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PREFUNDING MEDICARE

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ABSTRACT

The Medicare program of health care for the aged now costs more than $5,000 per enrollee, a national cost of more than $200 billion a year. The official projections that these costs will rise rapidly from 2.5% of GDP now to 5.5% of GDP in 2030 and 7% of GDP in 2070 assume that structural changes in health care will prevent the even more rapid growth of spending that would occur if past trends continue.

These GDP shares are equivalent to increasing the payroll tax rates that rise from 5% of total wages now to 14% of total wages by 2070. Alternatively, if the increased Medicare spending is financed by an across-the-board increase in income tax rates, all tax rates would rise by 46 percent (e.g., from 28% to 41%).

If Medicare costs continue to be tax financed, the sharp increase in Medicare costs would cause a substantial increase in the deadweight loss of the tax system. Even with quite favorable assumptions, the increased deadweight loss is likely to be almost as large as the direct increase in the health care costs themselves.

This paper analyzes an alternative life cycle approach to paying for the cost of health care of the aged: a system of investment-based individual Retiree Health Accounts (RHAs) to which the government deposits funds during individuals' working years. At retirement the individual could use the accumulated fund to purchase a fee-for-service plan like the current Medicare package, to pay for membership in an HMO, or to establish a medical savings account with a high deductible insurance policy.

Using data from the Social Security administration, I estimate that annual RHA deposits equal to about 1.4% of total payroll would eventually be enough to pay for the full increase in the cost of Medicare, obviating a nine percentage point payroll tax increase.

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The Medicare program of health care for the aged now costs more than $5,000 per enrollee, a national cost of more than $200 billion a year. Medicare outlays will rise even more rapidly than Social Security benefits over the next several decades, propelled by the combination of an aging population and rising medical care costs per patient. According to the most recent (May 1998) projections of the Congressional Budget Office (CBO), government Medicare spending net of individuals' premiums will nearly triple as a percentage of GDP between now and 2070, going from about 2.5 percent of GDP now to seven percent of GDP in 2070. Even by 2030, net Medicare outlays are projected to reach 5.5 percent of GDP.

Unless there are significant structural changes to reduce the rapid rate at which Medicare costs have been rising, the actual rise in costs will exceed even these startling projections. The CBO's estimates follow the Medicare Trustees' in assuming that the rise in Medicare costs will begin to slow toward the end of the next decade and that after the year 2020 the Medicare spending per enrollee will rise at only the same rate as average hourly earnings in the economy as a whole. The reason for this assumed decline in the rate of growth of spending is unclear. Perhaps the Medicare actuaries expect substantial increases in the fraction of Medicare enrollees who choose Health Maintenance Organizations (from the current 15 percent) rather than traditional fee for service. Or they may expect significant increases in the co-payments in the fee-for-service

for service. Or they may expect significant increases in the co-payments in the fee-for-service Medicare plans to encourage patients and their doctors to reduce the demand for care.

Whatever the reason, the assumed slowdown in spending is very substantial. To understand just how optimistic this assumption is, note that between 1980 and 1995 Medicare costs per enrollee rose 5.5 percent more per year than average hourly earnings, reflecting increasingly expensive technology and more intense utilization of services. If this 5.5 percent relative annual increase in Medicare costs per enrollee is cut in half after 2020, instead of being driven to zero as the Medicare actuaries assume, the implied Medicare spending in 2070 would rise from the current projection of seven percent of GDP to 26 percent of GDP.[1]

A high level of spending on health care for the aged should not be seen as a bad thing in an increasingly affluent nation. If we as individuals or as a nation want to spend more on prolonging life or on improving health in old age, why should that be objectionable? Coronary by-pass surgery is expensive but it prevents unnecessary deaths and permits more active lifestyles. The new technologies of knee and hip replacements and of cataract surgery make aging a less fearful prospect than it used to be. Moreover, even if Medicare spending rises from 2.5 percent of GDP now to seven percent of GDP in 2070, the increased spending will be less than ten percent of the increased GDP.

Of course, our ability to afford much more real spending on health care for the aged does not diminish the importance of trying to balance the extra cost of each instance of care against the value of that care to the patient. Such a balancing would imply that not every test that provides some

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[1]These projections exclude the even more rapidly rising Medicaid outlays for long-term care and other services that CBO estimates will rise from about one percent of GDP now to 3 percent of GDP by 2050.

information and not every surgical procedure that improves patient health is worth doing. Our current system, by making such tests and treatments essentially free to patients at the time of care, is certainly likely to lead to the over-consumption of health services.

