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ABSTRACT

The current pension system, both private and governmental in the form of Social Security, has significantly affected life-cycle behavior, and especially labor supply. In Section I of this paper we provide a framework in which to analyze the effects of our present pension system on the labor supply decisions of older men. In Section II we analyze the impact of the pension system on the labor supply of younger men. In Section III we expand the discussion to include other life-cycle responses to the pension system. In Section IV, we look at recent changes in the pension system and suggest how the system is likely to evolve.

The Effects of Pension Policy across Life*

After four decades of near-universal support, the social security system, particularly Old Age Survivors Insurance (OASI), has become a topic of intense political debate. Given the current political turmoil over the magnitude of government spending programs, it is not too surprising that OASI, the largest single federal government program (\$66 billion collected and distributed in 1977), should receive attention in both political and academic circles. There is little doubt that resistance to further tax increases is motivating much of the pressure to reevaluate the system. But this should not obscure the role played by growing concern over the distribution of work across a lifetime. The increasing segmentation of life into a period of full-time work followed by almost total withdrawal from the workplace is a recent phenomenon whose consequences are just beginning to be questioned and whose causes have hardly been examined.

OASI is the cornerstone of this country's pension system, and in this paper we argue that distortions contained in that system are largely responsible for a fundamental change in the life-cycle work patterns of men. Not only have they caused a decrease in work among older men but they have also increased the work effort of younger men.

Too often in the debate over changes in the pension system, discussion has centered on the effect such changes have on the aged. We argue that an important, if little understood, characteristic of our present pension system

*We have benefitted from comments on previous drafts by Benjamin Bridges and Karen Holden.

is the impact it has on the behavior of the young. This is true in more than one sense: the young, of course, are the future aged and they will someday directly confront the pension system. But young workers also adjust their current behavior in anticipation of such a future confrontation.

I. An Asset-Maximizing Approach to Pension Acceptance

The fall in labor supplied by older men over the last three decades has made the worker aged 65 or over an exception. In 1947, nearly one-half of all men this age were in the labor force; only two men in ten over 65 are in the labor force today (see Table 1). This fall in labor supplied at older ages is particularly surprising given the continuing trend of work from predominantly heavy toil to more skillful and cerebral tasks. The 1978 Amendments to the Age Discrimination and Employment Act which raise to 70 the minimum age at which a worker can be discharged on the basis solely of age are an attempt by the Congress to reverse this trend. ^{1/}

But such antidiscrimination laws do not address the economic incentives, built into our present pension system, that lead most men to retire well before age 70. Such retirement may appear voluntary, but is in effect the direct result of these incentives. Older workers eligible for a private pension or OASI must weigh the consequences of continuing work and receiving wages against the consequences of accepting retirement benefits. While retirement will lead to benefit payments, OASI benefits are reduced for those who earn wage and salary income, and private pensions usually require workers to leave their jobs; in some cases, they restrict earnings in other jobs. ^{2/} In the presence of both restrictions on wage earnings and a fall in the value of a postponed pension,

Table 1

Time-Series Changes in Male Labor Force Participation

Year	Hours of work per week	% of males participating in labor force		% of eligible males receiving social security benefits	
		Aged 65+	Aged 62-64	Age 65-71	Aged 62-64
	(1)	(2)	(3)	(4)	(5)
1900	58.5 hr	63.1%			
1910	55.6	--			
1920	50.6	55.6			
1930	47.1	54.0			
1940	42.5	41.8			
1941	43.3	--			
1947	42.4	47.8			
1950	41.1	45.8		59%	
1955	41.6	39.6		62a	
1960	41.0	33.1	81.1%	74a	
1961	41.2	31.7	82.3	76	20%
1965	42.0	27.9	76.8	80	32
1970	41.1	26.8	72.1	80	34
1975	40.9	21.7	59.7	90	46

Sources:

(1) Owen, 1971, p. 75; Kniesner 1976, p. 5.

(2) U.S. Department of Commerce, 1976, pp. 131-32; U.S. Department of Labor, 1976, p. 30.

(3) Burkhauser, 1976, p. 46.

(4) U.S. Department of Health, Education, and Welfare, 1977, p. 85.

(5) Same as (4).

^a Includes all men aged 65 and older.

many workers reduce their hours of work or even completely retire. While this choice is voluntary, its timing is influenced by the antiwork biases of the pension system.

Workers who have a pension which increases yearly benefits in an actuarially fair manner when acceptance is postponed do not have this problem and will not be induced to leave a job even if they face an earnings test. ^{3/} Teachers Insurance and Annuity Association (TIAA) is an example of such a pension plan: for every year a worker postpones acceptance of benefits, future benefits increase, so that the lifetime value of all expected future benefits provided by the plan does not change. This type of pension removes the link between work decisions and pension acceptance. TIAA goes even further, in that acceptance of benefits is not directly linked to either an earnings test or leaving a job. ^{4/} But even if this were not the case, a worker will postpone acceptance to an age at which such work constraints do not influence his decision, because benefits increase at a rate which makes him indifferent whether he gets them now or later. For the great majority of pension plans, however, benefits which are postponed are at least partially lost, and workers are encouraged to retire voluntarily.

