

Impact of Substantial Gainful Activity Level on Disabled Beneficiary Work Patterns

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A 12-year series on earnings and quarters of employment for disabled workers derived from the 1-percent Continuous Work History Sample provides information to determine whether work incentives stimulating labor-force participation are the same for the disabled as for the retired. Several factors could have affected persons receiving disability benefits during the period 1960-71 changes in the earnings level used to measure substantial gainful activity (SGA), legislative amendments, rising wage levels, and a fluctuating unemployment rate. The findings indicate that the major determinant of labor force behavior on the part of disabled beneficiaries seems to be the trial work period, not the SGA level.

WHAT ENCOURAGES the few severely disabled social security beneficiaries who work to continue employment while in beneficiary status? Earlier research on the work patterns of the disabled beneficiary population provides evidence that a small proportion—about 10 percent—of those receiving benefits continue in paid employment.¹ Low median earnings for such individuals, amounting to about \$650 in 1970, suggest a pattern of part-time, intermittent labor-force participation. Survey reports, which describe not only social security beneficiaries but all the disabled in the United States, show that, of those who considered themselves severely disabled in both 1966 and 1969, about 12 percent were in the labor force during both years. For those who reported themselves as being partially disabled in 1966 but had become severely disabled from 1966 to 1969, labor-force participation dropped from about 44 percent to about 12 percent.

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¹ Paula A. Franklin, "Earnings of Disabled-Worker Beneficiaries," *Social Security Bulletin*, June 1974.

cent.² It therefore appears that about a tenth of the severely disabled population functions as a marginal group in terms of gainful employment. A very small proportion, about 2-3 percent, is employed full time.

What are the incentives that stimulate this labor-force participation? The retirement test changes in 1972, the need to adjust the earnings limit under the disability program, and the rapid increases during the 1970's in the number of disabled beneficiaries—together with a relative and absolute decline in recovery terminations—give answering this question a certain immediacy. The disability program includes several incentives designed to encourage rehabilitative efforts aimed at returning individuals to full-time employment. Since 1960, a trial work period has permitted the disabled earning more than \$50 a month to remain in beneficiary status for 9 months before an investigation of recovery is initiated.³ The 1965 amendments authorized reimbursement from the trust funds for vocational rehabilitation services to beneficiaries believed to have the potential to return to competitive work. From 1966 through 1974, State vocational rehabilitation agencies received about \$220 million for this purpose. During fiscal year 1975, more than \$80 million was available for such reimbursements.⁴

SGA LEVEL AND THE OASI EARNINGS TEST

Another incentive for disabled beneficiaries to continue in employment may be a higher earn-

² Edward Steinberg, *Work Experience of the Disabled, 1966 and 1969: A Follow-up Study*, (Report No. 2, Disability Survey '69 Follow up of Disabled Adults), Office of Research and Statistics, 1976.

³ The 9 months need not be consecutive. The trial work period does not prevent the consideration of any medical evidence that may demonstrate recovery before the end of the ninth month of trial work. Self-employment can be measured as 15 hours or \$50 a month in earnings. One trial work period is allowed in any one period of disability.

⁴ Ralph Treitel, "Effect of Financing Disabled-Beneficiary Rehabilitation," *Social Security Bulletin*, November 1975.

ings limit Increases in the exempt amount under the earnings test for retired-worker beneficiaries⁵ have stimulated more part-time employment, thereby raising retirement-income levels Currently, it is possible for a retired worker to earn as much as \$230 a month, or \$2,760 a year, without losing any benefits One dollar in benefits is withheld for every \$2 in earnings exceeding that figure, but no benefit is withheld for any month in which the beneficiary earned less than the monthly exempt amount The measure within the disability program most comparable with the OASI earnings test is the test of "substantial gainful activity" (SGA), the dollar measure indicating economic self-sufficiency The disability insurance program uses either of two criteria to determine recovery medical evidence indicating amelioration of the severity of a disability or a return to significant employment Unlike the OASI earnings test, which is determined according to provisions in the law, the SGA level is set administratively Historically, however, the SGA level has been increased soon after the changes in the OASI earnings test

The SGA level stood at \$100 a month, or \$1,200 of annual income, until 1966, when it was increased to \$125 monthly (\$1,500 a year) to keep it abreast of rising wage levels In 1968, the monthly amount was raised to \$140 (\$1,680 a year), where it remained until 1974, when it became \$200 (\$2,400 a year) Effective January 1976, the figure was increased again to \$230 a month, or \$2,760 a year These figures correspond to changes in the OASI earnings test generally initiated about a year earlier

The purpose of the OASI earnings test for the aged differs from that of the SGA level under the disability program Introduced as a means of limiting benefits to retired persons with little or no work-related income, the test discourages workers from holding jobs after retirement because of the potential benefit loss⁶ For

