

this amount. Earnings from self-employment were much more unequally distributed than employee compensation.

In 2002, the retirement and disability programs paid a total of \$462 billion to 46 million beneficiaries.<sup>2</sup> During that same year, these programs received over \$627 billion in revenues generating a net surplus for the year of \$165 billion.<sup>3</sup> This surplus was added to prior surpluses in the OASDI Trust Fund. At the end of 2002, OASDI Trust Fund assets totaled a record \$1.4 trillion. Thus, the accumulated monies in the Trust Funds represented 288 percent of annual expenditures in 2003.

Despite the existence of a current annual surplus, the U.S. Social Security faces a serious long-term financial deficit. Current projections indicate that tax revenues will continue to exceed expenditures until 2018. As a ratio of annual expenditures, the Trust Fund peaks in 2016 with assets equaling 471 percent of annual expenditures. In the following years, expenditures rapidly outpace revenues and the Trust Fund is projected to be depleted in 2042. Table 1 highlights the key dates associated with the transition from annual surpluses to annual deficits. The primary reason for the rapid increase in costs between 2010 and 2030 is the continued aging of the baby boom cohort. This aging of the population reduces the number of workers per beneficiary from 3.3 in 2002 to 2.2 in 2030.

[Table 1]

The 75-year trends in the cost of paying benefits as scheduled under current law are compared to the projection of annual income in Figure 1. The figure shows that costs are anticipated to be lower than tax revenues until 2018. All scheduled benefits can continue to be paid through 2042 by combining tax revenues with funds obtained by redeeming government securities held in the Trust Fund. By 2042, the Trust Fund is exhausted and revenues from the payroll tax would be sufficient to pay only 73 percent of scheduled benefits. The figure clearly shows that either scheduled benefits must be reduced or taxes must be increased.

[Figure 1]

For the 75-year projection period, the Trustees estimate an actuarial deficit of 1.92 percent of social security coverage wage earnings. This represents an unfunded liability associated with scheduled benefits of \$3.5 trillion over the 75 years.<sup>4</sup> The deficit could be eliminated by immediately increasing the payroll tax by 0.96 percentage points paid by both employers and employees (from 6.20 to 7.16 percent for each). This would be an increase in the Social Security tax rate of 15 percent ( $7.16/6.2 = 1.15$ ). Alternatively, benefits immediately could be reduced by 13 percent. The magnitude of the increase in taxes needed or the reduction in benefits required to restore actuarial balance between now and 2077 is very time dependent. Figure 2 shows that if tax increases are delayed until 2042 when the Trust Fund is depleted, the

payroll tax rate would need to be increased by 46 percent instead of the 15 percent required in 2003. The deficit could also be eliminated with a transfer from general revenues of \$3.5 trillion. If all scheduled benefits are paid, retirement and disability payments will increase from 4.4 percent of Gross Domestic Product in 2002 to 7.0 percent in 2077.

[Figure 2]

None of the proposals for reforming the U.S. Social Security systems include any additional prefunding in the context of the Trust Funds (Clark, 2003).<sup>5</sup> In general, prefunding of Social Security retirement benefits arises with the addition of individual accounts. All of the reform proposals that include individual accounts specify that monies are diverted from the payment of current benefits into the individual accounts of workers. These monies are then available for investment in approved assets. Over time, a larger component of the overall system would become prefunded if individual accounts were adopted. Similar debates on Social Security reform are occurring in many countries. In general, these debates do not include proposals for prefunding traditional defined benefit type retirement plans. Many transitional and developing countries are considering various types of individual accounts plans and most of these would involve funding of the individual accounts; however, reforms in the more developed countries that involve the use of notional individual accounts often do not include any prefunding.

## **Medicare**

The government provides health insurance to the elderly through Medicare and to the poor through Medicaid. Medicare is composed of two parts: Hospital Insurance (HI) or Medicare Part A and Supplementary Medical Insurance (SMI) or Medicare Part B. Part A is funded by a payroll tax paid by workers and their employers and the Part B is financed by premiums paid by older persons plus monies from general revenues. Cost of these programs is expected to escalate rapidly in the coming years.

