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TERMINATION EXPERIENCE OF DISABLED-CHILD BENEFITS UNDER OASDI

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Under the Old-Age, Survivors, and Disability Insurance system (OASDI), monthly benefits are payable to children of retired and disabled workers, as well as to orphans of deceased insured workers. Initially, only young children (under age 18) were eligible for benefits, but in 1956 eligibility was extended to older children who were disabled before age 18.¹ A large amount of data on these disabled-child beneficiaries has been accumulated in the operation of the program. In this note, some of the data, particularly that pertaining to termination of benefits, will be analyzed.

The extensiveness of the available data can be observed from Table 1. In the period 1957-67, there were about 283,000 awards of monthly benefits to disabled children.² About 230,000 of them were still in current payment status at the end of the period. Although these are figures of considerable magnitude, it is difficult to judge whether they are relatively low or high for a program like OASDI.

¹ There was a further liberalization in 1965 making children aged 18-21 eligible for benefits if they are attending school on a full-time basis.

² The number of children who have had benefits awarded to them is smaller than the above figure because there are some children who had two benefit awards. This happens in cases of children of disabled workers who later die or attain retirement age. The administrative procedure followed is to terminate their benefits from the Disability Insurance Trust Fund and to award them a new disabled-child benefit from the Old-Age and Survivors Insurance Trust Fund.

The difficulty is due to the lack of a reference against which to judge them. Generally, the appropriateness of a number of beneficiaries is determined by reducing the number to a rate and then comparing the rate with similar rates in other systems. However, for disabled-child beneficiaries the reduction to a rate imposes problems that are beyond practical possibilities. Some of these problems are due to the requirement that the disability had an onset before age 18, while others are related to the practicability of maintaining such elaborate records.

There are four main reasons for termination of disabled-child benefits: death, recovery from disability, marriage, and entitlement to an equal or larger benefit (usually earned by the disabled child on his own account). The last reason can have importance only because of the almost universal coverage of OASDI and should be considered as having a negligible effect in practically any other benefit program. Of the about 37,000 disabled-child benefit terminations recorded through calendar year 1966, about 43% were due to death of the beneficiary, 13% to marriage of the beneficiary, 8% to recovery from the disability, 12% to entitlement to equal or larger benefits, and 3% to other reasons. The remaining 21% of the terminations were due to transfer of the disabled-child beneficiary from the Disability Insurance Trust Fund to the Old-Age and Survivors Insurance Trust Fund upon the death of his disabled parent or the attainment of age 65 by his

parent. In this note, a detailed analysis is presented of the first three types of benefit terminations, which are the most important ones in many benefit plans.

Table 2 summarizes the experience for each of these three types of terminations for calendar years 1958-66. It will be observed from the gross terminations rates³ that death rates have been relatively stable throughout the period, but that marriage and recovery rates have been increasing. The abrupt jump in the gross recovery rate in 1963-64 is due principally to the effect of the trial-work-period provision.⁴ This provision became effective in October 1960, but its full effect in the number of recoveries was not felt until 1964, due to the various lags involved in its application and administration. The gross marriage rates increased up to 1964 and have remained level since then. The increase is due partly to an increasing proportion of disabled children in the marriageable ages (especially female beneficiaries). However, this does not account for all the increase. No explanation is available regarding the remaining part of the observed increase in the marriage rate.

Termination experience for different types of disabled beneficiaries have been found to be dependent on age, sex, and duration of disability. Undoubtedly, other factors also affect the termination rates—e.g., type and severity of disability, type of previous employment, etc., but it is practically impossible to combine disability beneficiaries into homogeneous groups, as an analysis of termination according to these factors would require.

In this note, termination rates for disabled children are analyzed by age only. Data

³ The gross termination rates are defined as the ratio of the number of terminations in the year to the average number of benefits in current payment status in the year.

⁴ This provision encourages beneficiaries to work by permitting trial work for 9 months without loss of benefits; thereafter, benefits may be terminated because of "recovery" as demonstrated by substantial gainful employment, even though the medical impairment is unchanged.