⁵ Under the earnings test, benefit payments for those under age 72 are withheld, in whole or in part, according to the amount by which the earnings exceed the exempt amount The exempt amount is now determined under the automatic increase provision of the law, which calls for a redetermination of the need for adjustment whenever a cost-of-living benefit increase is established

⁶ Kenneth Sander, *The Retirement Test Some Preliminary Findings Regarding Its Effect on Older Workers' Earnings* (Research and Statistics Note No. 8), Office of Research and Statistics, 1968

retired persons aged 65-72, the change in the exempt earnings level in 1966 had an incentive effect income could be supplemented through increased part-time employment According to a study of the effect of the retirement test on older workers' earnings, "When compared with those for 1965, the 1966 distributions exhibited substantial changes in the earnings intervals around the new and old annual exempt amounts . . . almost no part of the observed 1965-66 changes in the two intervals can be attributed to the higher general earnings level in 1966"⁷ Although raising the exempt amount did increase work incentives for retired workers, the study shows that the provision under which \$1 in benefits was withheld for each \$2 of earnings above the exempt amount probably had a disincentive effect Apparently, the small increase in disposable income is not worth the "cost" in forgone leisure time

What similarities are there between the two beneficiary populations, the retired aged 65-72, and the disabled under age 65, in terms of their labor-force participation? Did the 1966 and 1968 SGA changes affect the earnings levels of the disabled? Is the SGA level an incentive to part-time work for the disabled beneficiary as the retirement test is for the old-age beneficiary? To what extent does the SGA level encourage the disabled beneficiary to bridge the gap from part-time to full-time employment, from benefit status to recovery and termination of benefits?

EARNINGS DISTRIBUTIONS FOR 12 YEARS

To answer these questions, a special tape was derived from the 1-percent Continuous Work History Sample (CWHHS) covering 12 consecutive years, 1960-71 It contained data on all disabled workers in beneficiary status on January 1 of each year⁸

The data for this period reveal a general pattern of labor-force participation for disabled beneficiaries that is remarkably consistent Earn-

⁷ Kenneth Sander, *The Effects of the 1966 Retirement Test Changes on the Earnings of Workers Aged 65-72* (Research and Statistics Note No. 1), Office of Research and Statistics, 1970

⁸ For further description of the source of the data, see the Technical Note, page 28

TABLE 1—Earnings of disabled-worker beneficiaries with benefits in current-payment status for entire year, 1960-71

Amount of earnings	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
Total number..	345,100	550,000	649,300	729,800	819,000	892,700	990,500	1,066,600	1,143,800	1,250,200	1,333,300	1,458,800
Total percent..	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Without earnings ..	94.3	93.0	92.2	92.5	92.6	91.2	89.4	89.6	89.1	88.6	80.7	90.8
\$1-599	3.6	4.5	5.1	4.5	4.5	4.9	5.7	5.4	5.4	5.5	4.8	4.5
600-1,199	6	12	13	13	13	17	22	23	22	22	21	18
1,200-1,499	4	3	3	4	3	5	7	6	8	8	7	5
1,500-1,679	1	1	2	1	2	2	4	3	4	4	3	3
1,680-2,399	3	4	3	3	3	5	7	6	9	8	8	7
2,400-3,599	4	2	3	5	4	5	4	5	6	8	7	5
3,600 or more	3	3	5	3	5	7	6	7	9	8	8	9
Median earnings ¹ ..	\$375	\$333	\$345	\$407	\$409	\$454	\$512	\$536	\$616	\$643	\$665	\$613
Percent												
With earnings ..	5.7	7.0	7.8	7.5	7.4	8.8	10.6	10.4	10.9	11.4	10.3	9.2
With earnings above SGA level ² ..	1.5	1.3	1.4	1.7	1.6	2.2	2.0	2.1	2.2	2.5	2.3	2.1
Percent with earnings above SGA level as percent of all those with earnings....	26.3	18.6	17.9	22.7	21.6	25.0	18.9	20.2	20.1	21.9	22.3	22.8

¹ Median of those earnings calculated on the basis of the \$50 intervals of the entire distribution, not on the earnings intervals shown here

² SGA earnings level 1960-68, \$1,200, 1966-68, \$1,500, 1968-75, \$1,680

ings frequencies of those workers in disability status for an entire year indicate that the earnings distributions and the median do not cluster around the SGA level (table 1).⁹ Instead, the largest percentage of those earnings remain in the lowest earnings interval, under \$600, the second largest percentage is in the range from \$600 to \$1,200. Medians for the 12-year series vary from \$333 to \$665. The disabled-beneficiary population does not respond to the SGA level as the retirement beneficiaries respond to the earnings test.

