

Receipt of Multiple Benefits by Disabled- Worker Beneficiaries

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ABSTRACT

In 1971, 44 percent of workers who had been currently entitled to social security disability insurance (SSDI) benefits for 1 year or more also received benefits from at least one other source. These recipients had higher average SSDI benefits than persons who received only SSDI. On the average, total benefits to the recipients of multiple benefits were double the benefits paid to recipients of SSDI only. The combined benefits for the former produced median replacement rates about 50 percent larger than the median replacement rates for the latter. High rates predominate among those persons who receive multiple benefits—that is, benefits replace 80 percent or more of their pre-disability earnings.

Considering replacement rates based solely on SSDI benefits substantially understates the extent to which benefits from public and private programs actually replace pre-disability earnings. Replacement rates based solely on SSDI are generally higher for recipients of SSDI only than for recipients of multiple benefits.

NOTE

The 1979 Social Security Advisory Council expressed concern that the receipt of multiple benefits could result in disability payments that were excessive when compared with the earnings capacity previously demonstrated by the disabled worker. Thus motivation to seek rehabilitation or to return to work might be reduced. Many issues concerning receipt of multiple benefits are addressed by this staff paper. It identifies persons who receive multiple benefits, examines benefit levels, and compares benefits to previous earnings.

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INTRODUCTION

In the last decade or so, the social security disability insurance (SSDI) program has exhibited sharp growth, both in number of recipients and in benefit expenditures. Between 1969 and 1978 the number of disabled-worker beneficiaries increased over 100 percent from 1.4 million to 2.9 million. This increase occurred despite the fact that the number of workers insured in the event of disability increased only 25 percent over the same period. The rate of recovery of disabled-worker beneficiaries also declined over that period; the rate per 1,000 beneficiaries declined from 29.3 in 1969 to 12.8 in 1976. The resulting increase in the number of beneficiaries combined with increases in benefit levels¹ to raise payments to workers and their dependents from \$2.5 billion in 1969 to \$13.0 billion in 1978.

The actual growth in the disability insurance (DI) program surpassed anticipated levels and aroused concern. Attention turned to possible ways of controlling the increases both in numbers of beneficiaries and in program costs. Testimony before Congress focused attention on excessive replacement rates as a cause of the adverse disability insurance experience. It was argued in Congressional hearings concerning amendments to the disability insurance program that high rates of replacement act as an incentive to apply for DI benefits and as a disincentive for beneficiaries to return to work. A study by Social

Security Administration (SSA) actuaries² was cited during the hearings:

High benefits are a formidable incentive to maintain beneficiary status especially when the value of medicare and other benefits are considered. We believe that the incentive to return to permanent self-supporting work provided by the trial work period provision has been largely negated by the prospect of losing high benefits.

John Miller, a private sector actuary, was quoted in the hearings report³ as stating that "The evidence is clear that liberal disability benefits induce both an increase in the number of cases approved and the prolongation of disability."

Estimates of the number of persons who have high replacement rates vary. In testimony before the Social Security Subcommittee, Secretary Califano estimated that benefits exceed previous net earnings in approximately 6 percent of all cases and 80 percent of previous net earnings in 16 percent of cases.⁴ Further research shows that 28 percent of entitlements during the 1969-75 period had social security disability benefits which exceeded 80 percent of average earnings reported to social security over the individual's lifetime, even when earnings were indexed to current dollars.⁵

¹Benefit levels have risen both absolutely and relatively over the period in question. The average family benefit amount increased from \$140.50 in 1969 to \$322.30 in 1977. The Office of the Actuary estimates that average replacement rates (benefits relative to earnings) for disabled workers with median earnings and qualifying dependents increased from 60 percent in 1967 to over 90 percent in 1976. (Source: "Experience of Disabled-Worker Benefits Under OASDI, 1972-1976," Actuarial Study No. 75, June 1978).

²*Ibid.*

³"Report on the Disability Insurance Amendments of 1979 (HR 3236)," House Report No. 96-100, p. 5.

⁴*Ibid.*, p. 4.

⁵L. Scott Muller and M. E. Lando, *Replacement of Earnings of the Disabled Under Social Security: Levels and Trends 1969-75*, Research Report No. 53, Office of Research and Statistics, Social Security Administration.

The concern over these excessive replacement rates has manifested itself in the Social Security Disability Amendments of 1980 which were signed into law June 9, 1980. The provisions include a cap of family social security benefits at 85 percent of the worker's average indexed monthly earnings (AIME) or 150 percent of the worker's primary insurance amount (PIA), whichever is lower, but not less than the worker's PIA.⁶

Social security disability insurance is not the only contributor to the excessive replacement rates that may cause disincentives to return to work. In 1971, 44 percent of the SSDI beneficiary population received benefits from other public or private programs in addition to SSDI, presumably due to a disabling condition. Such multiple benefits raise replacement rates above those obtained when the computation is limited to SSDI alone and can be expected to further reduce incentives to return to work. The 1979 Social Security Advisory Council recognized this problem and a majority of the council recommended that an individual's total benefits from all Federal disability programs be capped, with the exception of means-tested programs and service-connected veterans' compensation.⁷ Such a proposal is not without precedent. Currently, workers' compensation benefits and DI benefits are offset, subject to a replacement rate cap.⁸ More important, however, may be the offset provisions from the Social Security Amendments of 1956 which reduced benefits dollar for dollar for SSDI recipients who received disability benefits from either another Federal agency or State workers' compensation program. That offset provision was, however,

⁶Besides setting a cap on replacement rates, the law reduces the number of dropout years of earnings allowed in the computation of AIME for younger workers. It allows 1 dropout year for each 5 years of countable earnings, not to exceed a total of 5 dropout years.

⁷"Social Security Financing and Benefits," *Reports of the 1979 Advisory Council on Social Security*, pp. 144-148.

⁸The present workers' compensation offset became effective in July 1965 (section 424, public law 89-97, title III). The offset provides for a reduction in the monthly benefits for a disabled-worker family when the combined workers' compensation and SSDI payments exceed 80 percent of average current earnings prior to the onset of the disability. "Average current earnings" is defined as the highest of (1) the average monthly earnings used for computing the PIA, (2) average monthly earnings during the 5 consecutive years of highest covered earnings after 1950, counting any earnings in excess of the maximum taxable earning level, or (3) average monthly earnings from covered employment in the year of the highest earnings during the period consisting of the year of disablement and the 5 preceding years, counting any earnings in excess of taxable earnings.

removed as part of the 1958 Social Security Amendments.

This paper examines the extent of the receipt of multiple benefits, the types of programs involved, and the resulting effect on benefits and replacement rates. Past research⁹ on the replacement of earnings of disability beneficiaries by SSDI did not consider the possible receipt of multiple benefits by the disabled workers. Such data are not available from Social Security administrative records.¹⁰ By using the 1972 Social Security Survey of Disabled and Nondisabled Adults, it is possible to consider other sources of benefit income.¹¹ Among the income sources which are available from the survey are aid to the permanently and totally disabled/aid to the blind (APTD/AB),¹² veterans' compensation, workers' compensation, government pensions, railroad retirement, aid to families with dependent children (AFDC) and other types of public assistance, private employer pensions, private insurance payments, State cash sickness (temporary disability), and unemployment compensation programs.

The data.—The data employed in this paper come from the 1972 Social Security Survey of Disabled and Nondisabled Adults.¹³ The survey has been matched to Social Security administrative data contained in the master beneficiary record. The resulting data set provides all the survey information plus social security earnings information, entitlement dates, benefit status information, and benefit amounts.

The data set consists of 1,284 unweighted observations of persons receiving disability insurance benefits as of December 1971. These cases are

⁹See Muller and Lando, *op. cit.*, and F. R. Bayo and J. F. Faber, "Actual Replacement Rates for Disabled-Worker Beneficiaries," Actuarial Note No. 94, January 1978.

¹⁰Past research has focused on predisability earnings which were truncated by the taxable maximum under the social security legislation. Administrative earnings data which were merged to the 1972 survey were also truncated at this level; hence the present research is based on social security taxable earnings.

¹¹A description of the method used to assign benefits and a copy of the relevant portion of the questionnaire are presented in the technical note.

¹²These and some other formerly Federal and/or State programs were incorporated into the Federal supplemental security income program in 1974. For purposes of analysis in this paper, APTD and AB are treated as a single source.

¹³The 1972 survey is a sample of 18,000 persons selected from the 1970 5-percent census sample. The data were collected and processed by the Bureau of the Census. Additional information about the survey may be found in the technical note.

equivalent, when weighted, to a population of 1.3 million. By comparison the actual population of DI beneficiaries at the end of 1971 amounted to 1.6 million.

Certain benefits may be received only during the transition from the onset of a disabling condition to the receipt of DI benefits (such as unemployment compensation, temporary disability, or public assistance). To assure that the recipients of DI benefits under analysis were also receiving other benefits,

the sample was limited to persons whose current entitlement date was prior to January 1, 1971. This guaranteed that the individual was entitled during the entire year and that the benefits were in addition to SSDI benefits. This additional criterion reduced the sample to 898 unweighted or 866,000 weighted cases.¹⁴ It was also necessary to omit a small percentage (less than 5 percent) of these cases from the analyses of benefit amount and replacement rates due to missing or allocated values.

¹⁴The elimination of cases due to current entitlement of less than 1 year did not change the proportion of recipients of multiple benefits very much. For all DI beneficiaries in 1971, the proportion of such recipients was 47 percent; for those DI beneficiaries whose current entitlement was prior to 1971, the proportion was 44 percent, a small but expected decrease.

RECIPIENTS OF MULTIPLE BENEFITS

General Characteristics

In 1971, 43.9 percent of the SSDI beneficiary population collected benefits from at least one program besides social security. The largest proportion (87 percent) of these recipients of multiple benefits collected benefits from one program in addition to social security; 12 percent collected from two. No individual in the sample received support from more than three of the 10 additional programs considered in this study.

Because the number of observations is small, table 1 divides the recipients of multiple benefits by single demographic variables.¹⁵ In order to control for more than a single variable, a multivariate logit technique¹⁶ was used to estimate the probability of being a recipient of multiple benefits (table A). This technique allows one to control for all other variables while determining which factors significantly differentiate recipients of multiple benefits from other DI beneficiaries. Estimates were made both including and excluding predisability earnings level.

In the logit analysis, race, marital status, and the presence of a child proved to be statistically insignificant

in explaining the differences in the probability of receiving multiple benefits. Sex, however, was a highly significant determiner, with men more likely than women to be recipients of multiple benefits. Men received multiple benefits at a rate twice that of women, 52 percent versus 25 percent.

In the logit analysis, the 55-64 age group served as the reference group. Persons in the 35-44 and 45-54 age groups were found to have probabilities of receiving multiple benefits that were significantly greater than that of the reference group. The estimated probability was slightly greater for the 35-44 age group. Those under 35 were less likely than the reference group to receive multiple benefits and hence had the smallest probability among all the groups. Education had little effect in determining multiple benefit status.

The level of predisability earnings had a significant influence on the probability of receiving multiple benefits. Although the low predisability earnings group was not statistically discernible from the moderate earnings group in the logit analysis, those with high predisability earnings were considerably more likely to receive multiple benefits. Sixty-one percent of the high earners received multiple benefits compared with 43 percent of the moderate earnings group and 36 percent of the low earnings group (table 1).

Characteristics by Type of Program

The number of DI beneficiaries who receive benefits from each combination of programs is shown in table B. Because small numbers of cases within each combination make analysis unreliable, the combinations are aggregated in table C. Veterans' benefits formed the largest source of multiple benefits.

¹⁵Three categories of predisability earnings were generated from the average monthly earnings (indexed) over the working lifetime from age 22 (or 1951, whichever was later) to the year prior to the entitlement to DI benefits. The low earnings category includes average earnings up to \$345 per month, a figure representing the 1971 poverty level cutoff for a nonfarm family of four. The moderate earnings category includes average earnings of \$345 to \$500 per month; high earnings exceed the \$500 figure. The earnings upon which the calculation was based are subject to the taxable maximum imposed by the social security legislation.