⁵ In these cases, evidence indicates that the child was disabled before attainment of age 18, but the exact date of onset was not readily determinable.

for both sexes were used in a combined form mainly because of some difficulties involved in their separation by sex. Although information regarding the sex of the beneficiaries is kept in the operation of the program, most of the tabulations on disabled-child beneficiaries that are readily available are for both sexes combined. No analysis by duration of disability was attempted, because it was believed that the amount of data available would not permit the detection of minor differences in termination rates, since most disabilities (about 85%) for which a year of onset was established began in the first year of life. In addition, a large portion of the data could not be used for an analysis by duration because in 40% of the awards the year of onset of disability was not established.⁵

Table 3 contains the observed deaths and the observed and graduated death rates by single years of age. The study was limited to calendar years 1962-65, because data for earlier years was not available in the form needed. There were 8,583 deaths included in the study. The observed rates for ages 18-58 (the data for ages over 58 were too sparse to analyze) were graduated using the Whitaker-Henderson formulas with $a=3$. These yielded a ratio of observed to expected deaths of 1.001. It will be observed that the death rates for disabled-child beneficiaries start at a value of about 12 per thousand at age 18, decrease slowly to a low of about 10 per thousand around age 30, and then begin a continuous increase.

The disabled-child beneficiary mortality is compared in Table 4 with that of the total population of the United States. The death rates for disabled children are considerably higher than for the total population. At the younger ages, the differential is about 10 to 1, but it decreases to about 2 to 1 around age 55. This relation was to be expected since, in general, disabled children are not as healthy as the total population. The decrease of the differential with age was to be expected also, since the total population is known to become less healthy with advancing age.

In Table 5 are presented the number of terminations from all three causes combined (death, marriage, and recovery) and the corresponding observed and graduated termination rates by single years of age. The study included a total of 13,784 terminations. The Whittaker-Henderson graduation formulas with $a=3$ were applied. These produced a ratio of observed to expected terminations of 0.992. The termination rates for all three causes combined start at a high value (48 per thousand) at age 18, decrease rapidly to a minimum of 14 per thousand at age 35, and then start to increase again.

The relatively high termination rates at the younger ages are due mostly to marriage of the beneficiaries (principally female beneficiaries), while the high rates at the older ages are due to mortality. Recoveries, although more predominant at the younger ages, are not as much concentrated at those ages as are marriages. Some recoveries were observed at the older ages, but there were practically no marriages.

Present values of an annuity of one unit per year payable continuously throughout the year (which is virtually the same as if payable monthly in the middle of the month)

are presented in Table 6 at interest rates of $3\frac{1}{2}\%$, 4% , and $4\frac{1}{2}\%$. These values are based on the termination rates in Table 4 and on an extrapolation made of these values to the older ages. The extrapolation was prepared using graphical procedures and it was based on the relationship of disabled-child mortality to that of United States mortality for the total population in 1959-61. In its preparation, it was assumed that disabled-child mortality would merge with total-population mortality at age 90.

Table 1

NUMBER OF DISABLED CHILD-BENEFITS
AWARDED AND IN CURRENT PAYMENT
STATUS, 1957-67

<u>Calendar Year</u>	<u>Awards In Year</u>	<u>In Current Payment At End Of Year</u>
1957	29,507	28,869
1958 ¹	18,970	47,025
1959 ¹	37,679	82,453
1960	24,353	104,054
1961	24,040	124,221
1962	27,221	147,264
1963	25,404	166,642
1964	22,928	183,522
1965	21,398	198,390
1966	26,019	213,721
1967	25,036	229,690

¹ For statistical purposes the years 1958 and 1959 were defined as covering the periods January 1, 1958 to November 30, 1958 and December 1, 1958 to December 31, 1959, respectively.

Table 2

NUMBER OF TERMINATIONS AND GROSS TERMINATION
RATES FOR DISABLED-CHILD BENEFICIARIES, 1958-66

Calendar Year	Number of Terminations			Gross Termination Rate		
	Death	Marriage	Recovery	Death	Marriage	Recovery
1958 ¹	464	75	5	.0133	.0022	.0001
1959 ¹	994	198	18	.0142	.0028	.0003
1960	1,224	241	13	.0131	.0026	.0001
1961	1,427	340	48	.0125	.0030	.0004
1962	1,666	487	108	.0123	.0036	.0008
1963	2,210	660	456	.0141	.0042	.0029
1964	2,369	872	716	.0135	.0050	.0041
1965	2,605	947	770	.0136	.0050	.0041
1966	2,867	1,043	925	.0139	.0051	.0045

¹ For statistical purposes the years 1958 and 1959 were defined as covering the periods January 1, 1958 to November 30, 1958 and December 1, 1958 to December 31, 1959, respectively. However, the gross termination rates for these periods were converted to an annual basis.

