless of whether they are made by the individual or the firm.

A second caveat is necessary about interpreting the distributional effects by income class tabulated in this section. This analysis refers only to heads of households and makes no attempt to incorporate the distributional effects of a shift to a UISA system on others in the same household. The sample is further restricted to those individuals who were less than 45 years old in 1967 in order to

study a relatively long working period.

Before looking at the calculations, it is useful to note the way that the shift from the existing UI rules to a UISA system affects individuals at two extremes: those with no unemployment during their working life and those whose unemployment is so substantial that they end their working life with a negative UISA balance. For individuals who experience no unemployment, the net present value of UISA saving deposits and the balances withdrawn at retirement is zero (discounting at whatever rate is used to accumulate those balances). Such individuals are net gainers from the switch to the UISA system since the taxes required to fund the benefits of those who have negative final balances are less than the taxes required by the current system to fund all UI benefits. Because the tax is levied on earnings up to a relatively low level ($7,000 in many states in 1997), the favorable tax reduction effect is the same for all individuals above that low level and declines with income below that level.

For individuals who experience substantial unemployment and retire with negative accounts, the net discounted present value of the required UISA savings represents a net tax. Against this must be balanced the reduction in the regular UI payroll tax (which is the same reduction as that enjoyed by those with no unemployment). Since the current payroll tax is less than the UISA saving requirement, the reduction in the payroll tax is clearly less than the UISA saving requirement, implying that individuals who have negative balances incur a net reduction in the present value of their disposable income.

These are of course the two extreme cases. To assess the overall distributional effect of the switch, we divide our sample into lifetime income quintiles based on real mean annual income during

the individual's working years between 1967 and 1991. For each quintile, we calculate the discounted present values as of 1967 of (1) the required savings deposited to UI saving accounts; (2) the funds available at retirement age; and (3) the reduced payroll tax in each year. We estimate the payroll tax reduction of individual I in year t as $TAXCUT_{It} = (1 - reltax)\,\theta_t\,TI_{It}$ where: reltax is the ratio of the payroll tax with the UISA system to the payroll tax with the existing UI system, as shown in row 8 of Table 1 for each UISA option; TI_{It} is the taxable wage income for individual I in year t (up to the payroll tax ceiling in that year); and θ_t is the national average UI payroll tax rate in year t under the current UI rules.

To estimate these values, we assume that the maximum taxable earnings for the UI payroll tax (T^{max}_t) is $7,000 in 1997 and scale it down in earlier years in proportion to the average weekly earnings in the total private U.S. economy. For each individual, the value of TI_{It} is the lesser of (T^{max}_t) and that individual's wage in year t. The national average UI payroll tax rate in year t is estimated as $\theta_t = BEN_t / [\,0.9\,T^{max}_t\,N_t\,]$ where BEN_t is the aggregate national UI benefits paid in year t, $0.9\,T^{max}_t$ is the estimated average taxable earnings for the UI tax (we scale by 0.9 since not all workers will earn $7,000 in 1997 dollars), and N_t is the number of individuals in covered employment.[14]

The present values, calculated using the six-month commercial paper interest rate, are shown in Table 2; a separate calculation based on the 5.5 percent real rate of return is presented in Appendix Table A4. We present estimates for options 1, 2, and 3.

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[14]The annual values of BEN_t and N_t are presented in the statistical appendix of each year's Economic Report of the President.

Table 2

Distributional Effects of Shifting from Current UI Rules to a UISA System

Income Quintile	1st	2nd	3rd	4th	5th
Lifetime Mean Annual Income (1991$)	12293	23976	31948	40977	71561
PDV of Positive UISA Terminal Balances minus UISA Saving Deposits					
Option 1	- 591	- 653	- 768	- 539	-314
Option 2	- 573	- 622	- 666	- 492	-244
Option 3	- 565	- 615	- 663	- 488	-243
PDV of Payroll Tax Reductions					
Option 1	496	675	701	733	782
Option 2	438	595	617	645	688
Option 3	433	588	611	639	681
PDV of Positive UISA Terminal Balances plus Payroll Tax Reductions minus Saving Deposits					
Option 1	-95	22	-67	94	468
Option 2	-135	-27	-49	153	444
Option 3	-132	-27	-52	151	438

Option 1: High Wage Base
Option 2: Low Wage Base
Option 3: Target Account Fund
See text for other definitions.

Present discounted values are calculated using the commercial paper rate.