¹⁶A further discussion of this type of estimation procedure may be found in the technical note. It is quoted directly from Jesse M. Levy, "Demographic Factors in the Disability Determination Process: A Logistic Approach," *Social Security Bulletin*, March 1980, p. 12.

TABLE A.—Logit on probability of receipt of multiple benefits

(*t* values in parentheses)

Item	Predisability earnings included	Predisability earnings excluded
Constant	¹ -1.5424 (5.61)	¹ -1.3771 (6.15)
Sex (1 if male)	¹ 1.1862 (6.50)	1.3391 (7.69)
Race (1 if black)	-.0956 (.45)	-.2093 (.99)
Marital status (1 if married)...	-.2102 (1.17)	-.1518 (.85)
Children (1 if yes) .....	.2508 (1.53)	.2333 (1.44)
Age (under 35)	² -.6757 (1.85)	³ .8467 (2.37)
Age (35-44)	³ .6194 (2.48)	2.4720 (1.93)
Age (45-54) (reference, 55-64)	¹ .5359 (3.21)	1.4296 (2.64)
Education (9-12 years) .....	.1238 (.78)	.1374 (.89)
Education (13 or more years) (reference, 0-8 years) .....	.4774 ² (1.78)	.4852 ² (1.85)
Earnings (low) .....	.0545 (.29)	---
Earnings (high) (reference, moderate) .....	.9044 ¹ (4.25)	---
Number of cases	893	893

¹Significant to 0.01 level, two-sided test, 2.576.

²Significant to 0.10 level, two-sided test, 1.645.

³Significant to 0.05 level, two-sided test, 1.960.

Almost half of those receiving multiple benefits received veterans' payments, more than double the number who received benefits from the next largest source, private employer pensions.

Due to the small number of cases for most income sources, it was necessary to combine the 10 benefit sources into larger categories in order to

analyze the effect of various characteristics on multiple benefit status. Four major categories were generated: veterans' payments, private programs, means-tested programs, and other government programs. Each category is discussed in turn below.

The logit technique was applied again to determine which characteristics were significant in identifying whether an individual receives a type of income. Again, estimates were made both including and excluding the predisability earnings level. The logit results are discussed below following a brief discussion of the income sources in the category.

Veterans' payments.—Veterans' payments are the largest source of multiple benefits for SSDI recipients. Twenty-one percent of all DI beneficiaries received such benefits (table 2). Veterans' programs provide compensation for service-connected disabilities, a needs-tested pension for non-service-related disabilities, and benefits for survivors of wartime veterans who have died from service-related causes.¹⁷ As one might expect, men were much more likely to receive veterans' payments than women.

The logit analysis (table 3) showed persons in the 35-44 and 45-54 age groups had the highest probabilities of receiving veterans' payments. This result probably reflects the presence (in 1971) of most veterans of World War II and Korea in these intervals. The 35-44 and 45-54 age groups each had rates of receipt in excess of 30 percent, 1.5 times greater than the rate for persons 55-64 and about 2.5 times that for the group under 35. Having children was found also to raise the probability of receiving veterans' benefits. This may only reflect the age effect, however, because the 35-44 and 45-54 age groups are also those most likely to have dependent children.

Private programs.—The private programs category includes both private employer pensions and private insurance payments. Private employer pensions provided the second largest individual source of multiple benefits, reaching about 9 percent of SSDI recipients (table C). Nearly 30 percent of the DI beneficiaries who received these pensions also received income from a third source. Payments from private insurance plans provided an additional income source for only 2 percent of SSDI recipients.

¹⁷Certain benefits are available to peacetime veterans also. A description of veterans' benefits may be found in *Social Security Programs in the United States*, DHEW Publication No. (SSA) 73-11915, U.S. Govt. Print. Off., Washington, D.C., 1973.

TABLE B.—Combinations of multiple benefits among SSDI beneficiaries, 1971

Source of benefit	Total	Weighted percent	Unweighted count
Total	865,759	100.0	898
SSDI only	485,552	56.1	496
SSDI and other, total	380,207	43.9	402
SSDI and one other program:			
Veterans' payments (VP)	145,354	16.8	160
Private employer pension (PEP)	54,665	6.3	54
Aid to the permanently and totally disabled/aid to the blind (APTD)	45,239	5.2	48
Government pension (GP)	25,866	3.0	29
Other public assistance (OPA)	18,779	2.2	11
Workers' compensation (WC)	17,022	2.0	21
Private insurance (PI)	9,015	1.0	11
Aid to families with dependent children (AFDC)	8,924	1.0	9
Railroad retirement (RR)	2,431	.3	3
Temporary disability (TD)	2,037	.2	2
SSDI and two other programs:			
PEP, VP	10,987	1.3	12
APTD, VP	7,242	.7	6
WC, VP	5,835	.7	6
GP, VP	4,440	.5	5
WC, PEP	3,727	.4	4
PI, PEP	3,324	.4	4
PI, VP	2,195	.3	3
PI, VP	1,815	.2	2
OPA, APTD	1,105	.1	1
AFDC, VP	1,080	.1	1
WC, OPA	1,004	.1	1
TD, OPA	956	.1	1
PI, WC	940	.1	1
RR, VP	874	.1	1
OPA, VP	844	.1	1
PEP, GP			
SSDI and three other programs:			
PEP, GP, VP	972	.1	1
WC, PEP, VP	955	.1	1
GP, APTD, VP	904	.1	1
PI, WC, PEP	848	.1	1
PI, PEP, VP	828	.1	1

The logit analysis shows that the probability of receiving private program benefits is positively related to predisability earnings level. Those with low predisability earnings were significantly less likely to obtain these benefits than the reference group with moderate earnings. The high earnings group was significantly more likely to receive them. Nearly 32 percent of the high earners received benefits from private programs compared with only 8 percent of the moderate earners and 2 percent of the low earners (table 2). Persons in the 55-64 age group were found to be more likely to receive benefits from pri-

vate programs than other groups, although the result was significant only to the 0.10 level. The concentration of older recipients among those receiving private program benefits may be a function of private employer pensions which require that an employee have a certain number of years of service to receive benefits. Such a condition may serve to screen out younger employees. The rate of receipt of private payments for persons aged 55-64 was over twice as high as that for the group 45-54 and considerably higher than the rates for those under age 45.

TABLE C.—Estimated number and percent of SSDI beneficiaries receiving other benefits, by type of benefit

Source of benefits	Number (in thousands)	Percent of DI beneficiaries—	
		Receiving a benefit from this program	Receiving a benefit from this program and another program ¹
Total.....	866	100.0	43.9
SSDI only.....	486	56.1	---
SSDI and other, total.....	380	43.9	13.4
SSDI and—			
Veterans' payments.	183	21.1	20.4
Private employer pension.....	77	8.9	29.1
Aid to the permanently and totally disabled/ aid to the blind.....	55	6.4	18.0
Government pension.....	33	3.8	21.7
Workers' compensation....	30	3.5	44.0
Other public assistance.....	24	2.7	20.3
Private insurance...	17	2.0	47.4
Aid to families with dependent children.....	10	1.2	11.0
Railroad retirement.	3	.4	27.9
Temporary disability	3	.4	33.0

¹DI beneficiaries who receive benefits from two or more programs, one of which is the listed program. The figure corresponding to the total is the rate of receipt of two or more programs in addition to SSDI among all multiple benefit recipients.

If predisability earnings are excluded in the multivariate model, age, sex, and race are significant in determining multiple benefit status. Whites and men were more likely to receive private program benefits than minorities and women. Each of the three age groups under 55 showed significantly lower probabilities of receiving these benefits than the reference group of those aged 55-64. The significance of age, sex, and race in these regressions might be expected due to the importance of such variables in determining earnings level whenever earnings is the key determinant of receipt of benefits from private programs.

Means-tested programs.—The means-tested programs category includes aid to the permanently and totally disabled/aid to the blind, aid to families with dependent children, and other public assistance. Each of these programs requires a test of need based on income and assets.

Nearly 15 percent of the recipients of multiple benefits received income from APTD or AB (table C). Aid to families with dependent children and other public assistance (such as general assistance and other State and local plans) are, unlike APTD/AB, not intended solely for the disabled (or aged) population. These programs, which are administered on the State level, are intended to provide financial assistance to low-income households. Disabled workers with total household income below the established income limits may apply for these benefits.

The logit analysis of means-tested programs indicates that, as expected, the probability of receiving income from these sources is greatest for those with low predisability earnings. Nearly 15 percent of persons with low predisability earnings obtained benefits from means-tested programs compared with 4 and 5 percent, respectively, of the moderate and high earners (table 2). This, of course, is to be expected due to the relationship between earnings and benefits and the income limits for the means-tested programs.

The logit analysis also identified nonmarried individuals as being more likely to receive means-tested benefits than married individuals, perhaps due to the absence of a spouse who could provide an additional source of earned income. Nonmarried individuals received means-tested benefits at a rate twice that of married persons.

By race, white persons were found to have a lesser probability of receiving benefits from a means-tested program although when controlling for earnings level, the result was significant only to the 0.10 level. Nine percent of the whites received such benefits in addition to SSDI compared with 16 percent of other races.

Other government programs.—This category includes government pensions, railroad retirement, workers' compensation, and temporary disability insurance (cash sickness). These programs have been combined because small sample size precluded the analysis of each separately. The programs have two similarities: each is a government program and each has work-related benefits. Approximately 4 percent of DI beneficiaries received income from one of the various State and Federal civil service pensions (table C). The government pension plans differ among

States and from local to State to Federal level although the plans generally pay retirement and/or disability benefits after a tenure period in employment.

The Railroad Retirement Act provides retirement, survivor, and disability benefits for railroad workers who have at least 10 years of service.¹⁸ Workers are entitled to collect both social security and railroad retirement, if so insured, but surviving dependents are eligible for only one of the two with benefits based on the combined earnings record. Less than 1 percent of DI beneficiaries received benefits from railroad retirement.

Workers' compensation programs also vary from State to State; however, all such programs in the 50 States and Puerto Rico require that the disability be work related. Most States provide for replacement of lost earnings at 66-2/3 percent, subject to minimum and maximum benefit levels and to maximum periods of coverage or maximum total benefit ceilings. Most States provide for payment of a lump-sum settlement if it is in the claimant's interest.¹⁹ Four percent of the DI beneficiaries received benefits under this program. Workers' compensation is the only program under which SSDI payments can be reduced or eliminated. Legislative offset provisions provide for a reduction in the monthly benefits

for a disabled-worker family when the combined workers' compensation and SSDI monthly payments exceed 80 percent of average current earnings prior to the onset of disability.²⁰ This provision may be inadequate in preventing excessive replacement of earnings because 47 percent of those who received these combined benefits also received payments from one or more other programs.

As of 1972, five States, Puerto Rico, and the railroad industry had temporary disability programs to provide benefits of up to 6 months for nonoccupational disabilities or illnesses.²¹ Because of this 6-month maximum duration and the 5-month waiting period for social security benefits, the overlap of these two programs is limited. Less than 1 percent of the SSDI recipients obtained temporary disability benefits.

Logit analysis identified three personal characteristics which are significant in determining overlap status in other government programs. Married individuals were more likely to receive benefits from these programs than nonmarried individuals. Persons in the 35-44 and 45-54 age groups were more likely than those in the reference (55-64) group to obtain such benefits. Finally, low predisability earnings reduced the probability of receiving benefits from other government programs.

¹⁸Partial coverage is available upon death or retirement if 1½ years of coverage are obtained in the last 3 years.

¹⁹For additional information see *Social Security Programs in the United States*, pp. 72-87.

²⁰For a definition of average current earnings, see footnote 8.

²¹See footnote 19.

BENEFIT AMOUNTS

Receipt of multiple benefits does not necessarily indicate that the total benefits received are excessive or act as a disincentive to remain in the labor force or return to work. Some means-tested benefits are intended to supplement social security payments; the resulting disincentive effects may be minimal. On the other hand, if the benefits from other income-maintenance programs are not coordinated with those from social security, attempts to avoid disincentives within the social security system may be seriously retarded.

The average benefit amounts paid under the various programs are presented in table D which shows that the average DI payment was 19 percent larger for persons who received income from other programs (\$224) than for persons who received only disability insurance (\$189).