The labor-force participation of these beneficiaries, however, was not completely consistent from 1960 to 1971. Between 1964 and 1966, shifts occurred in the proportion of the beneficiary population with earnings and among those earning above the SGA level. Three percent more beneficiaries worked in 1966 than in 1964. About ½ of 1 percent more had earnings exceeding the SGA level in 1965 than did so in 1964. Yet the proportion of disabled beneficiaries with earnings decreased more than 2 percent from 1969 to 1971, a period of economic recession. To what extent did the changes in SGA level during 1966 and 1968 affect the variation in labor-market participation during the mid-1960's? To answer that

question, it is first necessary to disentangle the impact of administrative changes in the SGA level from other program influences that also might explain the minor fluctuations.

OTHER PROGRAM INFLUENCES

Some factors in addition to the SGA level that probably have affected the employment behavior of beneficiaries are illustrated in table 2.¹⁰ Major legislative developments in 1960, 1965, and 1967 changed the composition of the disability population. Beginning in 1960, benefits were made available to persons under age 50. The definition of disability became less strict in 1965, when it began to include those with impairments expected to last 12 months rather than indefinitely or expected to result in death. Revisions in insured-status requirements in 1967 permitted more workers under age 31 to become eligible for benefits. As a result, between 1965 and 1968, the beneficiary population expanded 31 percent to include more young persons. The young beneficiary is more likely to be employed than the older beneficiary.¹¹ The 1960 amendments establishing the trial work period and the 1965 amendments providing for vocational rehabilitation services might be considered more effective work incentives than the SGA level.

⁹ The frequency totals from the 1-percent CWHS, inflated to 100 percent in table 1, represent those in disabled-beneficiary status for the entire year. To prevent the confounding of earnings before entitlement to benefits and after benefit termination with those accumulated while the worker was receiving benefits, only those persons in disability status on January 1 of 2 consecutive years were included in the year's total in table 1.

¹⁰ Estimated totals are for all beneficiaries in current-payment status at the end of the year.

¹¹ Paula A. Franklin, *op. cit.*, page 18.

Economic conditions, the availability of work, and rising wage levels are confounding factors in unraveling the significant determinants of disabled beneficiary labor-force participation. In addition, the data on earning frequencies in table 1 do not indicate whether the same beneficiaries are working year after year or whether the fairly consistent participation percentages represent many beneficiaries entering and then leaving the labor force.

Also needed are answers to new questions that arise from an examination of table 1. Why is the median earnings level so low? Why do four-fifths of the working disabled-beneficiary population earn at levels far below the GSA level? Since the SGA level appears to have little effect on the dollar amount most employed beneficiaries earn, what is the determining mechanism that controls the degree to which this minority supplements benefits through part-time or intermittent work?

TABLE 2—Some major influences on persons in the disability insurance program, 1960–71

Year	Number with benefits in current-payment status at end of year ¹	Factors influencing persons with benefits			
		Legislative action	Changes in administrative regulations	Economy	
				Unemployment rate (per cent) ²	Median earnings ³
1960	455,371	Age 50 limit removed, 9 month trial work period instituted	- -	5.6	\$2,894
1961	618,075	-	-	6.7	2,938
1962	740,867	- -	-	5.6	3,058
1963	827,014	- -	-	5.7	3,149
1964	894,173	- -	-	5.2	3,298
1965	988,074	Disability definition broadened vocational rehabilitation services authorized	-	4.6	3,414
1966	1,097,190	- - -	SGA earnings level raised from \$100 to \$125	3.9	3,566
1967	1,193,120	Insured-status requirements reduced for workers under age 31	- -	3.8	3,716
1968	1,295,300	- - -	SGA earnings level raised from \$125 to \$140	3.6	3,945
1969	1,394,291	- - -	- - -	3.5	4,173
1970	1,492,948	- - -	- - -	4.9	4,370
1971	1,647,684	- - -	- - -	5.9	4,603

¹ Social Security Bulletin, Annual Statistical Supplement, 1974, table 53.

² Handbook of Labor Statistics, 1973 Department of Labor, table 65.

³ Social Security Bulletin, Annual Statistical Supplement, 1974, table 37.

TRANSITION MATRICES

To separate the differential impact of the population definition change, population age change, and the introduction of the various work incentives—against the background of the rapid growth of the program and the fluctuating unemployment rate—the analytical approach chosen regards the problem as one of measuring shocks to a system, the shocks of change. The switching pattern, from unemployment to employment and vice versa, was set up as a series of transition matrices to measure the probability of labor-force attachment.¹²

The analytic technique assumes that examining a characteristic of an individual for change over a period of time has a limited number of possibilities or states. For this analysis of disabled-worker labor-force participation, three states defined the major elements of the process: no employment, indicated by no quarters of coverage during the year; little employment, measured by 1 quarter of coverage; and substantial employment, defined as 2–4 quarters of coverage. A subsample from 1961 to 1971 was selected from the special 1-percent CWHS tape of disabled beneficiaries. Men under age 55 and those aged 55 and over who had had at least two complete, consecutive years in beneficiary status comprised the two groups large enough to support a detailed analysis.¹³