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The lowest quintile of households corresponds to those in which the head earned an average lifetime income of only $12,293 a year in 1991 dollars during the years that the individual worked between 1967 and 1991. The second and third quintiles had average lifetime earnings in 1991 dollars of $23,976 and $31,948 while the top group had average earnings of $71,561.

The first three rows of Table 2 show the present discounted value in 1967 of the positive terminal UISA balances (the refunded amounts) minus the UISA saving deposits, discounting at the commercial paper discount rate in each year. Thus individuals in the lowest lifetime income quintile paid on average $591 more in UISA saving deposits (discounted to 1967) than the amount that they had in their UISA accounts (treating negative accounts as zero, since such debts are forgiven) at the time of retirement or death (also discounted to 1967). The $591 amount excludes the value of the benefits received since that does not change as we go from current UI rules to the UISA system. In the aggregate, this bottom quintile receives a disproportionately large share of the benefits relative to the amount that it provides in UISA deposits, causing it to receive a substantial transfer from the UISA system just as it does from the current UI system. But because we are interested in the distributional effects of shifting from the current UI rules to a UISA system, rather than the distributional effects of the UISA system itself, and since the benefits are exactly the same in the two systems, we ignore the benefits and focus on the difference between the amount that the individuals get in refunds at the time of retirement or death (i.e., the positive UISA balances at those times) and the amounts contributed as saving deposits, all discounted to the beginning of the sample.

This negative effect is balanced by the positive effect of lower payroll taxes. With option 1, the tax saving associated with replacing the current UI system with a UISA system (as noted in row

8 of Table 1) is 73 percent of the UI payroll taxes that would otherwise be paid under the current rules. For individuals in quintile 1, the present value of these payroll tax reductions (shown in the first row of the second part of Table 2) is $496. These tax savings offset most of the PDV excess of UISA savings over balance refunds for this group, leaving a net negative present value cost of $95 for the shift from current UI rules to UISA rules.

Since this is the present value of the net effects over the 25 year period, it is essentially too small to be of significant concern. This "loss" is of course before considering any of the potential gains – both financially and in terms of economic efficiency – that would result from the behavioral effects of the shift to the UISA system.

The second quintile has a net positive gain of $22, again essentially close to zero when compared to the 25 year present value of the earnings of individuals with average annual earnings of nearly $24,000. The largest effect is the positive gain of the top quintile, a lifetime present value gain of $468, which is also quite small relative to the average annual earnings of more than $70,000 in this group.

The results for the other two options are similar, with relatively small lifetime present value losses in the bottom half of the distribution of lifetime income and relatively small lifetime gains in the top half of the distribution.

5. Effects of Unemployment Responses to the Unemployment Compensation System

Section 1 of this paper discussed the various ways in which the existing unemployment insurance system increases the frequency and duration of unemployment. We have also considered how shifting to the UISA system would change these incentives in ways that reduce unemployment.

Table 3

Effects of 10% and 30% Reductions in Unemployment Days on the Implications of UISA Option 1

	No Change	10 % Reduction	30 % Reduction
	---------- Percentages ----------		
All Employees			
(1) Negative Terminal Balance	5.2	4.8	3.7
(2) Negative Balance Ever	6.8	5.8	5.1
Eligible Unemployment Spells			
(3) Negative Balance at end of spell	24.3	21.6	16.7
(4) Negative Balance & Negative Terminal Balance	19.9	18.3	13.6
Employees with Negative Balances Ever			
(5) Return to Positive Terminal Balance	23.4	17.4	27.6
Unemployment Compensation Dollars			
(6) Negative Balance & Negative Terminal Balance	31.1	28.5	20.5
(7) Negative Terminal Balance	44.1	42.3	32.5
Net Government Payments			
(8) Percent of Total UISA Payments	27.4	22.0	13.7

The analysis is based on the full sample of 2,773 original heads of households in the PSID sample from 1967 to 1991, including those still working in 1991. The calculations use the commercial paper rate of return on UISA balances, both positive and negative. See text for definitions.

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An explicit model of the effect of shifting to a UISA system on the frequency and duration of unemployment would have to deal with individuals' expectations about the probability that they will shift from an existing positive account balance to a negative account balance at the time of retirement (and therefore should not currently be sensitive to the effect of unemployment on their UI account) or from an exiting negative UISA account balance to a positive terminal balance (implying that they should be concerned about the cost of their current unemployment benefits.)