Total benefits for recipients of multiple benefits averaged \$429 per month, more than double the amount received by persons who received SSDI only. Sources of benefits other than social security provided, on the average, 48 percent of the total benefits paid to those recipients. The average benefit amount paid varied greatly according to the source, ranging from \$251 per month under government pension plans to \$41 per month under temporary disability insurance.²²

The rate of receipt of multiple benefits increased with the level of the SSDI benefit up to a benefit of \$200 per month and then leveled off at about 50 percent (table E). One notable exception was the \$350-\$399 interval in which the rate of receipt reached 71 percent, then fell to 47 percent for SSDI benefits above this level. This drop may be explained by the predominance of young persons at

the highest benefit levels prior to the changes in legislation that called for indexing of earnings. Younger workers are less likely to receive multiple benefits than older workers.

TABLE D.—Average benefits for recipients by program

Program	Number of recipients (in thousands)	Average monthly benefit for those receiving
All recipients, total benefits . . .	866	\$290
All recipients, total		
SSDI benefits	866	1203
Recipients of SSDI only,		
SSDI benefits	486	189
Recipients of multiple benefits,		
total benefits	380	429
SSDI portion	380	224
Other benefits, total . . .	380	205
Veterans' payments . . .	183	205
Private employer pension	77	178
Aid to the permanently and totally disabled/aid to the blind	55	83
Government pension	33	251
Workers' compensation	30	195
Other public assistance	24	86
Private insurance	17	161
Aid to families with dependent children	10	167
Railroad retirement	3	200
State cash sickness	3	41

¹This amount is slightly larger than the published social security average benefit amount for 1971 of \$180 (1971 *Annual Statistical Supplement to the Social Security Bulletin*), an overstatement of 12 percent.

²²Because overlapping of more than 1 month is unlikely, this amount may understate the actual monthly benefit under temporary disability insurance.

Generally, recipients of multiple benefits whose social security benefits are high were also more likely to receive benefits from other programs (table 4). Also, the monthly benefit amounts from these

other programs were likely to be larger. The resulting distribution of monthly benefits for multiple benefit recipients (table F and figure 1) shows that social security benefits are skewed toward the higher amounts for those who receive multiple benefits relative to those who do not.

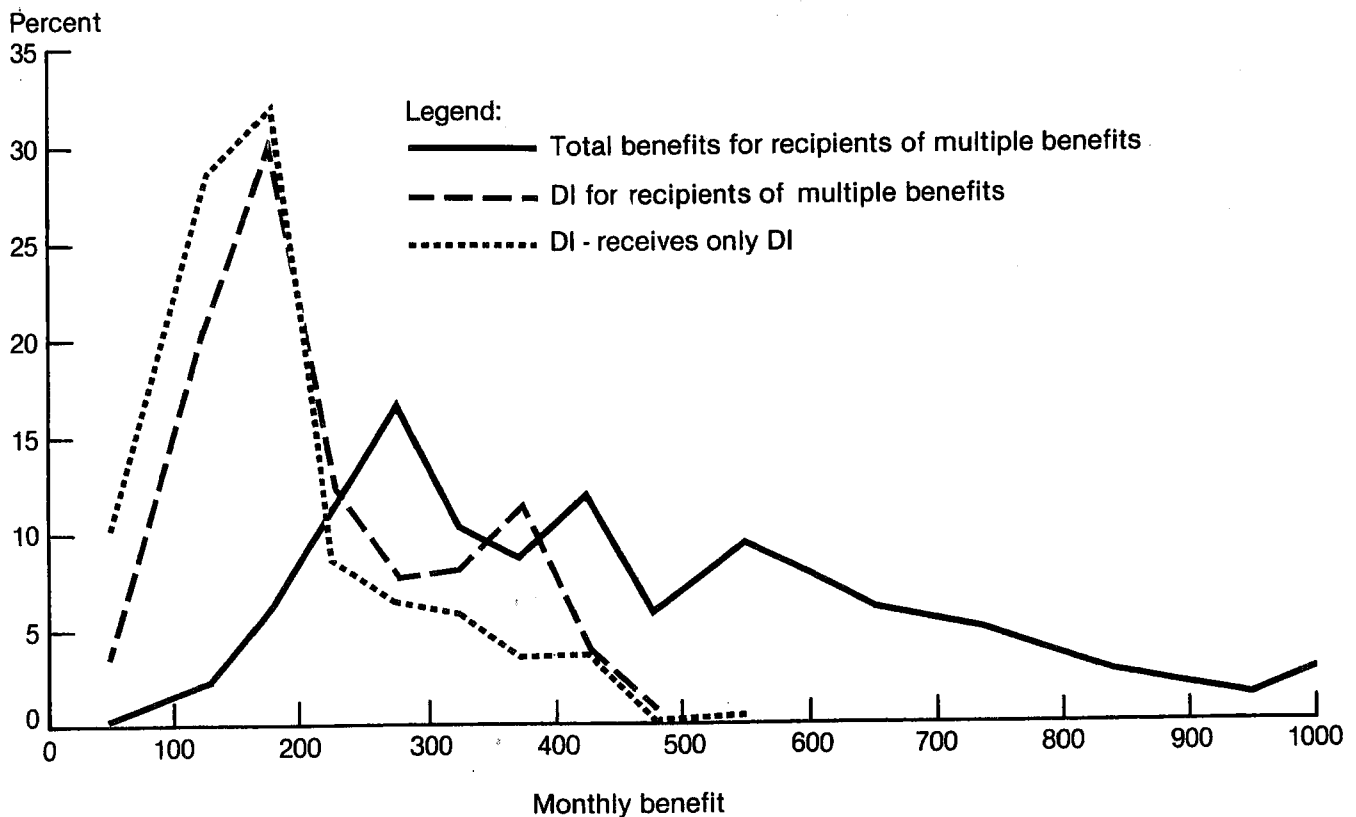
TABLE E.—Percent of SSDI beneficiaries receiving multiple benefits by SSDI benefit amount

Amount of monthly SSDI benefit	Number of benefits (in thousands)	Percent receiving other benefits
Total	866	43.9
Less than \$100	67	25.2
\$100-\$149	219	36.1
\$150-\$199	267	42.1
\$200-\$249	87	52.1
\$250-\$299	65	51.3
\$300-\$349	59	51.5
\$350-\$399	58	70.8
\$400 and over	39	46.7

Except for the group receiving the lowest DI benefits, the incidence of receipt of multiple benefits increased with higher SSDI benefits (table 5). The high rate of receipt of multiple benefits among those who received low SSDI benefits may be due to the presence of recipients of means-tested benefits and (presumably) of persons whose DI benefit is offset by workers' compensation benefits.

When considering the various programs individually, the rates of receipt of veterans' payments and workers' compensation were greatest at the highest SSDI benefit levels. This finding may be explained by the predominance of men among the beneficiaries of these two programs combined with the traditionally higher earnings of men, thus producing larger SSDI benefits. Private pensions also

FIGURE 1. —
Percent distribution of monthly benefit amounts



were more likely to be received by recipients of high SSDI benefits. In contrast, private insurance benefits were more frequently received at the middle SSDI benefit levels and means-tested benefits, at low SSDI benefit levels.

Average Benefits by Selected Characteristics

The average total benefit amounts for recipients of SSDI benefits only and recipients of multiple benefits are compared in figure 2 and table 6. As would be expected, the average total benefit for recipients of multiple benefits far exceeded that for persons who received only SSDI. The differences in average SSDI payments according to demographic characteristics resemble those found in previous research. Men received higher benefits than women. Payments to whites exceeded those to blacks. Married persons and those with children had higher average

TABLE F.—Distribution of total monthly benefits by receipt of multiple benefits

Monthly benefit amount	Total (all DI beneficiaries)	Receives SSDI only	Receives multiple benefits
Total number in thousands) . . .	866	486	380
Total percent.	100.0	100.0	100.0
Less than \$100	6.1	10.4	.2
\$100-\$199	38.6	60.7	8.2
\$200-\$299	20.5	15.1	27.9
\$300-\$399	13.4	9.4	19.0
\$400-\$599	14.0	4.3	27.3
\$600-\$799	4.5	---	10.8
\$800-\$999	1.6	---	3.8
\$1,000 and over	1.1	---	2.7

FIGURE 2.—
Average benefit amounts by selected characteristics

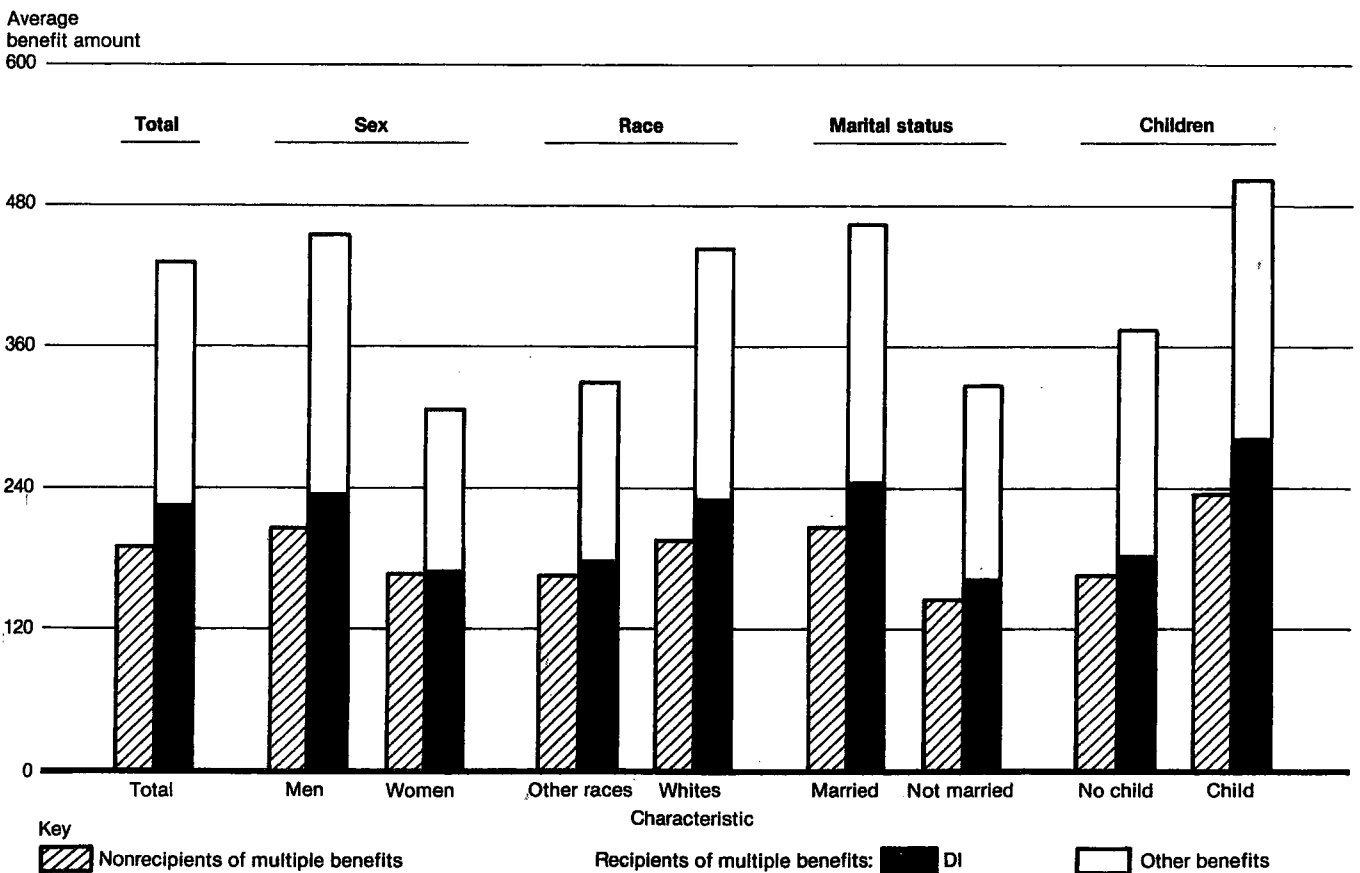
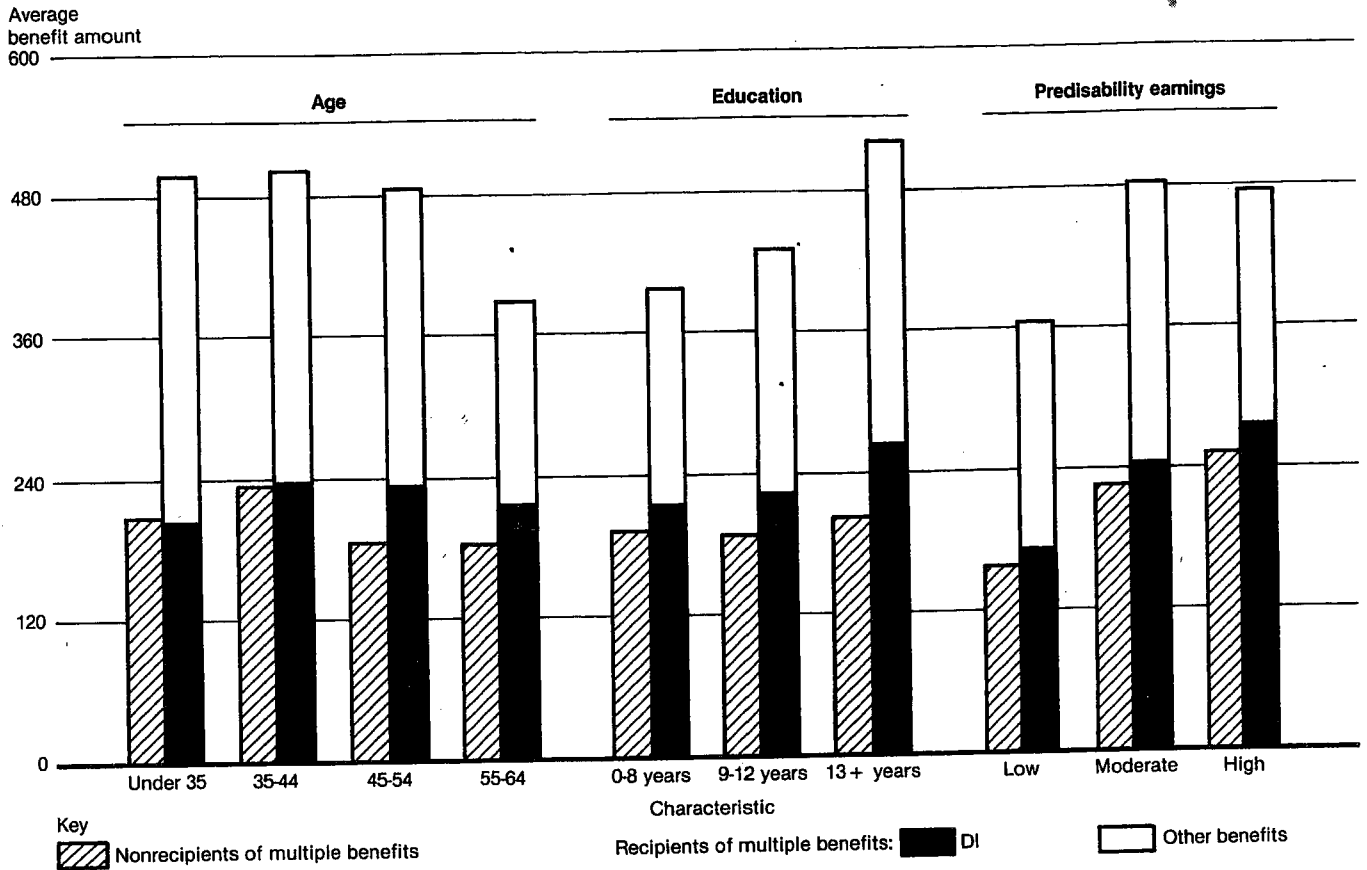