The interdependence between pension acceptance and the market work decision is illustrated in the modified one-period diagram of Figure 1. Consider the case of workers aged 65 who are eligible for OASI benefits. In a one-period model these workers are seen facing the budget constraint line abcd. Along this line are the set of their possible choices with respect to market work and leisure. Their final choice depends on individual preferences.

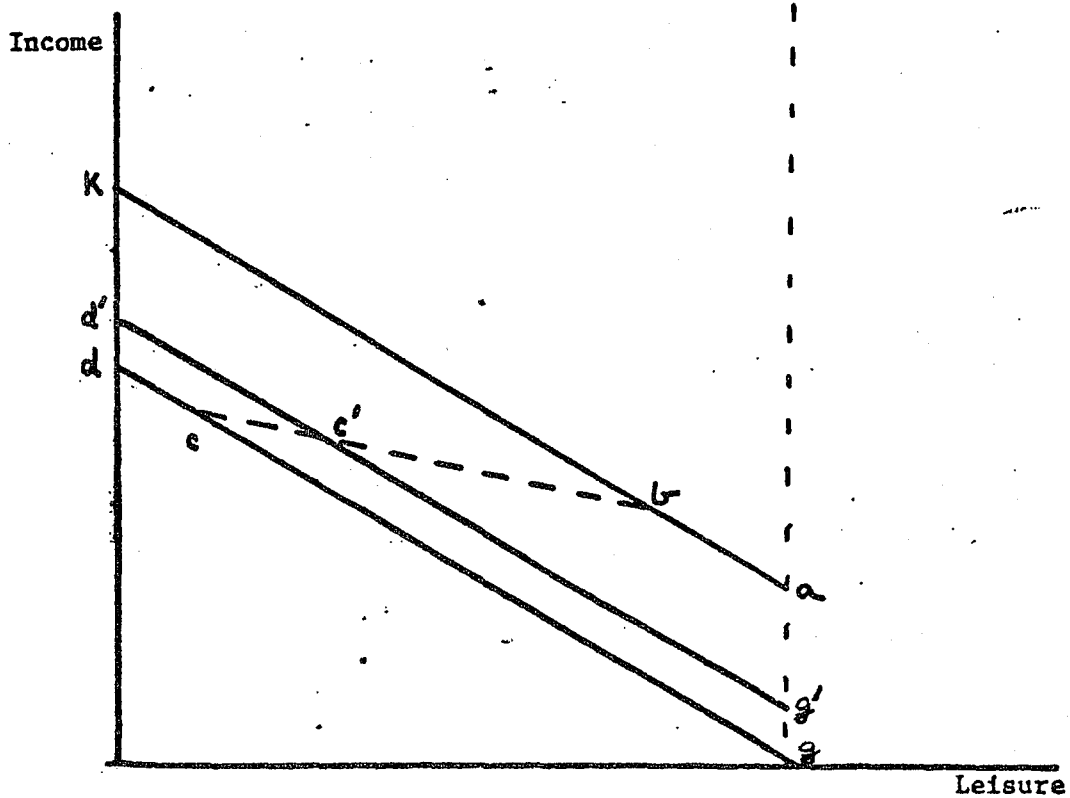


Figure 1. Modified One-Period Labor-Leisure Choice

1. Line abcd is the relevant budget constraint when postponed social security benefits are totally lost.
2. Line abc'd' is the relevant budget constraint when increases in the stream of future social security benefits due to postponing acceptance have a net value of gg'.
3. Line abk is the relevant budget constraint when the increase in future social security benefits is actuarially fair. In this case the present value of social security does not change even when acceptance is delayed and the earnings test is irrelevant.

Over the line segment ab, wage earnings are below the disregard level in the earnings test, and acceptance of benefits has no additional effect on market work. Over the line segment bc, the earnings test is in effect and for each dollar of wages earned, fifty cents in benefits are lost. ^{5/} Over this range, acceptance of benefits induces less work because the earnings test reduces the net wage. Over the line segment cd, workers' earnings are sufficient for the earnings test to exhaust all benefits in the period.

Line segment cd is also part of the line gcd the budget constraint line of workers who choose not to take OASI benefits in this period. As drawn, gcd assumes benefits are completely lost if postponed over the period. Once the asset nature of OASI is understood, it is clear that modifications in this one-period model are necessary. If future benefits are increased because acceptance in this period is postponed--and this has been the case since 1972--part of the loss is made up, and gcd underestimates the budget possibility set for these workers. Line g'c'd' reflects the net increase in the present value of future benefits caused by postponing acceptance of benefits in this period. As can be seen from the diagram, the greater the net actuarial increase in benefits in future periods (as measured by gg'), the higher g'c'd' rises, and the more attractive is the option to postpone benefits. The value gg' is equal to the expected present value of all additional benefits gained through delayed acceptance in the initial period. ^{6/}

The case where the increase in future benefits is actuarially fair is represented by line abk. It is important to note that, in this special case, no point on bc is above line abk, no worker will ever choose to be on line segment bc, and OASI has no adverse effect on work. But the greater the value

of net social security benefits lost when their acceptance is postponed, the greater the range of line segment bc, and the more likely it is that a worker will accept OASI benefits and decrease work. ^{7/}

The interdependence between labor supply and pension acceptance is not confined to OASI. In 1974, private pensions covered nearly 30 million workers. While private pension coverage is not as widespread as OASI, data from the Retirement History Survey (a ten-year study, begun in 1969, of workers on the verge of retirement) shows that private pensions are important. Over all industries, 40% of male workers in the survey were eligible to receive a pension; in manufacturing over 60% were eligible. The great majority of these pensions have the same antiwork biases discussed above.