Although such an analysis lies beyond the scope of this paper, it is clear that the shift to the UISA system would initiate a mutually reinforcing process in which reduced subsidies to unemployment would reduce the frequency and duration of unemployment which would in turn imply that the a larger fraction of UISA payments were from individual account balances rather than from the government. This virtuous spiral would converge to lower probabilities of unemployment and lower durations of unemployment spells than are observed in the historic data.

To indicate how such a virtuous spiral might improve the performance and reduce the taxpayer cost of the UISA system, we present simulations of the UISA option 1 on the assumption that all UI spells are reduced by either 10 percent or 30 percent in duration. These simulations are shown in Table 3. Although a reduction in the frequency of unemployment is not specifically included, the analysis can be regarded as a way of observing the effect of 10 percent or 30 percent fewer unemployed days, regardless of whether this is from changes in frequency or duration. As a rough generalization, the results show that a 30 percent reduction in the amount of eligible unemployment reduces the proportion of individuals who have negative balances or who end with a negative account balance by at least one-quarter. The percentage of spells that end with negative

balances and the percentage of spells by individuals who eventually have negative balances at the end of their careers also fall, this time by about one-third. The same is also true of the aggregate dollar value of benefits. This does not show that a 30 percent reduction in aggregate unemployment days is likely but only that, if does occur, it will cause a large reinforcing decline in the number who face or can expect to face negative balances.

The 30 percent reduction in the amount of insured unemployment also has the effect of cutting the tax-financed benefits in half, from 27.5 percent of the current UI benefits with no behavioral response to 13.7 percent with a 30 percent reduction in days with compensated unemployment.

6. Summary and Conclusion

In this paper we have examined a system of Unemployment Insurance Saving Accounts as an alternative to the traditional unemployment insurance system. The system requires individuals to save a modest share of wages in special accounts and to draw unemployment compensation from these accounts instead of taking state unemployment insurance benefits. If the accounts are exhausted, the government lends money to the account. Negative account balances are forgiven at retirement age.

Positive UISA balances are converted into retirement income or bequeathed if the individual dies before retirement age. Any dollar taken from a UISA with a positive balance reduces the individual's personal wealth by a dollar. As such, the UISAs cause individuals to internalize the cost of unemployment compensation. The UISAs can therefore in principle provide the same level of protection to the unemployed with less of the adverse incentives that now increase the frequency and duration of unemployment.

The key operational question about the feasibility of UISAs is whether accounts based on a

moderate saving rate can finance a significant share of unemployment payments or whether the concentration of unemployment among a relatively small number of individuals implies that the UISA balances would typically be exhausted, forcing individuals to rely on government benefits with the same adverse effects that characterize the current UI system..

To resolve this issue we use the Panel Study on Income Dynamics to simulate the UISA system over a 25-year historic period. Our analysis indicates that almost all individuals have positive UISA balances and therefore remain sensitive to the cost of unemployment compensation. Even among individuals who experience unemployment, most would still have positive account balances at the end of their unemployment spell. Although about half of the benefit dollars would go to individuals whose accounts are negative at the end of their working life, less than one-third of the benefits go to individuals who currently have negative account balances or who will have negative account balances at the end of their current unemployment spell. All of this suggests a substantial improvement in the incentives of the unemployed.

The reduction in the cost to taxpayers of more than 60 percent of the current taxpayer burden represents a substantial further potential improvement in the efficiency of the labor market. Our analysis of the distribution of lifetime UISA payments and taxes shows that the household heads in the top quintile gain a small cumulative amount while those in the bottom quintile lose a very small amount. Other quintiles are small net gainers.

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Table A1

Analysis of Alternative Options with PSID Data: Finishers Only

		Option 1	Option 2	Option 3	Option 4	Option 5
		---------- Percentages ----------				
All Employees						
(1)	Negative Terminal Balance	5.3	6.6	6.6	6.9	5.5
(2)	Negative Balance Ever	6.4	8.2	8.2	8.5	6.5
Eligible Unemployment Spells						
(3)	Negative Balance at end of spell	23.9	30.9	31.5	33.4	27.6
(4)	Negative Balance & Negative Terminal Balance	20.0	25.8	26.1	27.7	21.4
Employees with Negative Balances Ever						
(5)	Return to Positive Terminal Balance	17.6	19.5	19.4	19.0	15.0
Unemployment Compensation Dollars						
(6)	Negative Balance & Negative Terminal Balance	31.9	39.2	40.0	42.7	34.6
(7)	Negative Terminal Balance	47.6	58.6	58.6	61.4	50.6
Net Government Payments						
(8)	Percent of Total UISA Payments	31.5	40.7	41.2	43.8	31.4