Table 3

MORTALITY RATES FOR DISABLED CHILD BENEFICIARIES, 1962-65

Age ¹	Observed No. of Deaths	Death Rates		Age ¹	Observed No. of Deaths	Death Rates	
		Observed	Graduated			Observed	Graduated
18	230	.0151	.0123	39	254	.0118	.0125
19	189	.0116	.0119	40	249	.0115	.0130
20	180	.0105	.0115	41	285	.0132	.0136
21	153	.0086	.0111	42	303	.0145	.0142
22	176	.0097	.0108	43	327	.0166	.0148
23	186	.0104	.0106	44	291	.0160	.0154
24	196	.0112	.0105	45	298	.0175	.0160
25	182	.0106	.0104	46	260	.0164	.0166
26	196	.0115	.0103	47	252	.0172	.0173
27	165	.0096	.0102	48	216	.0162	.0181
28	183	.0104	.0102	49	208	.0175	.0190
29	189	.0104	.0102	50	231	.0221	.0200
30	173	.0093	.0102	51	214	.0235	.0210
31	187	.0098	.0103	52	166	.0208	.0221
32	230	.0118	.0105	53	144	.0204	.0233
33	222	.0111	.0107	54	159	.0256	.0246
34	225	.0109	.0109	55	129	.0249	.0260
35	227	.0107	.0111	56	126	.0298	.0275
36	245	.0113	.0114	57	94	.0269	.0292
37	272	.0125	.0117	58	99	.0326	.0308
38	272	.0126	.0121				

¹ Age last birthday at the beginning of year of exposure.

Table 4

COMPARISON OF DISABLED-CHILD BENEFICIARY MORTALITY
WITH THAT OF THE UNITED STATES POPULATION

Age ¹	Graduated Death Rates		Ratio Col. (1) to Col. (2) (3)
	Disabled Child Beneficiary, 1962-65	United States Population, 1959-61	
	(1)	(2)	
18	.0123	.00105	11.7
20	.0115	.00118	9.7
25	.0104	.00126	8.3
30	.0102	.00147	6.9
35	.0111	.00202	5.5
40	.0130	.00315	4.1
45	.0160	.00498	3.2
50	.0200	.00813	2.5
55	.0260	.01205	2.2

¹ Age last birthday at the beginning of year of exposure.

Table 5

TERMINATION RATES ¹ FOR DISABLED-CHILD
BENEFITS, 1962-65

Age ²	Observed No. of Terminations	Termination Rates		Age ²	Observed No. of Terminations	Termination Rates	
		Observed	Graduated			Observed	Graduated
18	572	.0370	.0484	39	299	.0139	.0147
19	826	.0499	.0451	40	302	.0140	.0150
20	854	.0489	.0418	41	320	.0148	.0154
21	732	.0406	.0384	42	331	.0158	.0159
22	659	.0360	.0350	43	363	.0184	.0165
23	551	.0304	.0317	44	321	.0176	.0171
24	501	.0285	.0286	45	322	.0189	.0177
25	398	.0231	.0257	46	282	.0178	.0183
26	397	.0232	.0231	47	267	.0182	.0189
27	330	.0191	.0208	48	230	.0173	.0195
28	324	.0183	.0189	49	220	.0185	.0202
29	292	.0160	.0173	50	238	.0228	.0210
30	248	.0132	.0161	51	221	.0243	.0219
31	276	.0144	.0153	52	169	.0212	.0229
32	312	.0159	.0148	53	154	.0218	.0240
33	305	.0152	.0145	54	166	.0267	.0253
34	289	.0140	.0143	55	129	.0249	.0267
35	301	.0142	.0142	56	128	.0303	.0282
36	302	.0139	.0142	57	97	.0277	.0298
37	335	.0153	.0143	58	103	.0339	.0314
38	318	.0147	.0145				

¹ Include terminations due to death, marriage, and recovery.

² Age last birthday at the beginning of year of exposure.

Table 6

PRESENT VALUE OF AN ANNUITY OF A UNIT PER YEAR PAYABLE
CONTINUOUSLY, OASDI DISABLED-CHILD BENEFICIARIES
EXPERIENCE, 1962-65

Exact Age	Present Value of Annuity at Interest		
	<u>3½%</u>	<u>4%</u>	<u>4½%</u>
18	15.73	14.61	13.63
19	16.10	14.95	13.95
20	16.44	15.27	14.24
21	16.75	15.56	14.51
22	17.02	15.81	14.75
23	17.25	16.03	14.96
24	17.43	16.21	15.14
25	17.57	16.35	15.27
26	17.66	16.44	15.37
27	17.71	16.50	15.42
28	17.71	16.51	15.44
29	17.67	16.48	15.43
30	17.60	16.43	15.39
31	17.50	16.35	15.33
32	17.37	16.25	15.24
33	17.23	16.12	15.14
34	17.07	15.99	15.02
35	16.90	15.85	14.90
40	15.91	14.98	14.15
45	14.76	13.97	13.25
50	13.52	12.86	12.25