Figure 3 illustrates the explosive growth in projected Medicare expenditures compare to anticipated revenues from the payroll tax, beneficiary premiums, and general revenues. Medicare expenditures for both Parts A and B are projected to increase from 2.6 percent of GDP in 2002 to 5.3 percent by 2035 and then rise to 9.3 percent in 2077 (*Board of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, 2003*).

[Figure 3]

The current cost of the first part of Medicare is 1.45 percent of payroll paid by employers and a similar amount paid by employees. The payroll tax for Medicare is paid on all earnings. Currently, tax revenues exceed expenditures; however, this position will reverse in the near future and the Medicare Trust Fund is projected to be depleted in 2026 (see Table 1). Projections indicate that the payroll tax will provide revenues sufficient to pay only 73 percent of expected expenditures by 2026 and just 30 percent in 2077. The 75-year actuarial deficit for HI is 2.4 percent of payroll implying

that if the payroll tax were raised today from 1.45 percent to 2.65 percent for both the employer and the employee, there would be sufficient monies to finance this part of Medicare. To continue SMI benefits at current levels would require higher premiums and transfers from general revenues. Projections indicate that this program will increase in cost from 1.1 percent of GDP in 2002 to 4.2 percent by 2077. This rapid increase in projected expenditures for Medicare is shown in Figure 4 and compared to the slower but still very significant increase in the projected cost for OASDI.

[Figure 4]

Reform of national retirement programs must include a comprehensive assessment of retirement benefits paid in cash as well as those paid in the form of health insurance. The expected explosion of health care costs for the aging population should be of major concern to policymakers. Addressing the twin problems of financing future retirement and health care benefits is perhaps the biggest economic challenge of the twenty-first century. Table 2 shows the 75-year deficit for Medicare is 2.4 percent of payroll which exceeds the deficit for Social Security of 1.92 percent of payroll. These projections imply that the current combined payroll tax would have to be raised immediately from 15.3 percent of payroll to 19.62 percent in order to pay all scheduled benefits during the next 75 years. The growing magnitude of the twin funding problems is illustrated in Figure 5. The financial status of these problems continues to worsen when projections are continued beyond 2077.

[Table 2]

[Figure 5]

## **2. DISTRIBUTION OF RETIREMENT BENEFITS**

Total household benefits paid by the U.S. Social Security system differ by the work histories of individual workers, their level of earnings, and their family status. To examine these issues, we first present a detailed discussion of how benefits are calculated and then examine how the distributional impact of the current system.<sup>6</sup>

### **Calculation of Retirement Benefits**

To be eligible to receive retirement benefits, a worker must satisfy a coverage requirement by earning forty quarters of credited service. In 2003, an individual is awarded a quarter of coverage for each \$890 in covered earnings. A worker can earn a maximum of four quarters for working during a year. Thus, earnings of \$3,560 or more in 2003 yields four quarters of coverage. The earnings required for a quarter of coverage increases each year based on the rate of increase in the national average annual covered earnings. An individual must be age 62 and have 40 quarters of coverage to be eligible to receive retirement benefits.

The Primary Insurance Amount (PIA) is the monthly benefit amount paid to workers who initially accept retirement benefits at the normal retirement age. The PIA is also the base figure from which monthly benefit amounts are paid to the worker's family members or survivors. A worker's PIA is derived from annual indexed taxable earnings.

The determination of PIA involves three basic calculations – the indexing of past earnings, the calculation of the average indexed monthly earnings (AIME), and the application of a benefit formula to the AIME.

First, covered earnings over the worker's entire working career are examined. Past annual earnings are revaluated by indexing prior nominal earnings to the growth in real average covered earnings. This indexation is a central part of the current system and combined with other indexed components of the benefit formula means that benefits for future retirees automatically grow at the same rate as average wages in the economy. Second, these indexed earnings from age 21 until age 60 are used to calculate the worker's AIME. The lowest five of these 40 years of indexed earnings are dropped and the remaining 35 years are then used to determine the AIME. Thus, AIME is determined by adding the highest 35 years of indexed earnings and then dividing this total by 420 months (35 years times 12 months) to yield the AIME.