¹² The structure is similar to a Markov chain model, widely used in analyzing socioeconomic mobility. The classical Markov model is based on a panel study, following the movement of the same people over a period of time. This study, a longitudinal, cohort model, traces the same characteristic defining a changing group of people. Each transition matrix spanning a 2-year period uses the same cohort. Though the cohorts represented by the various matrices are not composed of the identical persons throughout 1961–71, considerable overlap between biennially disabled beneficiary populations may exist. For mathematical development, see John C. Hennessey and Barry V. Bye, *A Linear Algebra Approach to Nonstationary Markov Chains and Markov Chain Models of Consumer Behavior—A New Look at the Causative Matrix* (unpublished papers, 1975), available from the Division of Disability Studies, Office of Research and Statistics.

¹³ The sample selection necessary for the transition matrix analysis limits the study group to long-term beneficiaries who have been in the program for more than 2 years. Eliminated are short-term beneficiaries—those who became entitled and had their benefits terminated in the same year and those entitled in 1 year who experienced benefit termination in the next.

For each year, all workers in the subsample were checked to see how many quarters they worked in the given year and the year before. From this data the transition matrices were constructed for each 2-year period, 1961-71. Horizontal percentages, obtained from each nine-cell matrix and displayed in table 3, illustrate the switching patterns of both younger and older men in each of the three states of labor-force participation—none, little, and substantial.¹⁴

The overwhelming majority of men not in the labor force in a given year remained out of it during the following year, indicating a great stability in behavior over the entire period regardless of changes in legislation, SGA level, economic conditions, and any other factors. A very small number, about 2 percent, of those under age 55 worked a little during the second year. There is a slight variation in the switching patterns of those who attempted substantial employment after being unemployed during the previous year.

Among those who worked a little during the first year, less than a sixth continued in the same state (one quarter's employment) the following year. Although the percentage varied considerably from 1961 to 1971, about a fourth attempted substantial employment during the second year, while the majority dropped out of the labor market altogether. Generally, those who were substantially employed during the first year either continued in substantial employment during the second or dropped out of employment completely. Only about a sixth of those under age 55 and about a twelfth of the older disabled workers chose the intermediate alternative of working a little.

These switching patterns indicate that there is movement in and out of the labor market, especially among those who are still minimally employed. Change from year to year is considerable, and the responses of biyearly pairs vary

¹⁴ Any analysis based solely on sex and age is an oversimplistic way of approaching the complex relationship between chronic illness and employment. Factors such as type of physical or mental handicap, geographic location, socioeconomic status, occupational training, family structure, and individual capacity combine in a differential impact unmeasurable with this study's data. The nonhomogeneous character of the disabled beneficiary population contributes to the fluctuations or nonstationarity of the transition matrices.

substantially over a period of time. Although the transition matrices reveal the proportion of the disabled population moving in and out of the labor force and establish that considerable movement takes place for those with some attachment, the problem of disentangling the incentive effects of various factors on the movement remains.

CAUSATIVE MATRICES

Tentative answers emerge from the data after the use of a causative matrix-computer simulation—a further methodological application of concepts borrowed from the nonstationary Markov chain process.¹⁵ A causative matrix, mathematically computed from the switching pattern between each pair of transition matrices, can be considered to contain some quantified measure of how the real world forces are changing the switching patterns from year to year. A simulation producing the ultimate effect of the causes affecting the switching patterns is built by repeated applications of the causative matrix. This computer procedure extends the impact of causes operating within a limited time period as if they could continue in the same direction until the end result is established. The number of repetitions gives an indication of the strength of the factors active in the causative matrix, an estimate of the time it would take for the ultimate effect to occur.