Little systematic, empirical evidence on the economy-wide impacts of our current pension system exists, but recent work by Boskin (1977) and Pellechio (1978) find that OASI has significantly reduced the work effort of older men. Quinn (1977) finds that both private pensions and OASI affect work at older ages.

Burkhauser used the asset-maximizing approach to pension acceptance developed above to explain both the behavior of United Auto Workers eligible for a new pension (1979) and the decision of men to take early OASI benefits (1977). In both these studies, it was found that the greater the actuarial penalty for postponing acceptance of a pension, the more likely it was that workers would take the pension and reduce labor supply.

Changes in time-series data are consistent with a negative effect of both OASI and private pensions on the labor supply of older workers. Since 1937, the first year of OASI coverage, labor force participation rates for older workers have sharply fallen (see Table 1). For men aged 62 to 64, participa-

tion rates have fallen from 82% in 1961, the first year this group was eligible for OASI benefits, to 60% in 1975. Burkhauser (1976) also used time-series data to test the effect of OASI on men aged 62 to 64. As in his studies using cross-sectional data, it was found that increases in the actuarial penalty for postponing OASI acceptance reduced labor force participation.

Changes in the labor force participation rate of older workers are not entirely due to our pension system. The secular increase in income would cause some decrease in the labor force participation rate of older workers. For instance, before the enactment of OASI that rate, for men aged 65 and older, declined from 63% in 1900 to 54% in 1930. However, the acceleration in the decline in the labor force participation rate of older workers as well as the studies by Boskin, Burkhauser, Pellechio, and Quinn suggest that the pension system is an important influence on labor supplied at older ages.

II. The Life-Cycle Effect of Pensions

A major puzzle of time-series labor supply data is the fact that though the work week for prime-age males declined continuously over the first four decades of this century, since the end of World War II it has remained relatively constant at about 42 hours. This constancy holds even after holidays and vacations are taken into account (see Table 1). The work week for all workers has declined over this period, but that decline has been due to the changing composition of the labor force, with more women working.

This finding about the work week is the more surprising in that real income has increased considerably during this period. When data on hours of work are looked at from a life-cycle perspective, however, a possible solution to the

puzzle appears. The increase in lifetime income has increased the lifetime consumption of leisure, but in contrast to earlier times, the entire increase has been taken in old age. In the previous section we argued that the fall in labor supplied by men at older ages was in direct response to the antiwork biases of OASI and private pensions. In this section we will argue that the pension system is also responsible for the failure of the hours worked by prime-age males to decline.

The adjustments to the antiwork constraint of our present pension system take place not only at the age in which workers become eligible for OASI or private pensions but throughout their lifetimes. By effectively decreasing the wage rate for work performed at older ages, the OASI earnings test, in the presence of a delayed-retirement credit that is less than actuarially fair, induces workers to substitute more leisure at older ages for work at that age. But it also induces them to substitute more work at younger ages for what they would have performed at older ages. It is this additional adjustment to the earnings test occurring throughout a worker's life which is captured in a life-cycle framework.

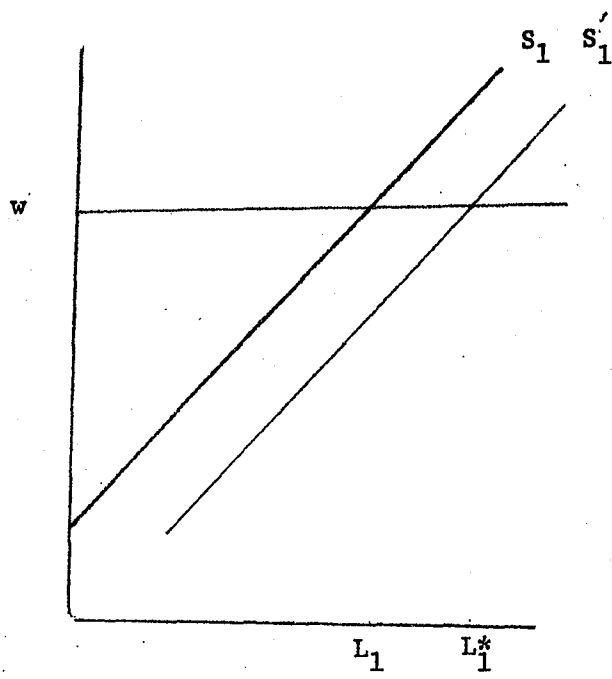
While the earnings test does not affect the level of net wages at younger ages, nonetheless those wages are greater relative to the net wages of men at older ages, that is, wages reduced by the earnings test. Such a shift in relative wages over the life cycle has resulted in a shift in life-cycle work patterns. Instead of a gradual fall in work effort at older ages, work has become an activity almost solely performed at younger ages. This type of long-run adjustment in life-cycle behavior to age-specific taxes (e.g., the earnings test) was first suggested by Lewis (1957) and more recently by Smith (1975).