Finally, a three-part benefit formula is used to compute the PIA from the AIME. The formula is weighted to provide a higher replacement ratio (PIA/AIME) to those with lower earnings. The progressive benefit formula results in the replacement ratio declining as AIME rises. Thus, workers with lower average earnings will have a higher replacement ratio than those with higher lifetime average earnings. The 2003 formula provides a PIA equal to the sum of:

- a. 90 percent of the first \$606 of AIME, plus
- b. 32 percent of the next \$3,047 of AIME, plus
- c. 15 percent of AIME over \$3,653

The dollar amounts in the formula are called bend points. The bend points are increased each year in proportion to increases in the average annual earnings level. The benefit formula used to determine the PIA of a worker depends on their year of eligibility (reaching age 62) not the year they first receive benefits. For those who retire at age 65 in 2002, the PIA would be calculated using the eligibility rules that prevailed in 1999.

Actual benefits received depend on the age of acceptance. The earliest age that benefits can be received is 62; however, benefits are reduced when they are begun before the normal retirement age. Historically, the normal retirement age has been 65. Legislation in 1983 specified that the normal retirement age gradually be increased to 67. This process is now underway. When completed, persons starting benefits at age 62 will receive only 70 percent of their PIA while those beginning benefits at age 67 will receive 100 percent of the PIA. Benefits are also increased when initial acceptance is postpone beyond the normal retirement age.

Once individuals begin to receive retirement benefits, benefits are increased annually in January by cost-of-living adjustments (COLA). The COLA is based on the rate of increase in the Consumer Price Index (CPI) for the previous year. Thus, benefits in retirement are increased to maintain their real purchasing power.

This discussion provides the basic structure for calculating retirement benefits in the United States. It also highlights several important areas that must be considered in reforming this and other national retirement programs. First, if scheduled benefits to future retirees are reduced as part of amendments to restore financial solvency, how will these changes be incorporated into the benefit formula? Should benefits be reduced across the board? This method of benefit reduction could be accomplished by reducing

each of the three components in the formula by the same percentage. This is basically a distributional issue and indicates a specific concern for low-income retirees. Should the indexing formula for past earnings be changed from wage indexing to price indexing? The current system maintains a constant replacement ratio over time while a shift to price indexing would result in declining replacement ratios with increases in real earnings.

In comparison, the Japanese Social Security system has a two-part benefit formula. First, there is a basic benefit that provides a flat benefit to all qualified workers and their spouse. Employees also are covered by an earnings-related benefit that is based on a single generosity parameter. The combination of these two benefits achieves a similar type of income redistribution as does the progressive benefit formula in the U.S. system. Over the past two decades, a series of reforms have been adopted that have reduced future retirement benefits. Most of these reductions have been in the benefit formula of the earnings related benefit.

### **Distribution of Benefits by Household Characteristics**

Current benefit rules produce significant distributional effects based on income, gender, and household composition. The preceding discussion indicates how the progressive benefit formula provides a larger replacement ratio to low income workers. Throughout the history of Social Security this form of redistribution has been considered a desirable social objective. We now examine Social Security rules that provide different lifetime benefits to men and women and to different types of households.

**Gender differences in lifetime benefits.** The benefit formula of Social Security is gender neutral in the determination of annual benefits. This results in women receiving

greater lifetime benefits compared to men. A private insurance company that sells life annuities paying a specified annual benefit would be forced to charge women as a class more for this annuity than they would for men. This is due to the greater life expectancy of women. Due to lower mortality women have a higher probability of reaching retirement than men and thus collecting on the annuity (or receiving a retirement benefit). The greater life expectancy at age 65 of women also implies that they will receive benefits over a longer retirement period. On average women will receive greater lifetime benefits than men holding all other factors constant.<sup>7</sup> Thus, women with the same lifetime earnings pay the same amount in lifetime taxes as men but receive greater lifetime benefits. The Social Security systems in most developed countries, including Japan, provide gender neutral annual benefits that provides women with greater lifetime benefits per dollar of tax paid.

**Single vs. married workers.** Social Security provides greater lifetime benefits to a married worker compared to a nonmarried worker. This distributional effect occurs because of the spouse benefit. Social Security provides a benefit to the spouse of qualified workers equal to 50 percent of the retired worker benefit. This benefit is provided to a spouse at no additional cost to the worker; i.e. single and married workers pay the same payroll tax and earn the same retired worker benefits. Thus, married workers earn the right to a spouse benefit without having their own retirement benefit reduced.