FIGURE 2. —

Average benefit amounts by selected characteristics.—Continued



benefits than their respective counterparts, presumably due to the dependents' benefits paid under social security. Higher average benefits were associated with higher education levels and higher earnings levels. Average benefits peaked for the group aged 35-44. Each of these findings held for both recipients of multiple benefits and recipients of SSDI only.

When SSDI benefits are compared within a particular category, recipients of multiple benefits are found to have larger average SSDI benefits than persons who received no additional benefits except for persons under age 35. Differences in average SSDI benefits between persons who received multiple benefits and persons who did not, which were significant at the 0.05 level, occurred for the following groups: men, whites, married persons, those with children, persons aged 45-54 or 55-64, and those with 9-12 years of education.

The difference in total benefits between persons who received multiple benefits and those who did not was consistently large and varied greatly by personal characteristics (figure 2). Within each characteristic, the average total benefit was at least 85 percent greater for multiple benefit recipients than for persons receiving only SSDI. The largest difference in average benefits, both absolutely and relatively, occurred among the college educated, where the benefit to multiple benefit recipients was \$321 greater, or more than 2½ times as large as that for those receiving no other benefits (table G).

Proportion of Benefits From Sources Other Than Social Security

To assess the "mixture" of SSDI and other benefit amounts, multiple benefit recipients were divided according to the proportion of total benefits which

TABLE G.—Absolute and percentage differences in average benefits between recipients of multiple benefits and recipients of SSDI only by selected characteristics

Characteristic	Absolute difference ¹	Percent difference ¹
Total	\$240	127
<i>Sex</i>		
Men	248	121
Women	141	85
<i>Race</i>		
White	249	129
Black	164	100
<i>Marital status</i>		
Married	255	123
Not married	182	125
<i>Children</i>		
None	209	127
1 or more	265	111
<i>Age</i>		
Under 35	292	141
35-44	269	116
45-54	303	166
55-64	206	113
<i>Education (years)</i>		
0-8	208	109
9-12	243	130
13 or more	321	159
<i>Predisability earnings</i>		
Low	208	131
Moderate	257	114
High	224	88

¹Differences in recipients of multiple benefits as compared to those receiving only SSDI.

came from sources other than SSDI. Overall, the largest proportion of persons (36 percent) had evenly divided benefits, with SSDI making up 40-59 percent of the benefit package (table 7). The distribution appears to be skewed somewhat towards SSDI making up the larger proportion of the total package. Whereas SSDI made up less than 40 percent of the benefit package in under 18 percent of the cases, SSDI benefits composed more than 60 percent of the package for over 46 percent of the individuals.

When the personal characteristics considered in this study were examined, only slight differences were found in the distribution of the "mixture" of benefits for persons who received multiple benefits. No statistically significant differences (that is, to at least the 0.10 level) were found to exist in these distributions across the various breakdowns. The mean proportion of benefit obtained from sources other than social security varied from a low of 41 percent for persons with high predisability income to a high of 60 percent for persons under age 35.

REPLACEMENT RATES

Analyzing benefit amounts gives only a partial picture of the size and adequacy of disability benefits and the disincentives for a disabled worker to remain in or return to the labor force. A full evaluation of these problems must consider how large benefits are in relation to earnings. This can be done by computing the ratio of benefits to earnings—the replacement rate. The higher the rate, the larger the percentage of past earnings replaced by the benefits, but the less the incentive to work.

Previous research has discussed some problems associated with computation of the replacement rate.²³ Among them are the choice of an earnings measure, the problems of taxes on earnings but not on benefits, multiple benefit sources, unearned income, and the possible change in labor force status of the spouse.

This analysis examines replacement rates including benefits from sources other than SSDI from 1971 data. Unfortunately the earnings denominators must be based on earnings reportable to social security, and thus earnings are truncated at the taxable maximum. This formulation may induce an upward bias to the earnings measures used. These measures are (1) the average indexed monthly earnings (AIME) over the working lifetime²⁴ and (2) the average earnings from the highest 5 years of indexed earnings of the 10 years prior to entitlement. The first presents the rate of replacement relative to lifetime earnings; the second views the rate relative to recent peak earnings.

²³For a more thorough discussion of these problems, see Muller and Lando, *op. cit.*

²⁴The working lifetime includes earnings after age 22 or 1951 whichever is later, up until the year prior to the year of entitlement. This measure differs from the social security AIME measure in that the 5 years of lowest earnings were not dropped, and earnings are measured to the year prior to the year of entitlement not to the year prior to onset.

To present a picture of the replacement rate for the “average” person, this analysis uses median replacement rates. The median is used instead of the mean because it gives a more realistic picture of an individual’s actual replacement rate; the mean is too volatile, given the skewed distribution and large variance.²⁵

Replacement rates which exceed 80 percent of predisability earnings are, for the purpose of this study, considered high. This rate is believed to be a good guess of the level at which benefits will equal earnings after taxes and work-related expenses are subtracted.

Although multiple benefit recipients had higher average SSDI payments than persons who received only SSDI, SSDI replacement rates for the former tended to be smaller (table 8). Median replacement rates under SSDI were about 15 percent greater for those who received no additional benefits when based on average lifetime earnings. The rate of receipt of high rates of replacement under SSDI was one-third greater for persons receiving only SSDI based on the lifetime earnings measure and over one-half greater based on recent peak earnings.

The distribution of replacement rates is consistently skewed towards higher SSDI replacement rates for persons who receive no benefits other than SSDI. It is no surprise, however, to find that other benefit sources combine with SSDI benefits to produce total replacement rates for multiple benefit recipients which are considerably greater than replace-

²⁵The distribution of replacement rates tends to be skewed towards the higher rates for two reasons: (1) very low earnings provide a relatively large minimum benefit and thus a higher ratio of benefits to earnings; (2) higher earners have their earnings truncated at the taxable maximum which assures a relatively large minimum rate of replacement because their benefits are also high. The median does not change very much with the high valued outliers.

ment rates for persons who receive only SSDI. The median replacement rate was 48 percent greater for recipients of multiple benefits under the AIME formulation and 66 percent greater under the recent peak earnings formulation. The rate of receipt of high replacement rates was 60 percent greater for multiple benefit recipients when based on lifetime earnings. The addition of other benefits caused the median rate of replacement for the entire sample of DI beneficiaries to increase from 63 percent to 80 percent and the proportion receiving high replacement rates to increase from 35 percent to over 50 percent. That recipients of multiple benefits predominate at the higher total rates of replacement is also very evident from figure 3.

Replacement Rates by Selected Characteristics

Median replacement rates and the proportion of persons receiving high replacement rates were also examined according to various personal characteristics (tables 9 and 10);²⁶ a logit analysis was performed to determine which of these characteristics are associated with the receipt of high replacement rates if all other factors are held constant (table 11). In general, the patterns which were found for the total population hold within each group.

Very little difference in median replacement rates was found according to sex. Women tended to have higher rates of replacement than men, except for SSDI payments to recipients of multiple benefits. The relative difference in replacement rates between those recipients and recipients of SSDI only was smaller for women (42 percent) than for men (54 percent).

Median rates of replacement were consistently greater for blacks than for whites. The relative difference in median rates of replacement between persons who receive multiple benefits and those who do not was greater for blacks (88 percent) than for whites (44 percent).

Married persons and those with children had higher median replacement rates than those who are unmarried or have no children. One exception was the receipt of other benefits by married and unmarried persons; unmarried persons had more earnings replaced by other benefits than married persons although the difference was not statistically significant. The difference between median replacement

rates for those receiving multiple benefits and those receiving only SSDI was considerably greater for those who are unmarried (68 percent) and those who have no children (63 percent) than for those who are married (50 percent) or have children (37 percent).

Median replacement rates were found to be inversely related to age regardless of the source of the benefits or whether multiple benefits are received. The largest difference in median replacement rates between persons receiving and not receiving multiple benefits occurred for persons aged 35-44.

Education produced little difference in median replacement rates under SSDI. Total replacement rates for persons receiving multiple benefits tended to be lower for persons with some college than for persons with less education. The relative differential between multiple benefit recipients and those who receive only SSDI was also smaller for persons with some college. The differential in median replacement rates was only 23 percent for these persons compared to differentials upwards of 50 percent for the less educated groups.