To this point, the terms "young" and "old" have been used somewhat loosely. The relevant distinction is not the age at which workers become old, but the age at which the earnings test places a constraint on their net market earnings. Before 1961, men aged 62-64 were not eligible for OASI benefits, and the work effort of this group was very similar to that of men aged 55-60. Today the work effort of this group is far closer to that of men 65-70. Clearly men aged 62-64 are no "older" than before, but they are subject to different economic incentives. The terms "constrained period" and "unconstrained period," though perhaps less appealing, are more accurate. ^{8/}

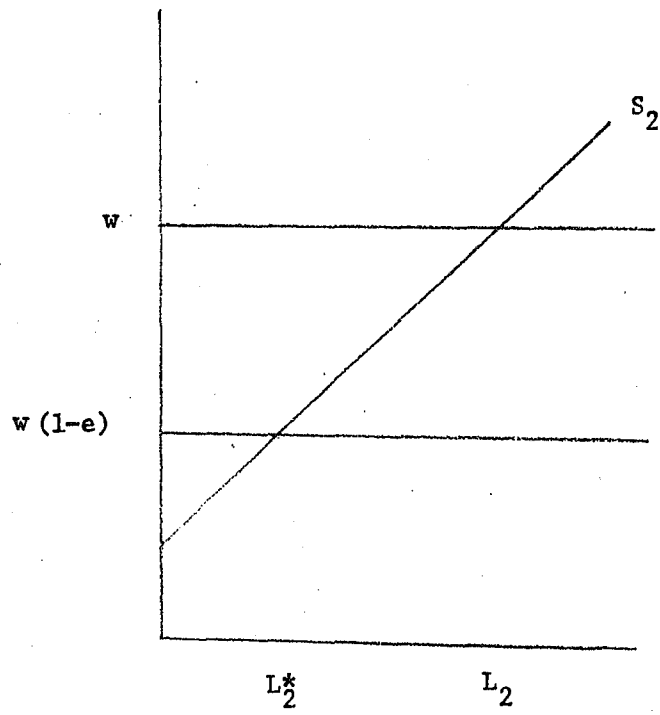
The two-period labor supply model shown in Figure 2 illustrates the life-cycle changes resulting from OASI. The diagram on the top represents the unconstrained period, during which the earnings test is not in effect. The diagram on the bottom represents the constrained period, during which the earnings test is in effect. In allocating time to work and leisure activities during the two periods, individuals consider their wage in both periods as well as their lifetime nonwage income. Thus labor supplied during one period of life is not only a function of wages in that period but also of wages during the other period of life. The higher the wage during one period of life, the less will be the labor supplied during the other period.

In Figure 2 it is assumed, for simplicity, that the only tax on labor earnings is the earnings test. In the absence of the earnings test, labor supplied at wage w in the unconstrained and constrained periods would be L_1 and L_2 . The earnings test e reduces the net wage in the constrained period to $w(1-e)$ and labor supplied to L_2^* . But the reduction in the net wage in the constrained period also causes the labor supply curve to shift rightward during the unconstrained period and work in this period to increase to L_1^* . ^{9/}

Figure 2



Unconstrained Period



Constrained Period

The positive effect of OASI on labor supplied in the unconstrained period may be offset (the supply curve shifted to the left), and its negative effect on labor supplied during old age may be increased, by an increase in lifetime nonwage income generated by OASI. Feldstein (1974) has argued that OASI intergenerational transfers result in a net increase in the wealth of a generation. If this is the case, OASI-induced increases in wealth would increase the demand for leisure and reduce the supply of labor during all periods of life.

The wealth effect could be large. From the inception of the program, in a life-cycle sense the present value of individuals' expected benefits have greatly outweighed their total contributions. The maturing of the system means that total contributions over a lifetime will more closely equal total benefits, but total OASI benefits received in 1972 by beneficiaries aged 66-67 were almost twice what they would have received in an actuarially fair system. ^{10/}

Barro (1974) has argued that despite the huge intergenerational transfer of wealth provided by OASI there is little or no net change in the wealth of the recipient generation. He argues that to the degree the older generation intends to provide positive intergenerational transfers (bequests, gifts, etc.) to their heirs, intergenerational transfers made through OASI from the younger to the older generation diminish this targeted legacy. This will then cause the older generation to react by increasing their intergenerational transfers to offset OASI. In the special case where the older generation provides positive intergenerational transfers and OASI has no intragenerational element, the original intergenerational pattern of consumption is fully restored. The final incidence of OASI on intergenerational wealth is an unsettled empirical question.