All individuals who have worked and paid taxes on earnings are eligible to receive a benefit based on their own earnings record. If this benefit is less than 50 percent of

their spouse, the partner with the lower benefit becomes dually entitled. In order to explain this benefit, let us assume that the husband has had considerably higher earnings than his wife. If the wife does not work at all, she receives a benefit equal to 50 percent of her husband's retirement benefit. If she has worked in covered employment, she will receive a benefit as a retired worker. In addition, she will receive an additional benefit equal to the difference between this benefit and 50 percent of her husband's retirement benefit. Thus, the benefit is same if the spouse had never worked.

Some analysts argue that this benefit provision discriminates against working women because they receive no additional benefits for the payroll taxes they have paid. Spouse benefits can be accepted as early as age 62; however, benefit reductions apply to those that start benefits prior to the normal retirement age. Over the past three decades, several proposals have been made to address this problem; however, none have come close to be enacted by Congress. Any change in the spouse benefit would tend to increase the benefits of households in which both partners work and reduce the benefits of households in which only one member has had covered earnings. A similar result would occur in Japan if married workers whose spouses did not work were required to pay a higher payroll tax than employees who were not married in order to finance the flat benefit payment from the National Pension.

**Widow's benefits.** When a retired worker dies, his or her spouse can receive 100 percent of the retired worker's benefit. The widow's benefit increases the value of Social Security for a married worker compared to a single worker. Combining this benefit with the spouse benefit implies that the value of Social Security to a one-earner

*couple is more than 150 percent that of a single male. This result follows because the spouse will receive a survivor benefit equal to the worker's PIA once the worker dies. In comparison, no survivor benefits are paid to the estate of a single worker. There has been little debate in the United States concerning whether it is appropriate to redistribute income away from single persons toward married couples.*

For many households, the widow's benefit is only two thirds of the total benefit paid when both partners were alive. In general, equivalence scales indicated that one older person needs about 75 percent as much income as a two-person household. Thus, the reduction in total household benefits may lower the living standard of the surviving partner. A variety of proposals have been made to address this issue. In Japan, the death of a spouse also results in a reduction of household retirement benefits. The relative magnitude of the reduction in total household benefits upon the death of the spouse depends on the size of the flat benefit from the National Pension compared to the earnings-related benefit from the Employee Pension Insurance.

### **3. ADDITIONAL FACTORS AFFECTING HOUSEHOLD BENEFITS**

Two additional factors of Social Security merit special attention due to their *importance in the determination of retirement benefits. These are the earnings or retirement test and the inclusion of Social Security benefits as taxable income. Each of these items is now considered.*

#### **Earnings Test**

Throughout its history, Social Security has included a retirement or earnings test that reduced the benefits for persons who continued to have earnings after starting to

receive retirement benefits. Initially, benefits for all beneficiaries were reduced dollar for dollar for earnings above a specified amount. Beginning in 1978, there were different tests applied to persons above and below the normal retirement age of 65. Older beneficiaries were allowed to have higher annual earnings before having their benefits reduced and the reduction was at a lower level.

The earnings test has been one of the least favorable aspects of the U.S. Social Security system. Empirical studies have indicated that the earnings test reduces the incentives for older persons to continue to work. Persons who remain in the labor force tend to truncate that hours of work so that earnings do not exceed the specified limit while others are more likely to complete leave the labor force and apply for Social Security benefits at an earlier age. These effects tend to adversely affect the financial status of the system. Many retirees believe that they already have earned the right to their Social Security benefits and are angry when working causes them to have lower benefits. The arguments against the earnings test led Congress to gradually relax the test by raising the dollar limits on earnings not subject to the tax and eventually to eliminate earnings test for persons above the normal retirement age.

Amendments to the Social Security Act in 2000 completely eliminated the earnings test for persons who were older than the normal retirement age. Persons receiving Social Security retirement benefits who are younger than the normal retirement age still are subject to a reduction in benefits when their earnings exceed the dollar limit. In 2003, persons younger than the normal retirement age have their benefits reduced one dollar for each two dollars in earnings above \$11,520. In the year that a person reaches the normal retirement age, they can earn up to \$30,720 without

having any reduction in their benefits. If earnings exceed this amount, benefits are reduced by one dollar for each three dollars in earnings above the limit.