I.   Revenue Costs and Deadweight Loss

The problem of the increasing cost of Medicare is not just the extra real resources that will be devoted to improving the health of the aged but also the deadweight loss of the higher taxes that would be needed to finance that spending if we continue to rely on the pay-as-you-go tax system. With quite conservative assumptions about the behavioral response to marginal tax rates, the incremental deadweight loss due to tax finance of the increased Medicare costs would be about two thirds as large as the additional health resources, making the total burden of the extra spending nearly twice as large as the additional health resource costs.

If the future Medicare cost is limited to 7 percent of GDP and the entire incremental amount above the current 2.5 percent of GDP is financed by a payroll tax on all wage income, the additional payroll tax would be 9 percent of payroll.[2] If instead the 4.5 percent of GDP increase in Medicare outlays were financed by an across-the-board increase in personal income tax rates, all of the tax rates would have to rise by 46 percent, with a typical marginal rate jumping from 28 percent to 41 percent. Since the existing Social Security and Medicare payroll taxes as well as state income taxes would be in addition to this 41 percent, the combined marginal tax rate for a middle income employee would be more than 60 percent.

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[2]The health insurance (HI) component of the OASDHI payroll tax is levied on all wage income, not just income up to a ceiling. The wages taxed under the Social Security (OASDI) portion of the tax are approximately 40 percent of GDP while total wage income for the HI tax base is 25 percent higher or 50 percent of GDP.

These marginal tax rates understate the rate increases that would be needed to finance the higher Medicare outlays because they ignore the taxpayers' responses to higher marginal tax rates. To the extent that taxpayers respond to the higher marginal tax rate by reducing their taxable income, the increase in the tax rate must be greater to generate the same net revenue. In the long run, such induced declines in taxable income can reflect lower working hours, decreased labor force participation, reductions in effort, shifts to more pleasant but less remunerative occupations, and changes in the form of compensation from taxable wages to fringe benefits and nicer working conditions. If the income tax is used, the higher marginal tax rates will also induce increased spending on tax deductible goods and services.

Even a moderate response elasticity could significantly raise the tax rate needed to finance the higher projected Medicare outlays. With no behavioral response at all, the extra tax required as Medicare outlays go from 2.5 percent of GDP to 7 percent of GDP would be 9.0 percent of the initial payroll (because taxable payroll is half of GDP). But if taxpayers respond to the reduction in the after-tax marginal wage with an elasticity of just 0.3, the payroll tax rate would have to rise by 14.3 percentage points (instead of by 9 percentage points) to yield the necessary extra revenue.[3] A value of 0.3 for the elasticity of taxable income with respect to the after-tax wage implies that taxable wage income would fall by 8 percent, a quite conservative estimate of the response to a 24 percent decline in the after-tax wage rate (see Feldstein, 1995a). (Since a married couple with combined wage income of $60,000 now pays about one-fourth of that income in Federal and state taxes, the additional tax

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[3]The calculation of this and other values reported in this paper are presented in the Appendix I of the NBER Working Paper version of this paper (Feldstein, 1999) which can be found at www.nber.org/~feldstein.

would reduce disposable income by 19 percent at the initial level of pretax earnings.)   T h e

deadweight loss associated with the rise in the marginal tax rate can be quite substantial. An

uncompensated behavioral elasticity of 0.3, together with the assumption that the income effect of

a nontaxable dollar of lump sum income is to reduce taxable income (by increasing leisure and the

consumption of excludable or deductible forms of consumption) by 30 cents, implies that raising the

payroll tax rate by enough to finance additional Medicare spending equal to 9.0 percent of payroll

would raise the deadweight loss by 6.2 percent of the initial gross wage income.[4] The total cost of

the additional Medicare spending, including the 9 percent of payroll real resource transfer and the six

percent additional deadweight loss, would therefore be more than 15 percent of the initial taxable

payroll. (If the income tax were used instead of the payroll tax, the deadweight loss would be even

greater.)