The simple diagrams of Figure 2 do not take into account the effect of the payroll tax on life-cycle labor supply. When no relationship exists between contributions into the system and benefits received then the analysis of this effect is straight forward. An increase in the payroll tax decrease the wage in the unconstrained period, having the normal income and substitution effects on labor supplied. If the substitution effect dominates, labor supplied will fall. But to the degree that contributions are related to benefits, considering the payroll contribution as a pure tax overestimates its negative labor supply effect on the young. As Browning (1975) points out, in the special case where OASI benefits are linked to contributions in an actuarially fair manner--that is, for every dollar paid into the system a worker expects to receive that dollar plus interest at retirement--the payroll tax has no effect on labor supply. Over the history of OASI, however, most beneficiaries have received much more than an actuarially fair return. This leaves open the possibility that for these workers the payroll tax, rather than decreasing labor supply, has in fact acted as a subsidy, and induced an even greater twist of labor toward the unconstrained period of life. The actual effect of the payroll tax on labor supply is difficult to estimate, since benefits are not simply a function of payroll taxes, although they are linked to lifetime contributions through the benefit calculation mechanism.^{11/}

Each of the above factors potentially affects the labor supply decision of the young, so the net impact of OASI on work at younger ages is ambiguous. The earnings test decreases wages at constrained older ages and through the substitution effect increases work done at unconstrained ages. The effect of the payroll tax is less clear. To the degree it is linked to future benefits, its

negative substitution effect on work at younger ages may be reduced. For current beneficiaries it may have even increased wages, further increasing the work they performed when they were younger. But labor supply at all ages falls to the degree that intergenerational increases in wealth caused by OASI are not redistributed back to the younger generation by the older one.

In an earlier paper (Burkhauser and Turner, 1978a) we empirically tested, using time-series data, the net effect of OASI on the labor supply of prime-age men. With Feldstein's (1974) data on OASI wealth we found a net increase in the work week for prime-age males. Over most of the years of our study (1937-1971) the work week for prime-age males would have decreased from 2 to 3 hours in the absence of OASI. ^{12/} A statistical estimate of the separate effect of each element of the OASI system must await further empirical testing, but our findings suggest that the system-wide effect on behavior is considerably more extensive than previously suspected.

This result should give pause to those who support the earnings test precisely because of its negative effect on work. The antiwork biases of OASI and private pension plans clearly reduce the labor supply of older men. Much of this fall in work at older ages, however, is made up by increased work at younger ages. As workers have more time to adjust to the pension system their ability to substitute labor over the life cycle increases. A major impact of the system has been to turn what might have been a smooth decline in work activity with advancing age into a sharp and often traumatic separation.

III. Economy-Wide Implications of Life-Cycle Responses to OASI

The empirical evidence linking increased work effort by the young to the OASI system is far from conclusive. But to the degree it is a factor, two currently held beliefs about the economic impact of OASI are brought into question.

The first concerns the net effect of OASI on private saving. Feldstein (1974) argues that OASI has depressed personal saving by 30-50%. But while Feldstein recognized that the earnings test decreases work at older ages, he fails to consider its full life-cycle effect on work. Rather than depressing saving over the past four decades, Turner (1978) argues, OASI may have actually increased saving, because of the twist toward increased work at younger ages.

Feldstein uses a consumption measure to estimate the impact of OASI on private saving. The problem with such a specification is that it does not capture the effect on saving arising from changes in labor supplied during the unconstrained period. It is clearly possible for OASI to have a positive effect on personal saving and at the same time have a positive, negative, or insignificant effect on consumption. ^{13/} Turner, using data on aggregate saving rather than on aggregate consumption, finds that OASI has had a positive net effect on saving.

The second belief is that the distortions caused by OASI through its payroll tax and earnings test result in huge welfare losses to society. Single-period measures of the impact of OASI on welfare unambiguously conclude that both the earnings test and the payroll tax result in welfare losses. The multi-period labor supply effects of OASI make this type of analysis incomplete. Burkhauser and Turner (1978b) argue that, in the presence of an income tax, much

of the welfare loss associated with the earnings test is offset by a second-best welfare gain at younger ages.

The life-cycle welfare effect of OASI is approximated by Figure 3, which drops the simplifying assumptions of Figure 2 and considers changes in life-cycle labor supply in the presence of a proportional income tax. The income tax reduces labor supplied in the unconstrained period from L_1 to L_1^* , and in the constrained period from L_2 to L_2^* as wages fall from w to $w(1-t)$.