The analysis is based on the full sample of 1,990 original heads of households in the PSID sample from 1967 to 1991 who were retired, dead or missing by the end of 1991. The calculations use the commercial paper rate of return on UISA balances, both positive and negative. See text for definitions.
Option 1: High Wage Base
Option 2: Low Wage Base
Option 3: Target Account Fund
Option 4: Experience-Based Target Account Fund
Option 5: Employer Pays First Five Weeks of Benefits

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Table A2

Analysis of Alternative Options with PSID Data: 5.5% Return

		Option 1	Option 2	Option 3	Option 4	Option 5
		---------- Percentages ----------				
All Employees						
(1)	Negative Terminal Balance	4.9	5.8	6.0	6.4	4.8
(2)	Negative Balance Ever	5.7	7.4	7.8	8.2	6.0
Eligible Unemployment Spells						
(3)	Negative Balance at end of spell	20.6	26.1	27.1	28.2	23.8
(4)	Negative Balance & Negative Terminal Balance	18.2	22.4	23.0	24.1	18.4
Employees with Negative Balances Ever						
(5)	Return to Positive Terminal Balance	13.6	21.2	22.7	22.4	19.7
Unemployment Compensation Dollars						
(6)	Negative Balance & Negative Terminal Balance	27.6	34.0	35.2	37.6	29.5
(7)	Negative Terminal Balance	42.4	49.6	51.4	54.5	42.9
Net Government Payments						
(8)	Percent of Total UISA Payments	24.6	31.5	33.7	35.4	24.9

The analysis is based on the full sample of 2,773 original heads of households in the PSID sample from 1967 to 1991. The calculations use a 5.5 percent real rate of return on UISA balances, both positive and negative. See text for definitions.
Option 1: High Wage Base
Option 2: Low Wage Base
Option 3: Target Account Fund
Option 4: Experience-Based Target Account Fund
Option 5: Experience Rating: Employer Pays 5 Weeks

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Table A3

Analysis of Alternative Options with PSID Data: Finishers Only, 5.5% Return

		Option 1	Option 2	Option 3	Option 4	Option 5
		---------- Percentages ----------				
All Employees						
(1)	Negative Terminal Balance	4.9	5.7	5.8	6.2	4.6
(2)	Negative Balance Ever	5.3	6.9	7.1	7.4	5.4
Eligible Unemployment Spells						
(3)	Negative Balance at end of spell	19.9	26.8	27.5	28.5	23.7
(4)	Negative Balance & Negative Terminal Balance	18.0	23.2	23.8	25.0	18.0
Employees with Negative Balances Ever						
(5)	Return to Positive Terminal Balance	8.5	16.5	17.3	16.0	14.7
Unemployment Compensation Dollars						
(6)	Negative Balance & Negative Terminal Balance	27.8	33.9	35.1	37.7	29.4
(7)	Negative Terminal Balance	45.0	53.2	54.3	58.1	44.1
Net Government Payments						
(8)	Percent of Total UISA Payments	28.9	35.6	36.9	39.5	28.0

The analysis is based on the full sample of 1,990 original heads of households in the PSID sample from 1967 to 1991 who were retired, dead or missing by the end of 1991. The calculations use a 5.5 percent real rate of return on UISA balances, both positive and negative. See text for definitions.
Option 1: High Wage Base
Option 2: Low Wage Base
Option 3: Target Account Fund
Option 4: Experience-Based Target Account Fund
Option 5: Experience Rating: Employer Pays 5 Weeks

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Table A4

Distributional Effects of Shifting from Current UI Rules to a UISA System With 5.5 % Rate of Return

Income Quintile	1st	2nd	3rd	4th	5th
Lifetime Mean Annual Income (1991$)	12293	23976	31948	40977	71561
PDV of UISA Positive Terminal Balances minus UISA Saving Deposits					
Option 1	-410	-428	-521	-341	-202
Option 2	-397	-410	-454	-325	-161
Option 3	-390	-407	-453	-319	-159
PDV of Payroll Tax Reductions					
Option 1	331	448	463	482	509
Option 2	314	408	420	437	464
Option 3	292	394	407	423	448
PDV of UISA Positive Terminal Balances plus Payroll Tax Reductions minus Saving Deposits					
Option 1	-79	20	-58	141	307
Option 2	-96	-2	-34	112	303
Option 3	-98	-13	-46	104	289

Option 1: High Wage Base
Option 2: Low Wage Base
Option 3: Target Account Fund
See text for other definitions.

Present discounted values are calculated using the commercial paper rate.

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