II.   Life Cycle Financing

The fact that Medicare is a separate program for the aged is both a major problem and the

basis for a solution. Unlike the population of working age, retirees cannot be expected to finance their

own health care out of current earnings or through employer payments. In the days before Medicare,

when health care was far less expensive, the aged financed their care out of their savings or relied on

payments by their children. But a system that worked in 1960, when the average cost per patient day

in a hospital was $22, can hardly work now when the cost in those same hospitals exceeds $1,000

a day, a ten fold increase even after adjusting for the general rise in consumer prices.

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[4]The deadweight loss depends on the elasticity of taxable income to the after-tax wage
rate and not just the distortion in labor supply as traditionally measured. In the relevance of the
 taxable income response, see Feldstein (1995b).

In most other industrial countries, the health care of the aged is financed by taxes as part of a general national health care system. Although these foreign systems keep health care costs down by exercising their monopsony power over doctors, hospitals, nurses and other suppliers of goods and services, the rising cost of health services in those countries is contributing to very high overall national tax rates that keep unemployment rates high and inhibit entrepreneurial activity. The aging of their populations and the increases in medical costs will make their problems even worse in the future.

Because the United States does not finance the health care of the aged as part of an overall public health care system, it is natural to ask what the best way is to deal separately with this increasingly expensive activity. The fact that most of the aged cannot finance their care through a current employment relationship or out of other retirement income does not imply that the government must finance that care through a pay-as-you-go tax financed program that will become inordinately expensive and burdensome in the future.

The natural life cycle alternative is to have individuals accumulate funds during their working year with which to finance their health care in retirement.[5] Now that the institutional structure for universal personal retirement accounts to supplement Social Security retirement pensions may become a reality (see, e.g., Feldstein and Samwick, 1998a), it is not difficult to imagine how a parallel structure would work to supplement or replace the pay as you go financing of Medicare.

I will first describe the basic magnitudes of such a plan and then discuss how the accounts might be administered, how the burden of finance might be distributed, and what precautions should

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[5]Rattenmaier and Saving (1998) have proposed such a plan.

be taken against the risk that future market rates of return will be less than they have been in the past.

III.   The Economics of Prefunding

Andrew Samwick and I (Feldstein and Samwick, 1998a) analyzed how annual deposits equal to two percent of wages would accumulate during an individual's lifetime and what size annuity could be purchased at retirement with the accumulated funds**.** Our analysis assumes that 60 percent of the funds in the Personal Retirement Accounts (PRAs) are invested in the S&P500 stocks with the remainder in corporate bonds. The logarithmic rate of return on such a portfolio has averaged 5.9 percent in the half century from 1946 to 1995 (and was similar in the longer interval from 1926 to 1997.) We subtract 0.4 percent for administrative costs and treat the remaining 5.5 percent conservatively as the money rate of return even though that implies a lower rate of return than the history of the log return indicates. At retirement age, these funds are converted into a variable annuity that is invested in the same 60:40 mixture of stocks and bonds. For a related analysis, see Feldstein and Samwick (1998b).

The returns on stocks and bonds reflect corporate earnings after the corporate taxes paid to the federal, state and local governments. Poterba (1997) has shown that the marginal rate of return on nonfinancial corporate capital has averaged 8.5 percent over the years 1959 to 1996. We conservatively assume that the federal government collects about 25 percent of these profits as corporate taxes, about two-thirds of the corporate tax rate; we do this to take into account the fact that not all PRA balances may be incremental saving and that some incremental saving would go abroad or into investments (like owner occupied housing**)** that do not generate corporate taxes. With this assumption, the incremental corporate tax revenue is 2.1 percent of the PRA balances in each year,.

To calculate the amount of saving needed to fund the future Medicare benefits, I have used

an updated version of the Feldstein-Samwick analysis that incorporates the economic, demographic

and mortality assumptions contained in the 1998 Social Security Trustees Report (instead of the 1995

Trustees' assumptions used in the earlier Feldstein-Samwick studies.)

I focus on the long run properties of the program as indicated by the projected situation for the year

2070, the most distant year for which we have Medicare cost projections. I assume that the new

system of Retiree Health Accounts (RHAs) begins in the year 2000.