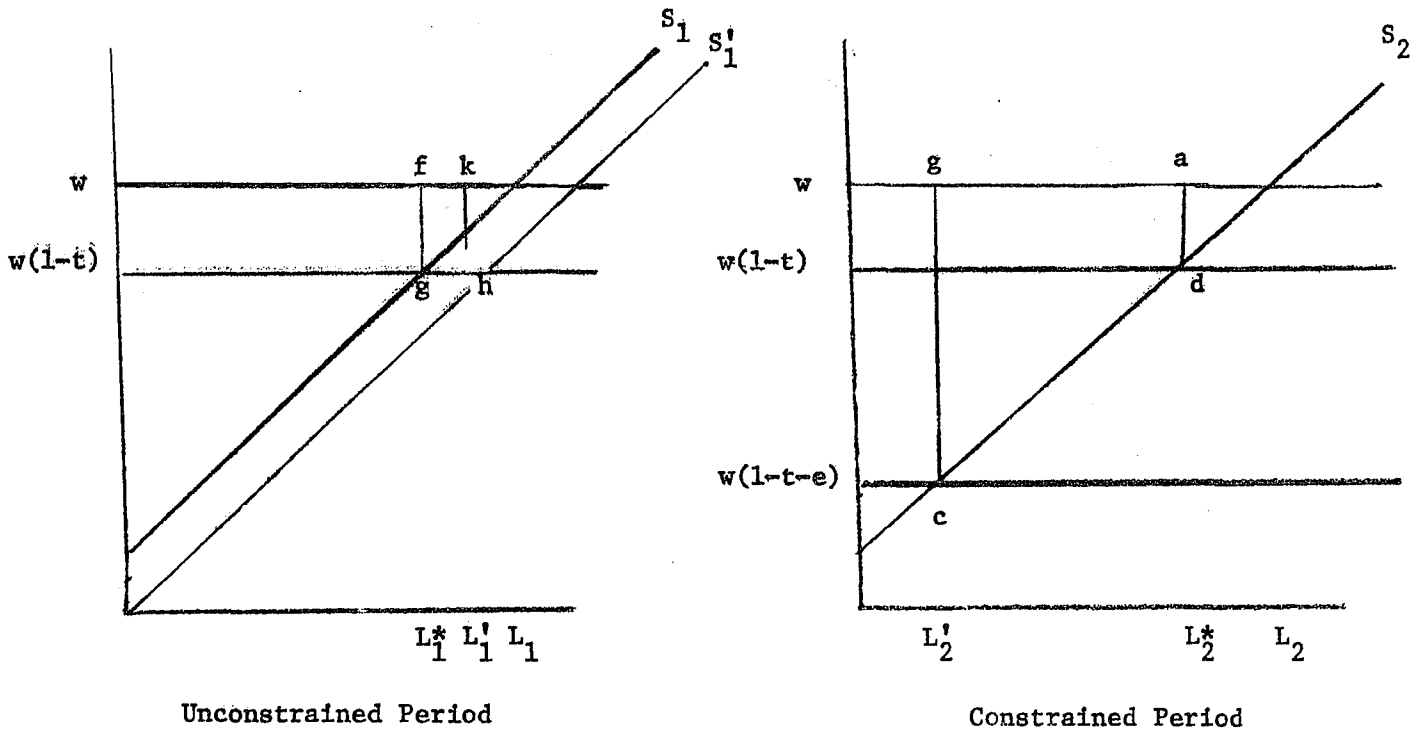


Figure 3

The introduction of an earning test reduces wages in the constrained period to $w(1-t-e)$ and labor to L_2' . The additional welfare loss due to this change is contained in area $abcd$. But the increase in labor in the unconstrained period to L_1' owing to the across-life substitution effect reduces this loss by area kgh . ^{14/}

Using this simple variation of the Harberger (1964) method of estimating welfare cost, we estimate that the large welfare loss caused by the OASI earnings test at older ages is offset in large measure by the welfare gain at younger ages, and that the net impact of OASI on welfare is probably small.^{15/}

IV. The Future Pension System

Underlying much of the discussion of the previous three sections is the notion that the pattern of life-cycle work which has emerged over the last four decades is not an ideal one. Rather than being the result of worker choice, it is to a large extent due to a private and public pension system which induces workers not only to reduce their work at older ages but to increase it at younger ages.

It is always risky to predict the direction that future events may take, but a reversal of this pattern seems likely. In the debate over the 1977 Amendments to the Social Security Act, liberalization of the earnings test had strong support. At one point the House of Representatives voted to abolish the earnings test completely. The actual changes in the Social Security Act do not go so far, but they are likely to encourage a smoother life-cycle work pattern. The amount exempt from the earnings test was increased, and starting in 1982 the test itself will end at age 70 rather than age 72. In addition, a token attempt to make the delayed retirement credit actuarially fair resulted in an increase in benefits to 3% (up from 1%) for every year they are postponed past age 65. Each of these actions will decrease the life-cycle substitution impact of the earnings test as well as increase work at older ages.

The maturing of the system has diminished the intergenerational component of OASI and will continue to do so. Thus any subsidy component of the payroll tax will disappear for most workers, although to the degree benefits are connected to contributions, the full impact of the tax on work at younger ages will still be diminished.

Changes in the private pension system favorable to a smoother life-cycle work pattern are also emerging. In 1975 IRA (Individual Retirement Annuities) were introduced and the restrictions on Keogh plans were greatly liberalized. These pension plans allow workers to spread taxable income across their lives in much the same manner as job-related pension plans, but benefit acceptance is not tied directly to leaving a specific job. Annual contributions to Keogh plans for the self-employed are allowed up to the lesser of 15% of yearly salary or \$7500. Contributions to IRA plans, which are for employees not covered by group pension plans, are limited to the lesser of 15% of yearly salary or \$1500. At the contribution limits of these plans are raised to levels more consistent with those available for other pensions, a full-fledged, alternative form of pension saving is likely to develop. But even now this form of pension is popular. In 1975, the first year IRAs were available, \$3 billion or 10% of all funded private pension saving was made in IRA and Keogh plans (Turner, 1977). The increasing cost of complying with regulations imposed by ERISA (Employee Retirement Income Security Act) on firm-specific pension plans may further increase the popularity of IRA plans.