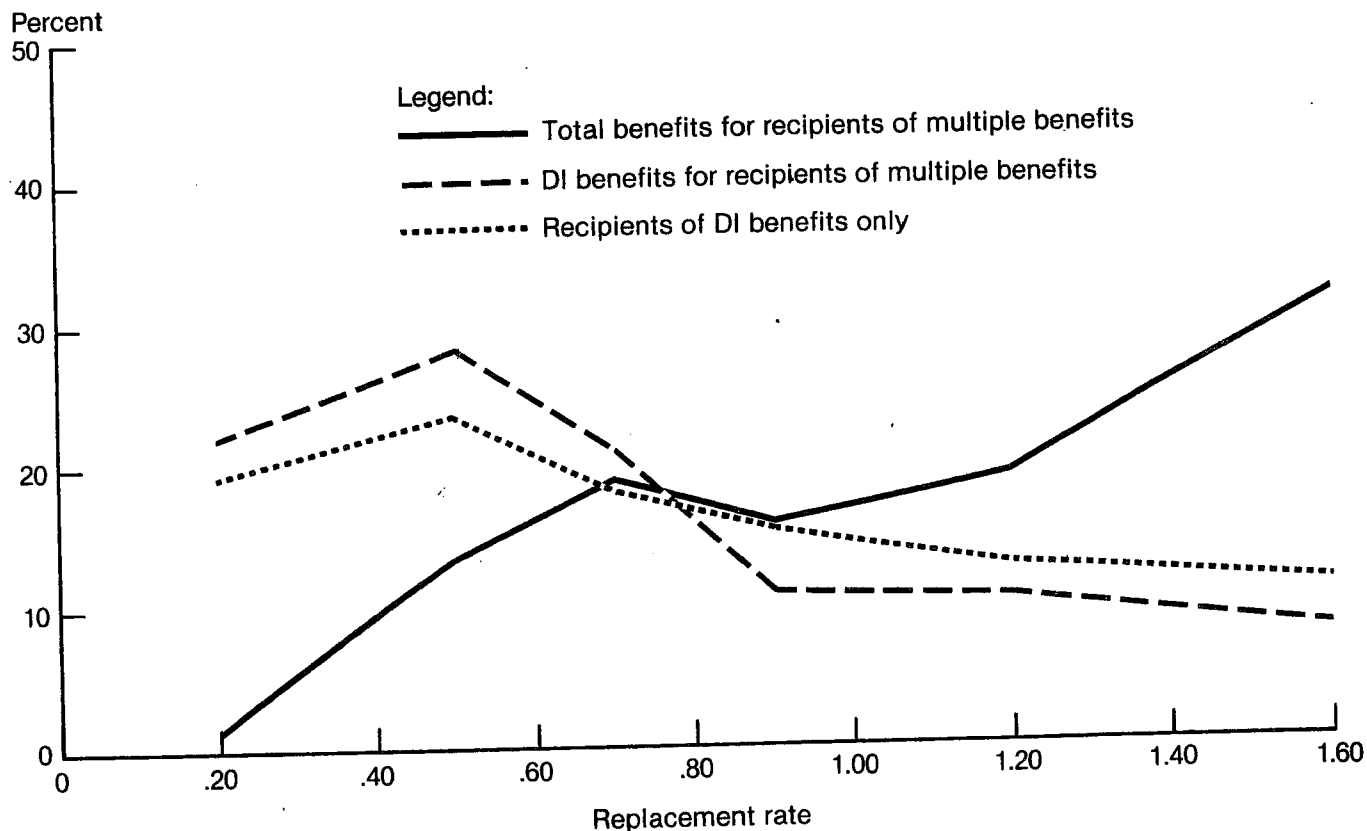
Predisability earnings level was inversely related to replacement rates; this characteristic produced the greatest difference in median replacement rates. The median rate of replacement for recipients of SSDI only was over twice as large for low earners as for moderate or high earners; for recipients of multiple benefits, the difference was only slightly less. The relative difference in median replacement rates between persons receiving only SSDI and those receiving SSDI and additional benefits did not change according to earnings level. Multiple benefit recipients had replacement rates which doubled the replacement rates of those receiving only SSDI for medium and high earners and exceeded the rates for low earners by 80 percent.

When high replacement rates were examined, the resulting logit analysis was applied not only to the entire sample, but also to recipients of SSDI benefits only and to recipients of multiple benefits. The analysis of total benefits for the entire sample (that is, SSDI for recipients of SSDI only and total benefits for recipients of multiple benefits) found that race and education, holding other factors constant, were insignificant in determining whether an individual obtains high total replacement rates. Men were found to be more likely to have high total replacement rates when controlling for predisability earnings, but women were more likely to receive high rates of replacement when not controlling for earnings. This result is probably a function of the lower earnings levels for women and hence higher rates of

²⁶Only figures based on lifetime earnings are discussed here; however, the comparable figures based on the highest 5 years of earnings (indexed) in the 10 before entitlement are also given in the tables.

FIGURE 3. —

Percent distribution of replacement rates by overlap status, lifetime earnings formulation



replacement under SSDI due to the benefit formulation that replaces lower earnings at a higher rate. Married persons or those with children were found to be more likely to receive high rates of replacement, possibly due to the presence of dependents' benefits under SSDI and certain other programs.

Individuals in the 35-44 and 45-54 age groups were found to be more likely to have high replacement rates than those in the reference group aged 55-64. Persons under age 35 were not statistically different from those aged 55-64 when controlling for earnings level, but had a greater probability of receiving high replacement rates when earnings level was neglected.

The probability of receiving high replacement rates declined as earnings levels increased. Individuals with low earnings were found to be more likely to receive high benefits than those in the moderate (reference) group. The decline for the high earnings group relative to the reference group

was not statistically significant.

The logit analysis of high replacement rates under SSDI shows that sex, race, and education were insignificant in determining those persons likely to receive high rates of replacement when predisability earnings level was included. When earnings level was excluded, men and persons with higher levels of education were less likely to receive high rates of replacement, partly due to the correlation of both variables with earnings.

When predisability earnings were included in the logit analysis, married persons and those with children were found to have a greater probability of receiving high replacement rates under SSDI. The three younger age groups had probabilities of receiving high replacement rates under SSDI that were significantly greater than the probability for the oldest group. As predisability earnings increased, the probability of obtaining high replacement rates declined, holding other factors constant. Low earn-

ers were more likely than moderate earners to receive high replacement rates. Because of the negative relationship between earnings and replacement rates under SSDI, high earners were least likely to obtain high replacement rates. When predisability earnings were excluded, the results for age and the presence of children were similar to those previously stated; but marital status was no longer a statistically significant variable.

The analysis of high replacement rates among recipients of multiple benefits shows that sex, race, age, and education were insignificant in determining the receipt of high replacement rates when earnings were held constant. If earnings were excluded, men and whites had lower probabilities of receiving high rates of replacement. Being married and/or having children increased the probability of obtaining high replacement rates. As under SSDI, predisability earnings were inversely related to the probability of receiving high replacement rates.

Comparisons of Replacement Rates From Social Security Only and From Combined Benefits

The foregoing analysis has shown that replacement rates based on total benefits for persons

receiving multiple benefits were considerably higher than the replacement rates based solely on SSDI benefits. Therefore, not considering multiple benefits understates the rate of replacement and the number of persons receiving high replacement rates. The effects of such an understatement when considering both adequacy of benefits and labor market incentives could be great.

Absolute and relative increases in both median replacement rates and the rate of receipt of high replacement rates occur when multiple benefits rather than SSDI benefits alone are considered; but the magnitude of the difference in replacement rates varies according to individual characteristics. Such relative increases are quite often greater among groups with lower SSDI replacement rates, including men, whites, persons with no children, persons in the 55-64 age group and particularly persons with moderate or high predisability earnings (table 12). Thus, because replacement rates based only on SSDI are generally lower for individuals who receive additional benefits, employing policies which hold down replacement rates based only on SSDI benefits may disadvantage persons whose sole benefit comes from social security relative to those who receive benefits from more than one program.

TABLE 1.—Number and percent of multiple benefit recipients in 1971 by number of programs and selected characteristics (SSDI beneficiaries with current entitlement prior to January 1971)

Characteristic	Number (in thousands)	Total percent	SSDI only	SSDI and—	
				1 other program	2 or more other programs
Total	866	100.0	56.1	38.0	5.9
<i>Sex</i>					
Men	603	100.0	47.8	44.3	7.8
Women	263	100.0	75.0	23.7	1.3
<i>Race</i>					
White	739	100.0	55.4	38.3	6.3
Black	119	100.0	60.1	36.5	3.4
<i>Marital status</i>					
Married	632	100.0	54.4	38.9	6.7
Not married	233	100.0	60.3	36.0	3.7
<i>Children</i>					
None	551	100.0	59.6	35.6	4.8
1 or more	315	100.0	49.9	42.4	7.8
<i>Age</i>					
Under 35	50	100.0	73.2	24.6	2.2
35-44	96	100.0	45.2	46.1	8.7
45-54	276	100.0	49.5	43.0	7.4
55-64	455	100.0	60.6	34.7	4.7
<i>Education (years)</i>					
0-8	381	100.0	55.7	38.9	5.4
9-12	390	100.0	59.2	34.3	6.6
13 or more	90	100.0	43.3	51.4	5.3
<i>Predisability earnings</i>					
Low	470	100.0	63.5	32.6	3.9
Moderate	186	100.0	56.8	39.0	4.3
High	210	100.0	38.9	49.3	11.8

TABLE 2.—Number and percent of SSDI beneficiaries in 1971 by type of program and selected characteristics

Characteristic	SSDI combined with—			
	Veterans' benefits	Private programs	Means-tested programs	Other government programs
Total	21.1	10.3	10.0	8.1
<i>Sex</i>				
Men	28.8	12.5	9.1	9.5
Women	3.5	5.3	12.1	4.7
<i>Race</i>				
White	21.6	11.7	9.1	8.3
Black	18.0	2.5	15.7	6.9
<i>Marital status</i>				
Not married	16.4	6.7	15.8	3.1
Married	22.8	11.7	7.9	9.9
<i>Children</i>				
None	16.4	10.6	10.4	7.0
1 or more	29.3	9.8	9.5	9.9
<i>Age</i>				
Under 35	20.0	1.3	6.5	1.2
35-44	32.3	2.5	13.1	14.0
45-54	30.6	6.6	9.8	10.9
55-64	12.9	15.1	9.9	5.8
<i>Education (years)</i>				
0-8	20.3	9.3	10.5	9.5
9-12	21.2	8.6	10.3	6.8
13 or more	24.2	22.6	7.5	7.7
<i>Predisability earnings</i>				
Low	18.7	1.8	14.6	5.1
Moderate	24.3	7.9	4.2	11.1
High	23.6	31.5	5.0	12.0

TABLE 3.—Logit results for receipt of various types of multiple benefits by selected characteristics, including and excluding predisability earnings