If each employee contributes one percent of total wages in every year from age 21 to age 66

and earns the assumed 5.5 percent net rate of return, the life annuities paid in the year 2070 to all

retirees in that year would be equal to 4.67 percent of total wages in that year. In addition, the

incremental corporate tax associated with the funds accumulated in the Retiree Health Accounts

would be 1.84 percent of total wages. Together the funds available for financing Medicare type

expenditures in 2070 would therefore be 6.5 percent of payroll for every one percent of payroll that

has been saved over the years. Although data limitations prevent projections much beyond 2070, it

appears that this number remains stable during the next decade.[6]

Comparing this 6.5 percent of payroll with the official projection that the total cost of

Medicare in 2070 will be seven percent of GDP or 14 percent of payroll mplies that the Retiree

Health Account system could finance the entire future Medicare benefits with RHA savings of 2.15

percent of payroll or about one percent of GDP. The 9 percent of payroll projected increase in the

cost of Medicare could be financed by saving only 1.4 percent of payroll in Retiree Health Accounts

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[6]Appendix II of the NBER Working Paper version of this paper (Feldstein, 1999) shows
the Retiree Health Account balances and annuities for selected years.

instead of the 14 percent additional payroll tax that would otherwise be needed.

The efficiency gains (i.e., the reduced deadweight loss) that would flow from lower tax rates exceeds the gains that might be achieved by reducing the cost of care itself.

IV.   Issues of Administration, Financing and Risk

At retirement age, the individual would use the annuity produced by the Retiree Health Account to purchase an approved health plan. Such a plan could be a fee for service plan like the current typical Medicare arrangement, or membership in an HMO, or a high deductible plan like the Medical Savings Accounts. If the annuity produces more income than is required to purchase the plan that the individual chooses, the additional funds might be available for consumption or reinvested in part or in whole in the Retiree Health Account.

There are a variety of ways in which a system of Retiree Health Accounts could be designed and administered. If the Personal Retirement Accounts that augment Social Security pension benefits are established as individual accounts managed by private fund managers, operating the two types of accounts together would reduce administrative costs. Individuals could have a single fund manager with separate accounts for health and pension benefits. Although a system of centrally administered accounts (like the Federal Employees Thrift Saving Plan) or the accumulation of the funds in a single government health insurance trust fund would be technically feasible, either approach would create the same political problems that such arrangements would if used for retirement accounts. By 2070 the RHA funds would be about $18 trillion (in the prices of 1998), nearly equal to that year's GDP. The potential power that would come with distributing and regulating those funds would present enormous temptations for political interference and abuse.

Although Personal Retirement Accounts are designed, like Social Security, to provide

retirement pensions that are related to past earnings, the basic benefits of Medicare are presumed to be equal for all and independent of past earnings. While a reasonable system would allow individuals to supplement their Medicare outlays with additional personal spending, there is a broad consensus that Medicare should finance a high level of medical care for all those of retirement age. This in turn implies that the funds deposited in the RHAs would be equal for all. The 2.1 percent of payroll needed to fund Medicare should be understood as implying that the annual deposit into <u>each</u> individual's account should be 2.1 percent of <u>average</u> earnings. For the year 2000, that would be about $600 per adult between the ages of 21 and 64.

There is no painless source of these funds. Although Personal Retirement Accounts that are adequate to stabilize the Social Security payroll tax rate at 12.4 percent while meeting all future benefit commitments could be financed from the projected budget surpluses and the subsequent incremental corporate tax receipts (Feldstein and Samwick, 1998a), these budget surpluses are not sufficient to finance the 2.1 percent of total earnings for RHAs as well. There would be no alternative to cuts in spending or increases in taxes. The distributional consequences of raising extra funds or reducing projected outlays are no different in this context that in other issues of financing incremental government spending.

The key point to bear in mind in thinking about the distributional aspects of RHAs is that in the long-run they would eliminate the need for massive taxes that would otherwise reduce the disposable income of low and middle income workers by 20 percent and impose an extra deadweight loss equal to more than six percent of existing wages.

It would of course take a long time until the RHA annuities are sufficient to meet a large fraction of the projected Medicare costs. The need for additional financing or benefit reductions

along the way cannot be avoided by adopting a plan that will eliminate those problems in the long run. It is unfortunate that the shift to an investment based system did not begin sooner.