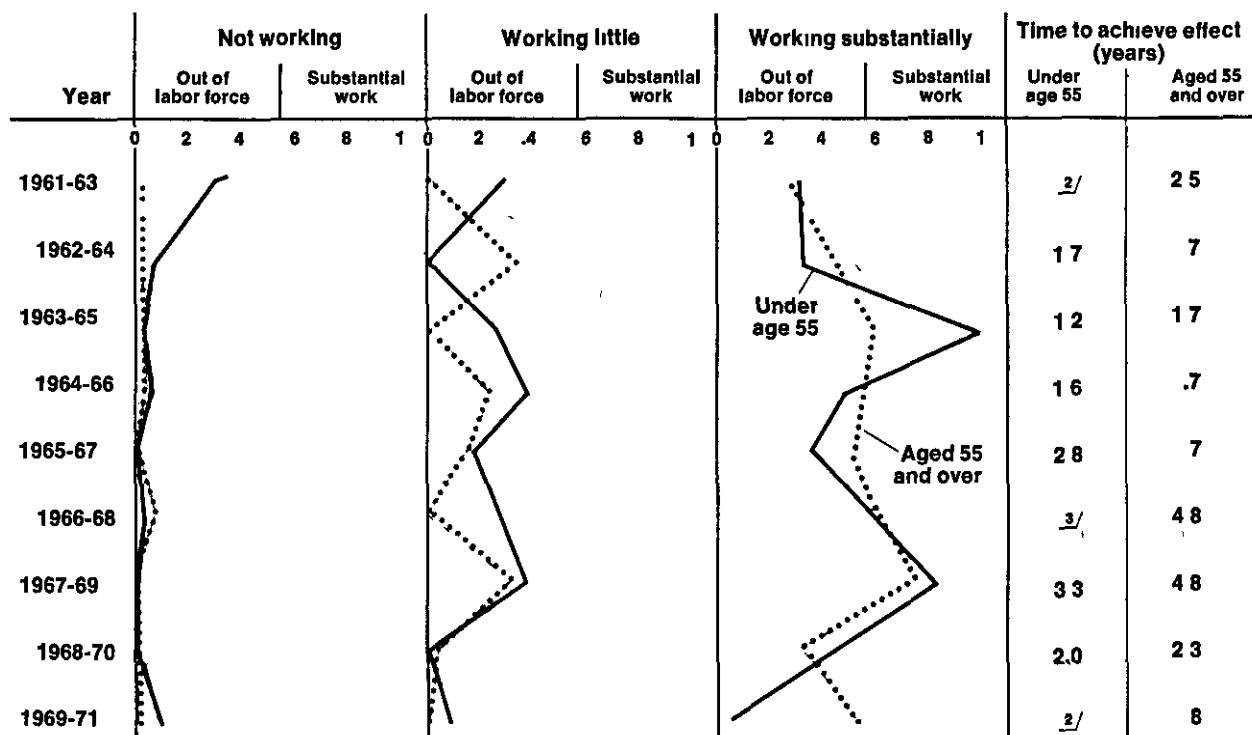
Chart 1 shows the results of the effect of the forces, within each 2-year period, pushing beneficiaries toward substantial labor-force participation.¹⁶ It also reveals the estimated proportion of beneficiaries who would be working substantially after the repeated application of the causative matrix had reached its mathematical limits.

The causes have a differential impact on six

¹⁵ See John C. Hennessey and Barry V. Bye, *op cit.*, and Barry V. Bye and Paula A. Franklin, "Labor Force Mobility of Disabled Workers: A Methodological Approach," paper presented at the 1-percent Continuous Work History Sample Users Conference, Social Security Administration, May 1976.

¹⁶ The conclusions drawn from the causative matrix simulation are based not only on the tendency illustrated in chart 1, but on the pattern, the shape of the limits of the R^{**} matrix, and the ultimate outcome of each reiterated causative matrix. For a detailed examination of the limiting matrices alluded to above and further analysis, see Barry V. Bye and Paula A. Franklin, *op cit.*

CHART 1—Ultimate effect of forces affecting labor-force participation¹



¹The biyearly points represent the ultimate probability—by definition between zero and one—of switching into substantial work in the second year given the labor force status at the beginning of the period. The computer simulation estimate assumes the period's causal impact could be held constant and extended

to its mathematical limits.

²Steady state movement extremely slow.

³For a discussion of the mathematical structure of the matrices in this time frame, see Barry V. Bye and Paula A. Franklin, *op. cit.*

groups of workers—men under age 55 and those aged 55 and over in the three defined categories of no, little, or substantial employment. Each of these groups varies in the amount of response and the time of response to reach the ultimate limit to the causes affecting switching patterns for each pair of years.

The computer simulation shows that the forces operating in the 1961-63 period resulted in increased labor-market participation by the younger workers in all three states. From a look at table 2, it appears that the 1960 amendments adding younger beneficiaries to the program coverage and providing for a trial work period were having an impact.

For the remainder of the 12-year period, little seems to have affected those out of the labor market, whatever their age. The simulation for 1962-64 shows that many withdrew from employment after they had worked a little. This finding

suggests that the trial work period may have stimulated them to try to reenter the labor market but that within 3 months the attempt could no longer be sustained. The model indicates that the most rapid impact was registered by forces in play from 1963 to 1965, especially for those substantially employed.

The trial work provision, which affected everyone already in the program as well as those newly entitled to benefits, may have had a greater impact during the first few years after its enactment than subsequently, when many beneficiaries would have exhausted their trial work entitlement. It is difficult to estimate the lag time between new program provisions and their utilization by a significantly large group of eligible persons, and to differentiate between the impact of two provisions enacted at the same time.