Item	Receipt of veterans' benefits		Receipt from private programs		Receipt from means-tested programs		Receipt from other government programs	
	Including predisability earnings	Excluding predisability earnings	Including predisability earnings	Excluding predisability earnings	Including predisability earnings	Excluding predisability earnings	Including predisability earnings	Excluding predisability earnings
Constant.....	¹ -4.2969 (9.49)	¹ -4.0087 (10.01)	¹ -1.8789 (4.24)	¹ -2.3392 (6.38)	¹ -3.0387 (6.26)	¹ -2.0219 (6.25)	¹ -3.3287 (6.22)	¹ -3.8088 (7.87)
Sex (1 if male).....	¹ 2.5189 (7.21)	¹ 2.4334 (7.74)	-.0186 (.05)	¹ .8541 (2.87)	.3773 (1.36)	.0347 (.13)	.2440 (.72)	² 2.5601 (1.76)
Race (1 if black).....	² -.4714 (1.71)	-.4279 (1.57)	-.8243 (1.47)	³ -1.2624 (2.38)	² .4986 (1.72)	³ .6795 (2.38)	-.0023 (.00)	-.1966 (.52)
Marital status (1 if married).....	-.0320 (.14)	-.0423 (.18)	-.1965 (.61)	-.0105 (.04)	¹ -.7445 (2.76)	¹ -.7626 (2.87)	³ .9885 (2.48)	¹ 1.0397 (2.62)
Children (1 if yes).....	³ .4568 (2.38)	³ .4591 (2.40)	-.3012 (1.04)	-.2820 (1.04)	.2585 (.95)	.2551 (.95)	.0068 (.03)	-.0303 (.11)
Age (under 35).....	.0012 (0)	.0988 (.23)	-1.4282 (1.35)	³ -2.2524 (2.20)	-.8969 (1.38)	-.5081 (.80)	-.7861 (.98)	-1.0481 (1.00)
Age (35-44).....	¹ .8911 (3.19)	¹ .9088 (3.28)	² -1.0432 (1.85)	¹ -1.5064 (2.77)	.0887 (.23)	.2847 (.76)	¹ .9692 (2.58)	³ .8392 (2.27)
Age (45-54) (reference, 55-64) ...	¹ .8942 (4.39)	¹ .9040 (4.48)	² -.5551 (1.91)	¹ -.8201 (3.00)	-.0251 (.09)	.1105 (.41)	³ .6545 (2.36)	.5710 ³ (2.09)
Education (9-12 years).....	² .3154 (1.66)	.2845 (1.51)	.1689 (.64)	.2725 (1.11)	.0058 (.02)	-.1117 (.43)	-.2573 (.98)	-.1772 (.68)
Education (13 or more years) (reference 0-8 years).....	² .5395 (1.75)	.4793 (1.57)	.4014 (.98)	.5792 (1.51)	.1386 (.30)	-.0851 (.19)	-.1570 (.37)	-.0223 (.05)
Earnings (low).....	.3249 (1.44)	---	¹ -1.3728 (3.30)	---	¹ 1.2355 (3.28)	---	³ -.6618 (2.10)	---
Earnings (high) (reference, moderate).....	.1600 (.64)	---	¹ 1.5472 (5.20)	---	.0676 (.14)	---	.1832 (.59)	---
N.....	893	893	893	893	893	893	893	893

¹Significant to 0.01 level, two-sided test, 2.576.

²Significant to 0.10 level, two-sided test, 1.645.

³Significant to 0.05 level, two-sided test, 1.960.

TABLE 4.—Joint distribution of SSDI and other benefit amounts for recipients of multiple benefits

Monthly benefit amount from other programs	Total	Monthly SSDI benefit amount					
		Less than \$100	\$100-\$149	\$150-\$199	\$200-\$299	\$300-\$399	\$400 and over
Number (in thousands)	350	13	73	105	72	69	18
Total percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than \$100	29.9	45.6	27.8	31.7	19.4	39.2	21.2
\$100-\$199	37.8	42.5	45.3	41.1	36.7	32.1	12.3
\$200-\$299	14.3	12.0	9.0	13.5	18.8	12.3	30.8
\$300-\$399	2.9	0	0	2.5	3.6	5.4	5.5
\$400-\$599	10.3	0	16.6	5.3	15.2	8.2	9.0
\$600-\$799	3.5	0	1.3	4.0	2.8	1.4	21.2
\$800 and over	1.3	0	0	1.9	2.5	1.3	0

TABLE 5.—Percent of SSDI beneficiaries receiving multiple benefits by monthly SSDI benefit and type of program

Program	Total	Monthly SSDI benefit amount					
		Less than \$100	\$100-\$149	\$150-\$199	\$200-\$299	\$300-\$399	\$400 and over
Total number (in thousands)	866	67	219	267	152	117	39
Total percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Percent receiving only SSDI ..	56.1	74.8	63.9	58.1	48.5	39.0	53.3
Percent receiving SSDI and—							
Veterans' payments.....	21.1	1.1	16.6	21.2	27.8	28.6	32.8
Private employer pension	8.9	0	1.2	11.3	9.5	21.3	11.9
Aid to the permanently and totally disabled/aid to the blind	6.4	10.8	9.7	3.6	7.0	2.3	6.9
Government pension	3.8	3.9	2.5	4.3	4.4	5.6	0
Workers' compensation	3.5	3.0	0	4.0	3.9	7.4	7.7
Other public assistance	2.7	6.1	7.1	.4	0	2.5	0
Private insurance	2.0	0	.7	2.7	4.2	.5	4.0
Aid to families with dependent children	1.2	0	1.0	.1	2.7	0	0
Railroad retirement .....	.4	1.2	.7	.2	0	0	0
Temporary disability .....	.4	1.5	.5	0	.7	0	0
Any of the above	43.9	25.2	36.1	41.9	51.5	61.0	46.7

TABLE 6.—Average monthly benefits by selected characteristics

Characteristic	Total		DI beneficiaries only		Recipients of multiple benefits	
	All benefits	SSDI	SSDI	Total	SSDI	Other benefits
Total	\$290	\$203	\$189	\$429	\$224	\$205
<i>Sex</i>						
Men	330	220	205	453	235	218
Women	197	166	165	306	168	139
<i>Race</i>						
White	300	209	193	442	229	213
Black	226	169	164	328	176	152
<i>Marital status</i>						
Married	318	223	207	462	244	218
Not married	212	152	145	327	162	165
<i>Children</i>						
None	245	170	165	374	180	195
1 or more	367	260	238	503	284	219
<i>Age</i>						
Under 35	285	206	207	499	202	297
35-44	371	235	232	501	238	263
45-54	311	206	183	486	232	217
55-64	260	195	182	388	216	172
<i>Education (years)</i>						
0-8	279	200	191	399	213	186
9-12	281	200	186	429	221	208
13 or more	379	236	201	522	263	258
<i>Predisability earnings</i>						
Low	229	163	158	366	171	195
Moderate	332	233	226	483	243	240
High	386	268	252	476	279	197

TABLE 7.—Percent of recipients of multiple benefits by proportion of total benefits obtained through programs other than SSDI

Characteristic	Percent					Mean proportion ¹ of other benefits
	1-19	20-39	40-59	60-79	80-99	
Total	14.5	31.9	36.1	14.1	3.4	48
<i>Sex</i>						
Men	14.9	32.6	33.8	15.3	3.5	48
Women	12.3	28.6	48.1	7.7	3.2	45
<i>Race</i>						
White	14.1	32.5	36.7	12.8	3.9	48
Black	14.1	29.2	33.2	23.4	0	46
<i>Marital status</i>						
Married	15.5	31.4	34.2	14.8	4.1	47
Not married	10.9	33.7	42.8	11.4	1.2	50
<i>Children</i>						
None	10.5	29.3	23.8	14.1	3.7	52
1 or more	19.5	35.3	28.2	13.9	3.0	44
<i>Age</i>						
Under 35	41.1	15.4	8.8	34.7	0	60
35-44	7.7	26.4	39.5	20.5	5.9	52
45-54	8.0	41.2	34.7	13.1	3.1	45
55-64	19.9	27.4	37.5	12.1	3.1	44
<i>Education (years)</i>						
0-8	13.3	31.5	41.1	12.3	1.8	47
9-12	9.3	35.5	34.6	17.6	3.1	48
13 or more	32.7	22.9	25.2	9.2	10.0	49
<i>Predisability earnings</i>						
Low	11.7	21.1	43.8	20.5	3.0	53
Moderate	12.1	44.7	30.6	7.2	5.4	50
High	19.1	36.9	30.6	10.6	2.8	41

¹Computed from table 5 as proportion of mean total benefits represented by mean benefits from programs other than SSDI.

TABLE 8.—Percent distribution of replacement rates, median rate of replacement, and percent of persons receiving high rates of replacement, by multiple benefit status

Item	Total		Recipients of SSDI only	Recipients of multiple benefits		
	All benefits	SSDI only		Total	SSDI portion	Other benefits
Average indexed monthly earnings						
Percent of earnings replaced:						
0.01-0.39	11.8	20.5	19.3	1.3	22.2	47.5
0.40-0.59	19.4	25.4	23.5	13.6	28.1	19.5
0.60-0.79	18.2	19.1	18.0	18.6	20.7	8.9
0.80-0.99	15.4	13.2	15.1	15.9	10.6	4.1
1.00-1.39	15.4	11.8	12.8	19.0	10.4	7.6
1.40 or more	19.8	9.9	11.3	31.6	8.0	12.4
Median replacement rate	79.5	63.2	67.5	100.0	58.9	40.8
Percent receiving high ¹ replacement rate	50.6	35.0	39.3	66.5	29.0	24.0
Highest 5 years of past 10, indexed						
Percent of earnings replaced:						
0.01-0.39	22.7	37.7	36.0	4.3	40.1	63.0
0.40-0.59	27.8	30.2	29.8	24.8	30.7	12.0
0.60-0.79	20.4	18.7	18.6	23.1	19.0	8.2
0.80-0.99	8.5	4.0	4.3	14.4	3.8	2.7
1.00-1.39	9.1	4.1	5.2	14.7	2.7	6.5
1.40 or more	11.5	5.3	6.3	18.7	3.6	7.5
Median replacement rate	58.0	45.8	45.8	75.9	47.2	28.4
Percent receiving high ¹ replacement rate	28.8	13.3	15.7	47.5	10.1	16.6

¹Benefits which replace 80 percent or more of predisability earnings are considered to provide a high rate of replacement.

TABLE 9.—Median replacement rates by selected characteristics based on average indexed monthly earnings over the lifetime and highest 5 years of indexed earnings in the 10 years prior to entitlement

Characteristic	Total		Recipients of SSDI only	Recipients of multiple benefits		
	All benefits	SSDI only		Total	SSDI portion	Other benefits
Average indexed monthly earnings						
Total	79.5	63.2	67.5	100.0	58.9	40.8
<i>Sex</i>						
Men	78.7	60.5	64.2	99.1	58.9	38.6
Women	82.4	69.8	72.4	102.7	53.0	44.0
<i>Race</i>						
White	77.8	60.3	66.4	96.9	57.1	39.1
Black	94.9	77.4	78.7	147.9	75.5	58.0
<i>Marital status</i>						
Married	81.7	66.3	69.4	104.4	60.3	39.5
Not married	72.1	55.6	57.8	96.9	53.0	43.9
<i>Children</i>						
None	65.0	50.4	53.5	87.0	44.8	38.6
1 or more	98.2	80.7	88.4	121.7	76.3	42.1
<i>Age</i>						
Under 35	117.6	108.2	114.1	156.6	108.1	40.8
35-44	124.2	89.2	93.1	153.7	82.7	71.0
45-54	90.6	70.9	78.7	110.8	67.1	43.5
55-64	68.0	53.0	55.3	81.6	52.2	33.9
<i>Education (years)</i>						
0-8	80.3	66.3	69.4	105.1	61.1	41.6
9-12	80.7	60.8	64.2	96.9	56.6	40.8
13 or more	73.0	58.2	65.0	79.6	57.1	35.6
<i>Predisability earnings</i>						
Low	103.3	88.2	88.6	159.5	86.9	65.1
Moderate	61.1	44.2	43.1	85.7	48.1	30.3
High	61.3	35.2	34.2	71.7	42.8	24.1

See footnote at end of table.

TABLE 9.—Median replacement rates by selected characteristics based on average indexed monthly earnings over the lifetime and highest 5 years of indexed earnings in the 10 years prior to entitlement—Continued

Characteristic	Total		Recipients of SSDI only	Recipients of multiple benefits		
	All benefits	SSDI only		Total	SSDI portion	Other benefits
	Highest 5 years of past 10, indexed					
Total	58.0	45.8	45.8	75.9	47.2	28.4
<i>Sex</i>						
Men	62.7	47.0	44.5	76.3	50.4	28.7
Women	52.7	45.8	45.8	70.8	36.9	25.5
<i>Race</i>						
White	56.7	45.8	45.8	73.0	44.7	27.3
Black	66.4	55.4	55.4	101.6	60.2	45.6
<i>Marital status</i>						
Married	61.7	51.0	48.7	82.0	51.8	29.9
Not married	49.8	41.5	44.7	62.4	36.9	25.4
<i>Children</i>						
None	46.5	36.8	39.2	65.4	32.3	26.7
1 or more	69.7	59.8	60.3	89.3	59.5	29.7
<i>Age</i>						
Under 35	101.7	73.0	68.5	¹ 118.0	¹ 74.4	¹ 28.3
35-44	80.4	62.1	64.0	109.7	60.2	52.6
45-54	63.0	52.6	50.2	84.8	55.5	29.7
55-64	52.4	38.6	40.2	64.7	36.8	25.4
<i>Education (years)</i>						
0-8	60.3	48.7	48.9	78.8	48.1	31.4
9-12	54.9	45.8	45.8	75.3	43.2	26.0
13 or more	61.5	50.4	37.5	65.5	52.9	24.8
<i>Predisability earnings</i>						
Low	64.8	52.7	52.7	103.3	56.9	44.0
Moderate	46.5	34.3	33.6	65.8	37.7	21.1
High	56.7	31.1	30.1	66.7	40.4	22.5

¹Small numbers of unweighted cases make this cell unreliable.