An important corollary to the earnings test, is that when benefits are reduced due to earnings above the limit, future benefits are increased by the actuarial adjustment. Benefits are recalculated as if the individual had delayed starting benefits by one month for each month benefits are reduced. Between 62 and the normal retirement age, this adjustment is basically actuarially fair implying that the earnings test should have on a small impact on younger beneficiaries. For ages above the normal retirement age, the delayed adjustment credit has historically been much lower. Thus, most of the analysis of the labor supply effects of the earnings test have been on beneficiaries who are over the normal retirement age.

Kestenbaum et al (1999) found that in 1995 just over 800,000 persons aged 65 to 70 had earnings above the limit specified by the retirement test and thus, they were subject to benefit withholding. The total amount of benefits withheld from beneficiaries due to the earnings test was \$4.3 billion. The median amount withheld was \$3,596. This implied earnings of \$10,788 above the threshold level of \$11,280 or annual earnings of \$22,800 for this group. Of course, some individual who expect to have earnings may have not applied for Social Security benefits. In 1995, there were 152,000 persons aged 65 to 70 who had earnings above the retirement test threshold who chose not to apply for benefits and thus were not subject to the test. Quinn, et al (1990) also found that beneficiaries tend to reduce their hours of work so as to avoid the earnings test.

As noted above, legislation in 2000 now exempts individuals older than the normal retirement age from the earnings test. Thus, all older beneficiaries can now have unlimited earnings and still receive their full Social Security benefit. Since the earnings test only applies to beneficiaries below the normal retirement age and for these persons the delayed benefit credit increases future benefits by an actuarially fair amount, the impact of the earnings test in the U.S. will be relatively small in the future.

### **Taxation of Social Security Benefits**

Social Security benefits are subject to federal income tax whenever the total of one half of the Social Security benefit plus a person's modified adjusted gross income<sup>8</sup> is greater than one of the following thresholds:

1. if the total exceeds \$25,000 for an individual or \$32,000 for a married couple filing a joint return, the taxable amount is the lesser of: 50 percent of the Social Security benefit or half of the excess above \$25,000 or \$32,000 respectively.
2. if the total exceeds \$34,000 for an individual or \$44,000 for a married couple filing a joint return, then the taxable amount is the lesser of: 85 percent of the Social Security benefit or the sum of the smaller of the amount included in (1) above or \$4,500 for an individual and \$6,000 for a married couple, plus 85 percent of the excess modified adjusted gross income above \$34,000 or \$44,000 respectively.

Because of these relatively high levels of income, only individuals and families in the upper part of the income distributions are required to include their Social Security benefits as taxable income. Based on income distribution data for households

aged 65 and over, it is estimated that less than one third of all older households would have Social Security benefits included as part of their taxable income. The taxes collected based on Social Security benefits do not remain in the general fund. Instead these monies are transferred to the OASDI Trust Funds. In 2002, the taxation of Social Security benefits yielded \$13.8 billion dollars. This represented 2.2 percent of OASDI revenues in that year. Obviously, these tax payments are borne primarily by middle and upper income beneficiaries.

#### **4. EMPLOYEE BENEFITS**

American workers receive a wide range of benefits provided by their employer. These include health insurance, retirement benefits, and an assortment of other types of benefits. The U.S. Bureau of Labor Statistics (2003) reports that in June of 2003, total employee compensation per hour for civilian workers was \$24.19 of which \$17.35 or 71.7 percent was paid in cash. Table 3 illustrates the composition of total employee compensation and shows the importance of employer-provided retirement and health plans relative to the cost of OASDI and Medicare.

[Table 3]

Hourly expenditures on OASDI averaged \$1.11 or 4.6 percent of total compensation. In comparison, companies on average spend \$0.86 per hour or 3.6 percent of compensation on company retirement plans. Medicare expenditures were \$0.28 per hour but employers spent \$1.76 on company plans for health and disability.

Since only half of all workers are covered by a company retirement plan and only about two thirds of employees are in employer provided health plans, the expenditures on these benefits for those companies that offer these plans is much higher.