The liberalization of mandatory retirement rules contained in the 1978 Amendments to the Age Discrimination and Employment Act (ADEA) is another example of concern by Congress over the aged worker. Projected changes in the

age structure of the population together with this law should make firms less willing to screen employees on simple age criteria and could lead to the possibility of more part-time work opportunities for older people. But the immediate effect of the law is unlikely to be large, since the pension system continues to discourage work at older ages. This would change dramatically if either ADEA or ERISA were interpreted to require employers to pay the actuarial equivalent of normal retirement benefits to an employee who continues to work beyond the normal retirement age. ^{16/}

There is some concern that older workers who do not retire take jobs from younger workers. This modern-day-wage-fund theory of employment is not likely to develop into a real problem now or in the future. General unemployment problems are more likely to be solved by general macroeconomic policy. Specific unemployment problems of the very young often seem mostly a problem of insufficient training and are only loosely connected to the pension system. More importantly, if the major impact of our pension system has been to shift the pattern of work across a lifetime rather than decrease work effort, then the removal of age-specific antiwork pension rules will for the most part simply reverse this process.

CONCLUSION

There have been two major changes in the pattern of male labor force participation since World War II. First, in sharp contrast to the secular decline in the work week preceding World War II, hours of work for prime-age males in the United States have remained relatively constant over the last

three decades. Second, unlike the fall in market work during the depressed economic conditions of the 1930s, the decrease in labor force activity of older men since 1947 has continued through both slack and tight periods of general demand.

The link between the increased coverage and benefits of OASI and the rapid decline in the labor force participation rates of older men is well known. We argue that OASI also affects the market work of younger men. It is likely that the fall in hours worked per week that has been observed in the first four decades of the century would have continued, at least to some degree, if the antiwork aspects of OASI and private pensions had not existed. The existence of this life-cycle response to OASI makes measurement of the system's effect on saving and welfare more complex and suggests that large negative effects may be overestimates.

The age-specific OASI earnings test, together with a postponed benefit credit that is less than actuarially fair, are both under strong attack by those wishing to encourage additional work by the aged. We suggest that removal of these two impediments will have a much more profound effect--the reintegration of work into full life-cycle activity.

NOTES

¹See Burkhauser and Tolley (1978) for a fuller discussion of the expected ramifications of the new law.

²The Employment Retirement Income Security Act (ERISA) now only permits private pensions to restrict earnings in jobs covered by the same plan or firm.

³The discussion emphasizes the substitution effect caused by pension-plan work constraints. Like any other asset, a pension will have a normal income effect on the labor-leisure choice. But it is important to recognize that at least in the perfect market case the point at which a pension is received should not have an independent income effect on labor supply. Rather, the effect should be spread across the life cycle. Only to the degree that the pension is unexpected would the income effect be confined to less than a full lifetime.

⁴For income tax purposes acceptance of TIAA is likely to coincide with reduction of full-time work.

⁵The 1977 Amendments to Title II of the Social Security Act increase the amount that is exempted from the early earnings test to \$4000 in 1978 and by \$500 each year thereafter until it reaches \$6000 for those 65 and older. For those under age 65, it is \$3240 with yearly cost-of-living adjustments. The marginal tax rate continues to be 50%.

⁶For a man aged 65 who delays acceptance of benefits until age 66 it would be:

$$gg' = \sum_{i=1}^n (p_i B_{65} d) / (1+r)^i$$

where

gg' = net present discounted value of additional social security benefits gained by delayed acceptance

p_i = probability of surviving the $(i)^{th}$ period

B_{65} = benefits at age 65 (ea in Figure 1)

d = rate of increase in yearly benefits in future periods

due to delayed acceptance in initial period (1% since 1972)

r = rate of interest.

⁷This asset maximization concept of pension acceptance is in sharp contrast to the simple, single-year, replacement-rate concept. A replacement ratio appears to show that delayed acceptance of a pension results in more lucrative benefits whenever postponement increases yearly benefits. But from asset perspective, an increase in yearly benefits is consistent with a rise, a fall, or a constant value of the pension.

⁸The constrained period does not necessarily correspond to ages 62 to 71 when the earnings test is currently applicable. If a worker would have retired in the absence of OASI, or if he would have earned less than or equal to the earnings disregard, the earnings test would not constrain his earnings. Likewise, if the individual earns above the breakeven point where the earnings test has exhausted OASI benefits, he would also not be constrained by the earnings test.

⁹Smith (1975) provides a method of estimating the intertemporal substitution effect of a specific wage tax on work during both the constrained and unconstrained periods. Burkhauser and Turner (1978) use a variation of his model to simulate a range of changes consistent with different values for the intertemporal elasticity of substitution in consumption, fraction of the life cycle covered by the earnings test, and share of work in the unconstrained period.