TABLE 10.—Percent with high replacement rates¹ by selected characteristics based on average indexed monthly earnings over the lifetime and highest 5 years of indexed earnings in the 10 years prior to entitlement

Characteristic	Total		Recipients of SSDI only	Recipients of multiple benefits		
	All benefits	SSDI only		Total	SSDI portion	Other benefits
Average indexed monthly earnings						
Total	50.6	35.0	39.3	66.5	29.0	24.0
<i>Sex</i>						
Men	49.5	31.3	34.7	64.3	27.9	23.9
Women	52.9	43.4	45.9	77.8	34.7	24.4
<i>Race</i>						
White	48.5	32.8	37.4	63.6	26.5	22.9
Black	63.3	47.6	49.9	85.9	43.7	32.6
<i>Marital status</i>						
Married	52.5	36.7	41.9	66.4	29.9	24.0
Not married	45.0	30.2	32.7	66.8	25.8	23.9
<i>Children</i>						
None	38.9	24.5	29.4	55.1	16.1	20.1
1 or more	70.8	53.2	60.6	81.1	45.6	29.0
<i>Age</i>						
Under 35	69.6	65.9	62.2	² 100.0	² 81.0	² 43.5
35-44	77.3	63.1	69.3	84.9	57.2	46.3
45-54	60.6	42.9	47.9	74.6	37.3	26.4
55-64	37.6	22.0	27.6	53.9	12.7	15.2
<i>Education (years)</i>						
0-8	51.5	36.5	40.1	67.3	31.5	22.8
9-12	51.2	34.4	39.6	69.7	26.2	23.7
13 or more	41.7	28.4	29.0	52.7	27.9	29.6
<i>Predisability earnings</i>						
Low	70.1	57.8	58.7	93.3	55.9	41.5
Moderate	32.4	16.3	15.0	57.5	18.1	14.9
High	25.3	3.5	2.0	40.8	4.4	9.1

See footnotes at end of table.

TABLE 10.—Percent with high replacement rates¹ by selected characteristics based on average indexed monthly earnings over the lifetime and highest 5 years of indexed earnings in the 10 years prior to entitlement—Continued

Characteristic	Total		Recipients of SSDI only	Recipients of multiple benefits		
	All benefits	SSDI only		Total	SSDI portion	Other benefits
Highest 5 years of past 10, indexed						
Total	28.8	13.3	15.7	47.5	10.1	16.6
<i>Sex</i>						
Men	29.7	9.9	10.6	48.7	9.2	17.0
Women	27.5	21.4	23.1	42.4	15.0	15.8
<i>Race</i>						
White	28.5	13.2	16.3	44.9	9.0	15.8
Black	32.2	14.3	11.3	66.9	19.3	23.7
<i>Marital status</i>						
Married	30.6	12.8	14.5	51.5	10.4	17.2
Not married	24.6	15.2	18.6	34.8	9.2	20.7
<i>Children</i>						
None	22.6	11.8	14.3	36.4	7.5	13.3
1 or more	40.3	16.1	18.5	62.6	13.7	21.3
<i>Age</i>						
Under 35	74.0	62.4	67.6	² 100.0	² 41.1	² 43.5
35-44	52.7	24.1	29.8	72.8	19.2	28.0
45-44	32.8	11.6	11.6	56.2	11.6	18.8
55-64	18.3	8.0	9.8	32.2	5.2	10.9
<i>Education (years)</i>						
0-8	28.8	13.6	13.8	49.9	13.4	16.6
9-12	28.4	12.6	16.2	47.2	6.9	15.9
13 or more	30.7	14.1	18.6	41.0	10.3	20.3
<i>Predisability earnings</i>						
Low	35.9	21.7	23.1	66.0	23.1	27.6
Moderate	19.3	3.2	5.4	39.3	0	11.4
High	19.2	.9	2.3	30.5	0	5.7

¹See table 8, footnote 1.

²Small numbers of unweighted cases make this cell unreliable.

TABLE 11.—Logit on high replacement rates including and excluding predisability earnings

Item	Total benefits		SSDI		Recipients of multiple benefits	
	Including predisability earnings	Excluding predisability earnings	Including predisability earnings	Excluding predisability earnings	Including predisability earnings	Excluding predisability earnings
Sex (1 if male).....	¹ 0.37014 (1.82)	² -0.37733 (2.19)	-0.25230 (1.20)	³ -1.0561 (5.77)	-0.47376 (.97)	² -1.0082 (2.56)
Race (1 if black).....	-.12140 (.48)	.35470 (1.54)	-.33698 (1.29)	.32161 (1.40)	.41866 (.68)	³ 1.3231 (2.66)
Marital status (1 if married)	² .45299 (2.23)	¹ .32654 (1.77)	² .44253 (2.00)	.28349 (1.43)	³ 1.1086 (2.66)	.51386 (1.54)
Children (1 if yes).....	³ 1.3405 (6.92)	³ 1.1360 (7.90)	³ 1.3321 (6.08)	³ .98731 (5.61)	1.7771 (5.22)	³ 1.6145 (5.34)
Age (under 35).....	.52844 (1.22)	² .96270 (2.41)	³ 1.4725 (3.14)	³ 1.7079 (4.26)	5.2670 (.61)	6.6536 (.81)
Age (35-44).....	³ 1.1325 (3.60)	³ 1.3479 (4.66)	³ 1.4163 (4.24)	³ 1.4892 (5.52)	.56242 (1.00)	² 1.0563 (2.17)
Age (45-54) (reference, 55-64).....	³ .47355 (2.59)	³ .61469 (3.69)	² .47834 (2.33)	³ .60858 (3.46)	.18628 (.56)	1.48169 (1.68)
Education (9-12 years).....	.02564 (.14)	-.14209 (.87)	-.22883 (1.13)	² -.39893 (2.32)	-.04673 (.15)	-.21032 (.76)
Education (13 or more years) (reference, 0-8 years).....	-.07955 (.26)	-.38372 (1.39)	-.42688 (1.18)	² -.61617 (2.05)	.2152 (.04)	-1.8852 (.43)
Earnings (low).....	³ 1.9221 (8.79)	---	³ 2.2555 (9.00)	---	³ 2.6807 (5.52)	---
Earnings (high) (reference, moderate).....	-.31874 (1.32)	---	³ -1.9834 (4.17)	---	² -.72929 (2.16)	---
Constant.....	³ -2.1627 (6.87)	³ -.60799 (2.75)	³ -2.6396 (7.29)	³ -.73699 (3.21)	-.87748 (1.57)	.33302 (.84)
Number of cases.....	832.	832.	832.	832.	355.	355.

¹Significant to 0.10 level, two-sided test.

²Significant to 0.05 level, two-sided test.

³Significant to 0.01 level, two-sided test.

TABLE 12.—Absolute and percent increases in median replacement rates and rate of receipt of high replacement rate when basing replacement rates on multiple benefits rather than on SSDI alone

Characteristic	Increase in median replacement rates		Increase in percent receiving high replacement rates ¹	
	Absolute	Percent	Absolute	Percent
Total.....	16.3	25.8	15.6	44.6
<i>Sex</i>				
Men.....	18.2	30.1	18.2	58.1
Women.....	12.6	18.1	9.5	21.9
<i>Race</i>				
White.....	17.5	29.0	15.7	47.9
Black.....	17.5	22.6	15.7	33.0
<i>Marital status</i>				
Married.....	15.4	23.2	15.8	43.0
Not married.....	16.5	29.7	14.8	49.0
<i>Children</i>				
None.....	14.6	29.0	14.4	59.2
1 or more.....	17.5	21.7	17.6	33.0
<i>Age</i>				
Under 35.....	9.4	8.7	3.7	5.6
35-44.....	35.0	39.2	14.2	22.5
45-54.....	19.7	27.8	17.7	41.3
55-64.....	15.0	28.3	15.6	70.9
<i>Education (years)</i>				
0-8.....	14.0	21.1	15.0	41.1
9-12.....	19.9	32.7	16.8	48.8
13 or more.....	14.8	25.4	13.3	46.8
<i>Predisability earnings</i>				
Low.....	15.1	17.1	12.3	21.3
Moderate.....	16.9	38.2	16.1	98.8
High.....	26.1	74.1	21.8	622.9

¹See table 8, footnote 1.

TECHNICAL NOTE

In carrying out its responsibility for collecting and analyzing data on the disabled, the Social Security Administration conducted a survey in mid-1972, using the 5-percent sample from the 1970 Decennial Census to identify both disabled and nondisabled adults. The 1972 survey was designed primarily to update earlier estimates of the extent and severity of disability in the population derived from the earlier general survey of the disabled conducted by the Social Security Administration in 1966.

In addition, the survey examined factors associated with the development and duration of disability by comparing persons who were currently disabled, previously disabled, and nondisabled. The study focused on adjustments to disability and examined economic, medical, and social consequences of disability for the disabled person and his family. The survey provides information on:

- the severity and prevalence of disability by demographic, social, economic, and occupational characteristics;

- factors affecting coping mechanisms and the nature of adaptation to impairment and disability—such as work adjustment, rehabilitation, and dependency;

- factors affecting application for and receipt of wage-replacement and income-maintenance benefits from social security and other public and private programs;

- evaluation of disability program provisions and of proposals for legislative and policy changes on disability and work experience requirements.

Study Design

The data were collected and processed by the Bureau of the Census. Survey estimates are based on a sample of 18,000 interviewed persons selected from the 1970 5-percent Census sample. Of these 18,000 persons, 11,700 were selected as the disabled sample from all those persons who indicated they were disabled before October 1969 on the 1970 Census questionnaire. A mail screening in 1971 of the remaining persons resulted in two other sample groups—5,100 nondisabled persons and 1,200 recent onset cases.

In addition, there were 2,850 noninterviews. Thus the rate of “good responses” for the survey—based on 18,000 interviewed persons out of 20,850 eligible for interview—is 86 percent. The number and reason for noninterviews were as follows:

<i>Noninterview reason</i>	<i>Number of persons</i>
Total	2,850
Unable to contact	1,240
Temporarily absent	100
Refused	620
Moved outside 357 primary sampling units	650
Miscellaneous	240

In general, the sample was a stratified multistage cluster design comprised of 357 sampling areas that included every county and some independent cities in the United States. The disabled persons were selected from all 357 strata; the nondisabled and recently disabled groups were chosen from a special subset of 105 strata. The sample was designed to represent the noninstitutionalized civilian population of the United States aged 18-64 as of April 1970.

Match With Social Security Records

To enhance the usefulness of survey data in analyses focused on program issues, the information obtained by interviews was combined with selected data available from the master beneficiary record maintained by the Social Security Administration. Data from both the interview and benefit records were used to establish beneficiary status for tabulation purposes.

Allocations

To maximize the amount of useful information, allocations were made for missing-income and medical-cost items based on values obtained from respondents with similar economic, medical, and demographic characteristics. Examples of medical characteristics that were used are "days hospitalized" and "number of doctor visits." Economic characteristics included "income" and other types of assets. An amount was assigned from the information for another person, systematically chosen according to the order in which the records were processed, who gave a good response to the item in question.