These thrusts toward substantial labor-market participation occurred before the 1965 legislative

changes in the disability program (1) The broadening of the definition of disability to include less severely disabled individuals, which changed the beneficiary population to one more likely to recover, and (2) the provision for reimbursement of vocational rehabilitation services, which in most States was implemented some time after 1966

In the 1964-66 and 1965-67 periods the movement swung back toward withdrawal from employment by those under age 55 who were substantially employed A similar, less pronounced response occurred for those working a little, which suggests that the forces in the early 1960's created a greater labor-force response than those in the mid-1960's

The simulation shows a second period, 1967-69, when beneficiaries pushed toward greater labor-force participation The forces moved with much less speed, taking a projected 33 years to reach their ultimate effect, compared with a projected 12 years for the 1963-65 period The period 1967-69 coincides with the 1967 amendments, which reduced the insurance requirements for workers under age 31 and made more younger workers eligible for the disability program

A comparison of table 2 with chart 1, which aligns the different classes of influences on the disability program, reveals that the causative matrix-simulation model analysis tends to corroborate data in table 1, suggesting that administrative changes in the SGA level in 1966 and 1968 did not have an incentive effect on labor-force participation Adjustments to keep abreast of the steadily rising wage rate failed to attract beneficiaries back to employment Movement in and out of the labor force by those already in beneficiary status did not coincide with the gradual increase or decrease in the unemployment rate during the period, suggesting that availability of work may also not be the major determinant of the disabled beneficiary's labor-force attachment¹⁷

¹⁷ This discussion of findings refers only to beneficiaries earning while receiving disability benefits The relation between the unemployment rate and the application rate for disability benefits is discussed in Mordechai E Lando, "The Effect of Unemployment in Application for Disability Insurance," in 1974 *Business and Economic Statistics*, American Statistical Association, and John C Hambor, *Unemployment and Disability An Econometric Analysis With Time Series Data* (Staff Paper No 20), Office of Research and Statistics, 1975 The effect of the unemployment rate on recovery for reason of SGA is not yet known

DETERMINANTS OF LABOR-FORCE ATTACHMENT

An important control appears to be the legislative structure of the program itself Three times during the dozen years under examination, the size, composition, and incentives of the disabled beneficiary population changed The causative matrix simulation accelerated and exaggerated the labor-force response in biyearly units to allow estimations of the impact of the various program changes Among male beneficiaries, results indicate that, though opening the disability program to younger persons (under age 50 in 1960) and then still younger ones (under age 31 in 1967) may have influenced the thrust toward increased employment from 1963 to 1965 and from 1967 to 1969, a more important mechanism may well be the trial work period, especially for younger men already working substantially More beneficiaries moved toward substantial employment attempts in the years following the inception of the trial work period, and the availability of rehabilitation services in the latter part of the period may have stimulated its use Possibly, an interactive effect between the various incentives available to the disability beneficiaries is present

Close examination of the choices generated by participation in the trial work period adds dimension to the data presented in this study A profound difference between the OASI earnings test and the disability SGA level arises from the regulations governing each If a retired beneficiary earns more than the exempt amount under the retirement test, his benefits are reduced or suspended for a month, but he remains eligible for benefits For the disabled beneficiary, however, earning more than the SGA level for 9 months leads, in all likelihood, to benefit termination To become reentitled is, at best, a time-consuming task, if reapplication does not lead to denial The risk, or cost, to the retirement beneficiary is thus temporary and minimal, to the disabled beneficiary, it is high and perhaps irrevocable Once the trial work period has begun, the disabled beneficiary is confronted by a decision Should he continue working, or stop to avoid the probability of leaving the rolls? What course is the most beneficial economically? Table 3 indicates that many choose to withdraw from all employment.

Every disabled beneficiary is informed of the amount of earnings allowed in a month before it

TABLE 3—Labor-force participation patterns of men under age 55 and aged 55 and over, 1961–71

Year	Men with no work in first year of pair			Men with little work ¹ in first year of pair			Men with substantial work ¹ in first year of pair					
	Total number	In second year, percent with—		Total number	In second year, percent with—		Total number	In second year, percent with—				
		No work	Little work		No work	Little work		No work	Little work			
Under age 55 ²												
1961–62	132,500	97	2	1	5,000	70	16	6,800	47	12	41	
1962–63	162,600	96	2	2	5,700	65	12	9,100	51	14	35	
1963–64	183,800	96	2	2	7,700	65	14	8,800	40	19	41	
1964–65	205,000	95	2	3	7,600	59	17	10,300	26	17	57	
1965–66	219,200	93	3	4	9,800	51	20	14,000	32	13	55	
1966–67	231,000	95	2	3	13,800	64	9	27	19,700	31	20	
1967–68	247,000	95	2	3	11,600	58	17	25	19,200	37	12	
1968–69	257,100	95	2	3	12,500	58	17	27	23,100	33	10	
1969–70	285,000	96	2	2	15,500	71	13	16	25,600	34	13	
1970–71	314,300	97	2	1	15,300	69	13	18	28,200	42	10	
Mean		96.5	2.1	2.4	-	62.8	14.8	22.4	-	37.5	14	48.7
Aged 55 and over												
1961–62	198,500	98	1	1	4,600	74	11	15	6,200	34	8	58
1962–63	224,400	98	1	1	6,000	80	10	10	8,700	43	9	48
1963–64	257,400	98	1	1	5,500	64	13	23	8,800	47	5	48
1964–65	279,700	98	1	1	5,000	66	16	18	9,800	38	8	54
1965–66	303,300	97	1	2	7,100	65	14	21	11,900	42	3	55
1966–67	321,600	98	1	1	8,800	68	13	19	18,300	38	8	54
1967–68	347,600	97	1	2	10,400	66	15	18	19,200	38	8	54
1968–69	369,100	97	1	2	11,900	68	10	22	23,800	36	7	58
1969–70	389,000	98	1	1	12,100	71	12	17	27,400	41	10	49
1970–71	424,400	98	1	1	11,800	77	14	9	24,200	42	8	50
Mean	-	97.7	1	1.3	-	69.9	18.8	17.4	-	39.8	7.4	52.8