¹⁰See Burkhauser and Warlick (1978) for a fuller discussion of the life-cycle impact of OASI on income distribution.

¹¹It is important to distinguish two aspects of the relationship between OASI payroll taxes and OASI benefits. The average rate of return to all OASI beneficiaries has been greater than the average rate of return they would have received from stocks or bonds over the period (see Burkhauser and Warlick, 1978). Average benefits are related to average contributions but they are also a function of marital status, age, and the tilt in the benefit formula. However, it is the marginal rate of return, not the average rate of return, which is relevant to labor supply decisions. Ideally, one would like to know the marginal payroll tax for each period minus the marginal expected benefit related to that tax.

¹²Time-series data were for the period 1929 through 1971. Social Security wealth was used as a proxy for both OASI wealth transferred across generations and net differences in the asset value of OASI lost by delayed acceptance of benefits. It captured both a substitution and a wealth effect. Other independent variables included the real wage, unemployment rate, family size, and price of recreation.

¹³Because the earnings test does not affect the relative price of goods and time within the unconstrained period, it may be assumed that their relative

use during that period is unchanged (though their absolute use is changed). Thus, the finding of a positive effect on labor supply in the unconstrained period implies that consumption in the unconstrained period declines. The implied positive effect on saving is due both to the increase in unconstrained-period labor supply and the decrease in unconstrained-period consumption. A consumption function does not capture the positive effect of unconstrained-period labor supply on saving. Furthermore, estimated consumption functions may be biased, owing to the inclusion of human capital investment in the aggregate consumption data and to a positive relationship between social security and human capital investment.

¹⁴In our analysis we follow the usual convention in assuming full employment, constant costs, and income-compensated supply curves. The actual equation used to measure the marginal affect of the earnings test in the presence of a proportional income tax is simply the two-period version of the general Harberger equation for estimating the welfare cost of a set of taxes:

$$-\Delta C = -\frac{1}{2} \epsilon_{L_2 w_2} [(e+t)^2 - t^2] w_2 L_2$$

$$-\epsilon_{L_1 w_2} \quad \text{et} \quad w_1 L_1$$

where ΔC = change in welfare

$\epsilon_{L_2 w_2}$ = compensated supply elasticity of labor in the constrained period with respect to the wages in that period.

$\epsilon_{L_1 w_2}$ = compensated supply cross-elasticity of labor in the unconstrained period with respect to wages in the constrained period.

e = marginal earnings test tax rate.

t = marginal income tax rate.

w_1^L = wage income in the unconstrained period.

w_2^L = wage income in the constrained period.

¹⁵The actual values are a function of $\epsilon_{L_2} w_2^L$, $\epsilon_{L_1} w_2^L$, w_1^L , w_2^L

and the appropriate discounting factors. Over the range of values we used the welfare loss was always less than 12% of the total lifetime benefits distributed through OASI.

¹⁶This interpretation was specifically ruled out by the Assistant Secretary of Labor for Employment Standards but remains a possible subject of judicial litigation. (See Bureau of National Affairs, Inc., 1978.)

REFERENCES

- Barro, Robert J. 1974. Are government bonds net wealth? Journal of Political Economy, 82 (5), 1095-1118.
- Boskin, Michael. 1977. Social Security and retirement decisions. Economic Inquiry 15, 1-25.
- Browning, Edgar. 1975. Labor supply distortions of Social Security. Southern Economic Journal 42, 243-252.
- Bureau of National Affairs. 1978. Explanation of the 1978 Age Discrimination Act Amendments. Washington: Bureau of National Affairs, Inc.,.
- Burkhauser, Richard V. 1976. The early pension decision and its effect on exit from the labor market. Unpublished. Ph.D. dissertation, University of Chicago.
- _____. An asset maximization approach to early Social Security acceptance. Institute for Research on Poverty Discussion Paper #463-77.
- _____. The pension acceptance decision of older men. Journal of Human Resources 14, (1).
- _____ and Tolley, George S. 1978. Older Americans and market work. The Gerontologist 18, (5), 449-453.
- _____ and Turner, John A. 1978a. A time series analysis on Social Security and its effect on the market work of men at younger ages. Journal of Political Economy 86, (4) 701-715.
- _____ and Turner, John A. 1978b. Life cycle welfare costs of Social Security. Presented at American Economic Association Meetings, August.
- _____ and Warlick, Jennifer. 1978. Disentangling the annuity from the redistributive aspects of Social Security. Presented at Econometric Society Meetings, August.

- U.S. Department of Commerce, Bureau of the Census. 1976. Historical statistics of the United States, colonial times to 1970. Washington: Government Printing Office.
- U.S. Department of Health, Education, and Welfare, Social Security Administration. 1977. Social Security Bulletin: Annual Statistical Supplement, 1975. Washington: Government Printing Office.
- U.S. Department of Labor, Bureau of Labor Statistics. 1976. Handbook of labor statistics, 1975: Reference edition. Washington: Government Printing Office.