Income Sources

During the 1972 survey, each household was requested to supply information concerning the receipt of various sources of income. The information on receipt of benefits from programs other than social security came from questions 96 and 97 of the 1972 Survey of Disabled and Nondisabled Adults, reproduced below. Information on beneficiary status and monthly benefit amount under social security came from the master beneficiary record. Benefit amounts and beneficiary status were determined as of December 1971, and only persons who were currently entitled prior to January 1, 1971, were included in the sample. Receipt of multiple benefits was based on the respondent's indication that he received that particular income; and the total amount received was attributed to him. If the respondent did not receive the income but a spouse or child did, the respondent was not considered a recipient of multiple benefits and the income was not considered in the analysis.

To arrive at average monthly benefit amounts for sources of income other than social security, the total 1971 benefit was divided by 12. The individual's response as to receipt of social security

was not used in the analysis. To assure accuracy, this information was obtained from the matched master beneficiary record. Sources of income other than those discussed in this staff paper were not considered in the analysis. Less than 2 percent of the respondents indicated receiving income from a source other than those specifically listed. Slightly over 3 percent of the cases in the sample were omitted from the benefit amount and replacement rate analyses due to allocated values for the benefit amount. This was done to avoid any possible biases caused by the allocation procedure used by the Bureau of the Census.

Index Values

The following index values are adjusted to base year 1971 from actual 1977 social security wage index values.

Year	Index value
1973	0.857
1972	.911
1971	1.000
1970	1.050
1969	1.102
1968	1.166
1967	1.247
1966	1.316
1965	1.395
1964	1.420
1963	1.478
1962	1.514
1961	1.590
1960	1.622
1959	1.685
1958	1.769
1957	1.784
1956	1.840
1955	1.968
1954	2.059
1953	2.070
1952	2.185
1951	2.322

Definition of Disability

Disability is defined in this study as a limitation in the kind or amount of work (or housework) resulting from a chronic health condition or impairment lasting 3 months or longer. The disability classification was based on the extent of the individual's capacity for work, as reported by the respondent in a set of work-qualification questions. Data on employment and on functional capacities—such as mobility, activities of daily living, personal care needs, and functional activity limitations—were also

Income questions from the 1972 Survey of Disabled and Nondisabled Adults

96a. Did you, your spouse, or CHILDREN UNDER 18 receive any income during 1971 from the following sources - (Read list) (If "Yes" to any items in list, ask b, c, and d.)	Total 1971 income						
	(Mark one) Yes No	b. Which family member(s) received this income?			c. What was the total amount received in 1971?	d. Are you (spouse or children) NOW receiving income from this source?	
		Respondent	Spouse	OWN children under 18		Yes	No
(1) Social Security? (418) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(419) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(420) \$ _____ . 00	(421) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
(2) Railroad Retirement? (422) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(423) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(424) \$ _____ . 00	(425) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
(3) Veteran's payments? (426) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(427) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(428) \$ _____ . 00	(429) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
(4) Public welfare or public assistance? (430) 1 <input type="checkbox"/> 2 <input type="checkbox"/> If "YES" is that -							
Aid to the blind or aid to the permanently and totally disabled? (431) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(432) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(433) \$ _____ . 00	(434) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
Aid to families with dependent children? (435) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(436) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(437) \$ _____ . 00	(438) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
Any other type of public welfare or public assistance? (439) 1 <input type="checkbox"/> 2 <input type="checkbox"/> Specify type →	(440) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(441) \$ _____ . 00	(442) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	

Section IX - FAMILY INCOME - Continued

97a. Did you, your spouse, or CHILDREN UNDER 18 receive any other income during 1971, such as: (Read list) (If "Yes" to any items in list, ask b, c, and d.)	Total 1971 income						
	(Mark one) Yes No	b. Which family member(s) received this income?			c. What was the total amount received in 1971?	d. Are you (spouse or children) NOW receiving income from this source?	
		Respondent	Spouse	OWN children under 18		Yes	No
(1) Government employee pensions or disability benefits? (443) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(444) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(445) \$ _____ . 00	(446) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
(2) Private employer or union pensions or disability benefits? (447) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(448) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(449) \$ _____ . 00	(450) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
(3) State cash sickness (temporary disability) benefits? (451) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(452) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(453) \$ _____ . 00	(454) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
(4) Workmen's compensation? (455) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(456) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(457) \$ _____ . 00	(458) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
(5) Unemployment compensation? (459) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(460) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(461) \$ _____ . 00	(462) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
(6) Private insurance or annuities? (463) 1 <input type="checkbox"/> 2 <input type="checkbox"/>	(464) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(465) \$ _____ . 00	(466) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	
(7) Any other kinds of income? (467) 1 <input type="checkbox"/> 2 <input type="checkbox"/> Specify type →	(468) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	(469) \$ _____ . 00	(470) 1 <input type="checkbox"/>	2 <input type="checkbox"/>	

collected to evaluate further the nature and severity of disability.

The severity of disability was classified by the extent of work limitations as:

Severely disabled.—Unable to work altogether or unable to work regularly.

Occupationally disabled.—Able to work regularly but unable to do the same work as before the onset of disability, or unable to work full time.

Secondary work limitations.—Able to work full time, regularly, and at the same work but with limitations in the kind or amount of work they can perform; persons with limitations in keeping house but not in paid work are included as having secondary work limitations.

Reliability of Estimates

Since the estimates in this report are based on a sample, they may differ somewhat from the figure that would have been obtained if all disabled and nondisabled adults in the United States had been surveyed with the same techniques used. As in any survey, the results are subject to error of response and of reporting as well as to the sampling variability. The standard error is a measure of sampling variability and indicates the amounts by which the sample estimates may vary from the universe values that would have been obtained if all persons in the universe had been studied.

For interval estimates, the standard error is used to construct an interval with a prescribed confidence that the interval includes the universe value or the average of all possible samples drawn from the same universe. In about 68 percent of the sample from a population, the population value would be included in the interval from one standard error below the sample estimate to one standard error above it—referred to as the 68-percent confidence or one standard error interval. In about 95 percent of the samples from a population, the population value would be included in the interval from two standard errors below the sample estimate to two standard errors above it—the 95-percent confidence or two standard error interval. The 99-percent confidence interval extends approximately $2\frac{1}{2}$ standard errors above and below the sample estimate.

The standard error is also useful in testing the significance of the difference between two statistics—that is, the confidence one can have that the sample

difference in means, percentages, or estimates is a real difference and not merely due to chance. To test this assumption, the standard error of the difference can be calculated from the square root of the sum of the squared standard errors of each sample estimate. If the observed difference is as large as one standard error of the difference it is statistically significant at the 68-percent confidence level; if it is as large as two standard errors it is significant at approximately the 95-percent level; and if as large as $2\frac{1}{2}$ standard errors it is significant at about the 99-percent level. As a general practice in the analyses presented here, differences between estimates and between percentages are considered statistically significant if the critical ratio equals or exceeds 1.96 standard errors, the level at which a predicted difference could be expected to occur by chance less than 5 out of 100 times, or the 0.05 level of significance.

Table I gives approximate standard errors for the total numbers of persons estimated from the sample to have certain characteristics. Table II gives standard errors for estimated percentages. Linear interpolation may be used to obtain values not specifically shown. In order to receive standard errors that are applicable to a variety of estimates, some assumptions and approximations were required. As a result, the tables of standard errors provide an indication of the order of magnitude rather than the precise standard error for any specific attribute.

Estimation Procedure

When probabilities are estimated by least squares, the resulting estimates, though unbiased, are inefficient. Furthermore, the random disturbances can no

TABLE I.—Standard errors of estimated numbers of persons with a severe disability

Size of estimate	Standard error
10,000.....	8,900
25,000.....	14,100
50,000.....	20,000
100,000.....	28,200
250,000.....	44,600
500,000.....	63,000
1,000,000.....	88,700
2,500,000.....	139,000
5,000,000.....	192,000
7,500,000.....	231,000
8,720,000.....	246,000

TABLE II.—Standard errors of estimated percentages of persons with a severe disability

Base of percentage (in thousands)	Estimated percentage					
	1 or 99	2.5 or 97.5	5 or 95	10 or 90	25 or 75	50
100.....	2.8	4.4	6.2	8.5	12.2	14.1
250.....	1.8	2.8	3.9	5.4	7.7	8.9
500.....	1.3	2.0	2.8	3.8	5.5	6.3
1,000.....	.9	1.4	1.9	2.7	3.9	4.5
2,500.....	.6	.9	1.2	1.7	2.4	2.8
5,000.....	.4	.6	.9	1.2	1.7	2.0
7,500.....	.3	.5	.7	1.0	1.4	1.6
8,720.....	.3	.5	.7	.9	1.3	1.5

longer be assumed to be normally distributed, and the standard hypothesis-testing techniques are inappropriate. Because the dependent variable is dichotomous, the measure of predictability statistic, R^2 , also is inappropriate.

Finally, there is no certainty that the estimated probabilities will fall within the closed $[0, 1]$ interval; although most probabilities should clearly do so, interpretations of those falling outside this interval are very difficult to accomplish. For these reasons, least squares is clearly an inappropriate estimation procedure.

The model presented here is estimated by a logit maximum likelihood procedure that yields consistent and efficient estimates.¹ Given P (probability of success) = $e^{x\beta} / 1 + e^{x\beta}$ and $Q = 1 / 1 + e^{x\beta}$, the likelihood function, $L(\beta)$, can be written as follows:

$$L(\beta) = \prod_{t \in \theta_1} (e^{x_t \beta} / 1 + e^{x_t \beta}) \prod_{t \in \theta_2} (1 / 1 + e^{x_t \beta})$$

where

- x_t is a k -element row vector of independent variables,
- β is a k -element column vector of coefficients,
- θ_1 is the set of all observations, such that a success is observed, and

¹Quoted from Levy, *op. cit.* For further detail, see Peter Schmidt and Robert Strauss, "The Prediction of Occupation Using Multiple Logit Models," *International Economic Review*, June 1975, pp. 484-485.

θ_2 is the set of all observations such that a failure is observed.

By maximizing this function, one can obtain parameter estimates. If a coefficient on a variable is positive, the interpretation is that, if that variable increases with the others held constant, then the probability of allowance increases. This specification is attractive because the logarithm of the odds ratio is a linear function of the independent variables, that is, $\ln P/Q = x$. The coefficients can be interpreted as the marginal effects of a change in x on this dependent variable. The negative inverse of the expected values of the second derivatives of the logarithm of the likelihood function, evaluated at the maximum, will yield the estimates of the asymptotic standard errors of the estimated coefficients. In this way, tests of significance of the independent variables can be constructed.

Comparisons of Survey Results With CWHS Administrative Data

Weighted counts of actual population.—The undercounting of DI beneficiaries in the 1972 Survey of Disabled and Nondisabled Adults is shown in the following tabulation.

	1972 survey	CWHS data
DI beneficiaries as of December 1971.....	1,298,421	1,647,684
1971 entitlements	432,662	415,897
DI beneficiaries as of December 1971 with 1 year prior current entitlement	865,759	1,231,787

Average benefits under SSDI.—The average family benefit from the 1972 survey is 13 percent larger than that from administrative data, \$203.42 versus \$179.70. Although different samples were drawn with new entitlements deleted from the survey, this would only be expected to increase the differential because new entitlements are generally larger than benefits to persons in current payment status. Both average benefit amounts given are as of the end of 1971.

Replacement rates.—A comparison of the replacement rates calculated from the 1972 survey data with the rates calculated from CWHS administrative data is given in table III. Because the survey data measure benefits as of December 1971 and the administrative data average benefits over the entire year, the survey data should have a somewhat higher 1971 replacement rate. One might expect the

TABLE III.—Median replacement rates for SSDI and percent of persons receiving high replacement rates from three data sources

Earnings denominator	1971 CWHS	1972 CWHS	1972 survey
	Median replacement rates		
Lifetime.....	0.557	0.600	0.632
Last nonzero year.....	.547	.619	.676
Highest 5 years of last 10.....	.386	.419	.458
	Percent with high replacement rates		
Lifetime.....	24.1	29.0	41.3
Last nonzero year.....	26.8	33.9	35.0
Highest 5 years of last 10.....	4.6	6.3	13.3

December 1971 rate to fall between the 1971 and 1972 rates for the administrative data; but this is not the case. The 1971 and 1972 CWHS rates are for new entitlements only; the survey rates, however, include all beneficiaries.