### **Employer-provided Retirement Plans**

For most middle and upper income households, Social Security does not provide sufficient funds for an adequate retirement income. Thus for many of these individuals, retirement income is augmented by benefits from employer-provided pension plans and personal savings. Approximately half of the labor force is covered by a pension plan. Lower income households typically are not receiving retirement benefits from company plans. In contrast, higher income retirees tend to have benefits from their company plans that are greater than their Social Security benefits. The progressive benefit formula described above means that workers with higher earnings will have a lower replacement ratio from Social Security and thus must depend to a greater extent on other forms of retirement income.

Traditionally, most pension participants were enrolled in defined benefit pension plans; however, during the past three decades, there has been a strong and continuing movement away from defined benefit plans and toward defined contribution plans. Today, two thirds of all pension participants are covered by defined contribution plans. The expansion of coverage by defined contribution plans has been the result of increased government regulations that raised the cost of providing defined benefit plans and new options for defined contribution plans such as 401(k) plans. In addition, shifts

in the composition of the labor force and in employment opportunities have made defined contribution plans more popular among workers.

Defined contribution plans require workers to decide whether to participate in the plan, how much money to contribute, and how to invest their retirement funds. These plans are much more portable than defined benefit plans as they allow workers to move their account balances when leaving a company. The popularity of these plans was enhanced during the 1990s with the prolonged rise in the U.S. stock market.

Recent declines in the market combined with accounting and management scandals including Enron, WorldCom, and Tyco among others have to some extent shaken the confidence of investors. However, there is no evidence that companies are returning to defined benefit plans or that workers would now prefer defined benefit plans. New regulations to restore confidence in the accounting and auditing systems of large companies are being considered. In addition, there has been considerable debate over the use of company stock in defined contribution plans. Several proposals to reduce or limit the percentage of an account balance that can be invested in the stock of the employer; however, none of these proposals seems likely to be enacted. Other proposals providing increased opportunities for participants to sell company stock in these plans are likely to be passed by Congress.

There is continued debate over the need for changes in pension tax laws and regulation. Several bills are currently under consider that might alter the administrative costs of various types of plans, provide new options for retirement savings, and change the desirability of certain types of pension plans. It is unlikely that any of these

proposals will significantly increase the proportion of the labor force that is covered by an employer-provided pension plan.

### **Employer-provided Health Plans**

In the United States, most people younger than 65 receive health insurance through their employers or the employer of their spouse or parent. Two thirds of non-elderly Americans are covered by employer-provided health insurance. However, approximately 17 percent of non-elderly does not have any type of health insurance (Fronstin, 2002; also see U.S. BLS, 2002). The lack of health insurance for many Americans is a major political and economic issue.

The rapidly rising cost of health insurance is a major issue for employers. During the past three years, employer premiums for health plans have been rising by over 10 percent per year during a period when the increase in the Consumer Price Index has been averaging around 2.5 percent per year. Employer costs per worker for health insurance averages around \$6,000 to \$10,000 per year. In the face of these rapidly rising costs, employers have been increasing the cost of health insurance that workers must pay. Employees are facing higher premiums, larger deductibles, and greater co-payments for participation in the company health plans. As health insurance costs rise faster than general prices, workers and their employers must decide whether to continue to purchase the same level of health care or reduce coverage. If quality is maintained, then other forms of compensation must be reduced.

## **5. CONCLUDING REMARKS**

*Social Security in the United States faces a major financial challenge in the twenty-first century. The current actuarial deficit over the next 75 years is 1.92 percent of payroll but larger deficits loom further in the future. The financial shortfalls are directly linked to the aging of the population. Restoring financial solvency requires that scheduled benefits be reduced or that new sources of revenue be found. It is important to note that reforming Social Security can take many forms. Proposals should be evaluated on whether they can eliminate the financial deficit; however, consideration must also be given to the distributional effects on any change. This paper highlights the need for reform and identifies some of the existing distributional anomalies imbedded in the U.S. Social Security system.*

*The problems confronting Social Security must be considered within an overall economic and social context. Large and growing deficits associated with health care programs for the elderly are projected. Providing health care to future retirees presents governments with a considerable economic challenge. The projected deficits of the Medicare program are growing much more rapidly than those projected for Social Security. Policy makers must find a means of addressing these rapidly expanding costs. One can not consider reforming Social Security in a vacuum. Health care programs along with employer-provided retirement benefits also must be included in future assessments. The need for comprehensive national retirement policies has never been more pressing.*