¹ Little work is defined as work in 1 quarter, substantial work as 2–4 quarters

² Sampling variability estimates are obtained by using the number base and percentages shown in table II in the Technical Note

is credited toward the trial work period. To keep it within this minimum, supplemental income might safely be in the range of \$500–\$600 a year. Examination of the medians in table 1 shows that about 5–10 percent of the entire disabled beneficiary population worked to supplement their benefits, but these earnings remained in the \$500–\$600 income range. From 1 to 2 percent of the beneficiary population continued to work at an earnings level that could lead to termination.

PROGRAM IMPLICATIONS

A small proportion of disabled beneficiaries attempt to return to work every year. Among these, many subsequently withdraw, remaining in beneficiary status. A computer simulation designed to estimate the effect of various types of influences suggests that the legislative structure of the program may be the strongest determinant of beneficiary behavior. Therefore, if program objectives are to encourage disabled beneficiaries to maintain some marketable skills, to improve the adequacy

of their family income, to sustain personal self-esteem, and to decrease economic dependency, more part-time work might be stimulated by raising allowable earnings to \$100 or \$125 a month before a trial work period is initiated. A higher minimum earnings level would thus be permitted without jeopardizing beneficiary status.

If the work incentives under the program are intended only to encourage beneficiaries to seek full-time work and eventually have their benefits terminated, then the relationship between current benefit levels and potential labor-market earnings assumes importance. The 1966 Social Security Survey of the Disabled reports that the effect of severe disability upon those who could not work, or could only work a little, was overwhelming throughout the U.S. population. "Severely disabled men were most adversely affected, almost 3 out of 5 had no earnings in 1965, and half of the employed earned \$700 or less."¹⁸

Occupational data from the 1969 follow-up sur-

¹⁸ See Gertrude L. Stanley, *Work and Earnings of the Disabled* (Report No. 17, Social Security Survey of the Disabled 1966), Office of Research and Statistics, 1971.

vey of disabled adults show that, among those who remained severely disabled or who became severely disabled, the proportion of persons employed originally as laborers and as service and private household workers was much higher than it was for persons in other vocational categories. The recovery rate was higher at the other end of the occupational spectrum among professional and technical workers, managers, officials, and proprietors.¹⁹

There appears to be less of an incentive to return to low-paying occupations requiring medium to heavy labor. Earnings may not substantially increase income for some beneficiaries. The average amount received by disabled-worker beneficiaries in July 1975 was \$224.32 a month. In addition, since 1974, a period not covered by the study data, those entitled to benefits for 24 months are covered by Medicare. Medicare protection does not resume automatically upon reentitlement but requires another 2 years of entitlement. To eliminate any possible disincentive effect of this provision, proposals to eliminate the waiting period following reentitlement are under consideration.

At best, the disability program assures a bare subsistence living level for severely disabled beneficiaries. The fear of economic destitution possibly pushes the beneficiary who works toward the cautious, low-risk option in labor-market choices. Currently, the disincentives may outweigh the incentives to return to the full-time labor force for some of the very small proportion of disabled beneficiaries in substantial employment. The low level of earnings credited toward trial work may also keep others from returning to substantial part-time employment. Program designers in the 1960's were mainly concerned with providing adequate benefit levels for the severely disabled, the vast majority of whom cannot work, rather than with the work incentives incorporated in the program. Medical recovery, probably, rather than return to full-time work with a disabling condition should be the major expected reason for termination of benefits. The results of this study suggest that raising the disability program earnings limit—the SGA level—will not increase work attempts by beneficiaries. All program work incentives seem to have limited effect.