Although the analysis here assumes that the RHAs earn a 5.5 percent real rate of return, there would in practice be variations in rates of return. The simplest way to deal with this uncertainty is to raise the RHA saving rate by a modest amount to provide a "cushion" of protection against adverse variations in returns. Elena Ranguelova and I (Feldstein and Ranguelova, 1998) have analyzed this in the context of Personal Retirement Accounts and shown that modest oversaving can achieve a low probability of having less than the projected amount.

The greater source of uncertainty in planning for the future of Medicare is likely to be about the future of medical technology and the appropriate level of health care spending. This is a problem that affects pay-as-you-go as well as investment based systems. Perhaps all that can be done is to plan for a given level of future spending and expect that the government will augment individual RHA annuities if the investment results are less than history implied or if the opportunities for productive health care spending are greater than had been expected. A nation that has not burdened itself with a high mandatory payroll tax to fund basic Medicare benefits would be in a better position to provide such protection and flexibility.

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Appendix I

This section explains the derivation of the revenue and deadweight loss calculations in section I of the text.

Medicare spending is projected to increase from 2.5 percent of GDP now to 7.0 percent of GDP in 2070. Since the ratio of total wage income ("payroll") to GDP is approximately 0.5 (with no ceiling on the wages subject to the Medicare portion of the payroll tax, this implies that the additional payroll tax revenue required to pay for the increased Medicare outlays would rise by an amount equal to 9 percent of payroll. If the payroll tax is used to raise this revenue and if there is no behavioral response to higher tax rates, the increase in the payroll tax rate would also be 9 percent.

Consider instead the implication if a higher tax rate causes a decline in labor supply from L_1 to L_2 when the marginal tax rate is raised from θ_1 to θ_2. The increase in revenue is therefore

(1) $\quad \Delta \text{Rev} = (\theta_2 - \theta_1) \ w \ \ L_2 \ \ - \ \theta_1 w (L_1 - L_2)$.

where w is the wage rate. L_2 may be approximated by

(2) $\quad L_2 = L_1 - [dL_1 / d \ w(1-\theta_1)] (\theta_2 - \theta_1) \ w$

or

(3) $\quad L_2 = L_1 - [dL_1 / d \ w(1-\theta_1)] \ \ \{w(1-\theta_1)/ \ L_1 \} \{ L_1 / \ w(1-\theta_1)\}(\theta_2 - \theta_1) \ w$

which implies

(4) $\quad L_2 = L_1 [1 - \eta (\theta_2 - \theta_1)/ (1-\theta_1)]$

where η is the uncompensated elastiticity of "labor supply" evaluated at θ_1. Although I refer to this as "labor supply" it is actually the supply of taxable wage income (wL), a point emphasized in Feldstein (1995a, 1995b). Therefore

(5) $\quad \Delta \text{Rev} = (\theta_2 - \theta_1) w \ L_1 \ [1 - \eta (\theta_2 - \theta_1)/ (1-\theta_1)] \ - \ \theta_1 w L_1 \ \eta (\theta_2 - \theta_1)/ (1-\theta_1)$.

The initial marginal tax rate θ_1 reflects the federal personal income tax, the payroll tax, and any state income (or sales) tax. Consider a typical married employee in the 28 percent federal personal income tax bracket whose earnings are below the Social Security (OASDI) payroll tax ceiling ($68,400 in 1998). If such an individual earns $100 more of gross wages, the cost to the employer is $108.28 (since subjecting the $108.28 to the employer's portion of the payroll tax at 7.65 percent leaves a gross wage to be paid to the employee of $100.) This $108.28 is the employee's marginal product of labor. On the $100 additional gross taxable wage the individual pays $28 of personal income tax, $7.65 of additional payroll tax, and a typical state income tax of $5 for a total tax payment of $40.65. The overall tax, including the employer's portion of the payroll tax is $40.65 + $8.28 = $48.93 or 45.2 percent of the $108.28 marginal product of labor.

Substituting $\theta_1 = 0.45$ and $\eta = 0.3$ into equation 5 implies

(6) $\quad \Delta \text{Rev} = \{(\theta_2 - \theta_1) [1 - 0.55 (\theta_2 - \theta_1)] \ - .45(.55)(\theta_2 - \theta_1)\} w \ L_1$.