Technical Note

The Social Security Administration's 1-percent Continuous Work History Sample is derived from the reporting and informational forms and records used in administering the old-age, survivors, disability, and health insurance program. Data on age, sex, and race are obtained from the employee's application for a social security number. Data on the amount of earnings and length and type of employment are derived from the report forms submitted by employers and self-employed persons. Beneficiary claims data are obtained from the Social Security Administration master beneficiary record. The sample design is a stratified cluster probability sample of the population of possible social security numbers.²⁰

Estimates based on samples can be expected to differ from figures that would have been obtained if all, rather than a sample, of the records had been used for the compilations. The standard error is a measure of sampling variability. The chances are about 68 out of 100 that the difference due to sampling variability between a sample estimate and the figure that would have been obtained from a compilation of all records is less than the standard error. The chances are 95 out of 100 that the difference is less than twice the standard error. The standard error of an estimate depends on the sample design elements such as the method of sampling, the sample size, and on the estimation process.

Table I shows the approximate standard errors

²⁰ For a more detailed discussion of the sample design and size, sampling variability, and sources of nonsampling variability, see *Earnings Distribution of the United States, 1969*, Appendix B, Office of Research and Statistics, 1975.

TABLE I—Approximate standard errors of estimated number of disabled-worker beneficiaries

Estimated number	One standard error
1,000 ..	300
2,500 ..	500
5,000 ..	700
7,500 ..	900
10,000 ..	1,000
25,000 ..	1,600
50,000 ..	2,200
75,000 ..	2,800
100,000 ..	3,200
250,000 ..	5,000
500,000 ..	7,000
750,000 ..	9,000
1,000,000 ..	10,000
2,500,000 ..	16,000

¹⁹ See Edward Steinberg, *op cit*, page 8.

for numbers of persons, and table II the approximate standard errors for percentages of persons with a given characteristic. The reliability of an estimated percentage depends on both the size of the percentage and on the size of the total base population. The standard errors in the body of table II are expressed in percentage points. Standard errors for percentages and bases not shown in the table can be obtained by linear interpolation.

The approximate standard error on differences of percentages, P₁-P₂, over time can be obtained by

$$SE_{P_1-P_2} = \text{SQRT} [(SE_{P_1})^2 + (SE_{P_2})^2]$$

Standard errors obtained by means of this approximation are likely to be conservative (biased high) since the estimates are obtained from overlapping samples with presumed high positive correlation.

TABLE II—Approximate standard errors of estimated percentages of disabled-worker beneficiaries

Size of base	Estimated percentages				
	2 or 98	5 or 95	10 or 90	25 or 75	50
2,500	—	2.8	4.4	6.0	8.7
5,000	—	2.0	3.1	4.2	6.1
7,500	—	1.6	2.5	3.5	5.0
10,000	—	1.4	2.2	3.0	4.3
25,000	—	0.9	1.4	1.9	2.7
50,000	—	0.6	1.0	1.3	1.9
75,000	—	0.5	0.8	1.1	1.6
100,000	—	0.4	0.7	1.0	1.4
250,000	—	0.3	0.4	0.6	0.9
500,000	—	0.2	0.3	0.4	0.6
750,000	—	0.2	0.3	0.4	0.5
1,000,000	—	0.1	0.2	0.3	0.4
2,500,000	—	0.1	0.1	0.2	0.3

The sensitivity of the causative matrix analysis to sampling variability is unknown at the present. For further discussion of this issue of stability, see the Bye and Franklin study cited earlier.

Notes and Brief Reports

Questions on Social Security and the Future Work Force*

The effects of the social security program on retirement behavior is of growing interest. This interest is stimulated by long-range cost projections of the social security program that show a dramatic increase in the ratio of the retired to the working-age population early in the next century. That increase reflects the aging of the post-World War II "baby boom" cohort and the sharp birth-rate decline that has occurred in recent years. The projected rise in the workers' tax burden to support a growing retired population is a source of concern. Policies to encourage older workers to remain in the labor force were discussed by the 1975 Advisory Council on Social Security as a way to alleviate the long-run higher cost. The retirement policies of the social security program are being examined in this context.

The article on retirement patterns on page 3 of this issue documents the rise in the retirement rate (measured both by labor-force withdrawal and by the number of older persons receiving retire-

ment benefits under the social security program) in the past 25 years. The author summarizes research in the past decade that shows voluntary retirement is becoming more common and that level of retirement income, job satisfaction, and health are key factors in the retirement decision.

The rising retirement rate coincided with the expansion of coverage under the social security program in the 1950's, introduction of early retirement options (in 1956 for women, 1961 for men), and benefit increases enacted in the late 1960's and early 1970's. The availability and the level of retirement benefits, in conjunction with supplemental pension income, have undoubtedly influenced the retirement rate and contributed to the rise in voluntary retirement.

Until recently, these trends might have been cause for optimism. Policies designed to improve the economic well-being of the aged and to introduce an element of choice in the retirement decision were having the intended effect. The wisdom of continuing these policies, however, is now being questioned.

Rising costs were spotlighted in projections of the social security program, and ways to reduce costs are being sought. To slow down or reverse the rising retirement trend, modification of social security policies that accompanied the trend are being considered. A logical alternative to the early-retirement option would be to postpone the

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