If the additional revenue is 9.0 percent of the initial payroll

(7) $\quad \Delta \text{Rev} = .09 \ w \ L_1$,

equation 6 implies

(8) $\quad 0.09 \quad = .7525 \ (\theta_2 - \theta_1) \ - 0.55 (\theta_2 - \theta_1)^2$

or

(9) $(\theta_2 - \theta_1) = .132.$

Thus $\theta_1 = 0.452$ and $\eta = 0.3$ imply that the increased tax rate must be 13.2 percent (of the initial total labor cost equal to 14.3 percent of the gross pretax wage) to raise revenue equal to 9 percent of the initial payroll, raising the total marginal tax rate of the marginal product of labor to 0.584.

The after-tax wage rate falls from the initial (1 - 0.452) $108.28 = $59.34 per unit of time to (1 - 0.584) $108.28 = $45.04, a decline of 24 percent. With an elasticity of 0.3, this reduces the "labor supply" (i.e., the pretax income) by 8 percent, i.e., $(45.04/59.34)^{0.3} = 0.92.$

The incremental deadweight loss caused by the rise in the marginal tax rate from $\theta_1 = 0.452$ to $\theta_2 = 0.584$ is

(10) $\Delta \, \mathrm{DWL} = 0.5 \, \varepsilon \, (1 - \theta_1)^{-1} [\, \theta_2{}^2 - \theta_1{}^2 \,] \quad w \quad L_1 \, (1 - 0.0765)^{-1}$

where ε is the compensated "labor supply" elasticity with respect to the after-tax wage rate.[1] The final term, $(1 - 0.0765)^{-1}$, appears because the tax rates are relative to the full marginal product of labor which is equal to the gross wage before the employer's payroll tax.

The compensated and uncompensated elasticities are related by

(11) $\varepsilon = \eta - (1 - \theta_1) \, dwL/dy$

where wL is taxable wage income and dwL/dy is the income effect, i.e., the response of taxable income to an exogenous bit of income. With the assumed income effect of dwL/dy = - 0.3 and with $\theta_1 = 0.452$, it follows that

(12) $\varepsilon = \eta + 0.16 = 0.46.$

Substituting this value of $\varepsilon = 0.46$ into equation 10 implies

(13) $\Delta DWL = 0.062 \, wL_1$.

To calculate the net effect of this on the taxpayer's disposable income, assume a couple with initial gross wage income of $60,000. They initially pay personal income tax of $8994 (based on a standard deduction of $3450 and two personal exemptions of $2650 each), a payroll tax at 7.65 percent of $4590, and state income taxes of approximately $2500 for a net income of $43,916. The $60,000 gross wage corresponds to a pretax marginal product of labor of $64,970. Raising the tax rate on this $64,970 by 0.132 implies an additional tax of $8571, reducing the net income from $43,916 to $35,345 (with some of this coming in the form of a lower gross wage because of the extra tax paid by the employer but shifted on to the employee.) Together this represents a reduction in disposable income of 19.5 percent.

This calculation ignores the incremental deadweight loss of 6.2 percent of the initial gross wage or 0.062 ($60,000) = $3720. In assessing the reduction in overall real income, this deadweight loss must be added to the real resource transfer of 9.0 percent of the initial gross wage. The combined burden of 15.2 percent of the gross initial gross wage of $60,000, i.e., $9120, is 21 percent of the initial disposable income.

This excludes the decline in money income that results from the individual's reduction in labor supply. Although that does reduce gross earnings from $60,000 to $55,206, this is not an additional loss of individual welfare since it is partly compensated by the increase in leisure and in nontaxable consumption. To the extent that this is a net loss, it is already reflect in the dead weight loss calculation.

Appendix II

Time Path of Retiree Health Account Balances and Annuity Payments

YEAR	RHA Balances	RHA Annuities	RHA Annuities	Incremental Corporate Tax	RHA Annuities plus Incremental Corporate Tax
	Billions of 1998 Dollars			*Percentages of GDP*	
	(1)	(2)	(3)	(4)	(5)
2010	1449	7	0.36	0.06	0 . 3 0
2030	6693	151	2.31	1.19	1 . 1 2
2050	13486	562	5.22	3.40	1 . 8 2
2070	17836	958	7.00	5.02	1 . 9 8

All dollar amounts in columns 1 and 2 are in 1998 dollars. The calculations are based on a Retiree Health Account saving rate of 2.15 percent of total payroll covered by the HI (health insurance) component of the payroll tax. Saving deposits begin in the year 2000.