

REMARRIAGE EXPERIENCE OF PENNSYLVANIA
COMPENSATION INSURANCE CARRIERS
POLICY YEARS 1916-1919

BY

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Most workmen's compensation laws provide that the widow's pension shall cease upon her remarriage but that the remaining dependents shall thereafter be entitled to the rate of compensation which they would have received had there been no widow. Many acts also allow a remarriage bonus. The probability of remarriage must accordingly, be taken into account in the valuation of death claims whether for reserves or for rate making. The table heretofore used for this purpose is derived from the experience of the Dutch Royal Insurance Institute. But the Dutch table is based upon a very limited exposure and is of very doubtful applicability to American conditions. It is worth while, therefore, to begin the compilation and analysis of the fast-accumulating American experience.

The data herewith presented were compiled by the Pennsylvania Compensation Rating and Inspection Bureau from the experience of compensation insurers in Pennsylvania during policy years 1916 to 1919 inclusive.¹ The record covered 2652 widows and 321 remarriages in a total exposure of 7334 years. The period of observation closed March 31, 1921; it thus comprised a little over five years for the earliest cases and three months for the most recent. The exposure of each widow was reckoned in weeks from the husband's death until her own death or remarriage or, if still living and unmarried, to the end of the period of observation.

Several limitations upon the value of this experience are to be noted at the outset. The exposure is too small and the period too brief to give definitive results and the data for the earlier years are too crude to justify refined analysis. Under the Pennsylvania Act, moreover, the widow's pension runs only for three hundred weeks so that observation can in no case extend beyond the sixth year. There being no life pension the

age of the widow is not an important element in the valuation of death claims and was neither invariably nor accurately ascertained by insurance carriers. This is well shown by Table VII; the great concentration at the quinquennial intervals, 20, 25, 30, etc., clearly indicates that the reported ages are approximate rather than exact. There has been a marked improvement in the quality of reporting in recent years but it is evident that the data collected under a limited pension law will never be as complete or as trustworthy as they ought to be, *e. g.*, for New York State.

For all these reasons it has not seemed worth while to compute remarriage rates either by annual age intervals or by the attained ages of widows. The numbers at each year of age are so small that the actual rates would fluctuate erratically from zero to one hundred. A smooth curve could of course, be produced by graduation but the graduation of irregular rates derived from insufficient numbers is no more than the schematic statement of an unproved hypothesis. Neither did it seem worth while, in view of the limited numbers and inaccurate record of ages, to incur the labor and expense of compiling exposures and remarriages by attained ages. The sub-joined tables accordingly show the remarriage rates per hundred per annum for five-year age groups during the entire period of exposure. These rates are, of course, not directly comparable with the rates shown in the Dutch table which are by attained ages at annual intervals.

The most striking feature of the Pennsylvania experience is the sharp contrast, in respect to remarriage rates, between the widows of coal miners and the widows of employees in other industries. For the combined experience the remarriage rate is 4.38; for coal mining 6.38, for other industries, 3.28 (Table I). For all widows under thirty-six years of age at the husband's death the respective rates are: coal mining, 10.38, other industries 6.23. The difference is consistent for every age interval and for every family group (Table III—VI). The explanation is probably to be found in social conditions. The coal miners of Pennsylvania are preponderantly of Slavic or Italian birth, little touched by Americanization, and they live in small communities in which the number of single men largely exceeds the number of marriageable women. The like conditions, do not elsewhere obtain to anything like the same degree, except in the steel

towns. Unfortunately the remarriage experience of steel mill widows is not available because the larger steel plants are uninsured.

The Pennsylvania experience thus goes to show that remarriage rates derived from one set of social conditions are inapplicable to a different group of wage earner's widows living under widely different conditions. For industries other than coal mining the Pennsylvania remarriage rates correspond rather closely to the rates given by the Dutch table for similar ages;² for coal miners' widows the margin of error in the Dutch table is about 80 per cent.

The second tentative deduction from Pennsylvania experience is that the probability of remarriage is but little, if at all, affected by the number of dependent children. This is well shown for the most significant age groups, by Table X, below. The deviations from the general average for widows with one, two, three, four or more children or with none are not consistent nor in the same direction. The frequency of remarriage at any given age is about the same in all the family groups (for details see Tables II—VI). For this reason it does not appear worth while to set out the numbers, remarriages and years of exposure for each family group at annual intervals as is done in Table VIII for widows of all groups.

Lastly, Pennsylvania experience indicates that a majority of all remarriages occur within three years of the husband's death and that the frequency of remarriage is greatest during the second year of widowhood. These results hold for every age interval³ and for both coal mining and other industries. Only five remarriages occurred after the fourth year in a total exposure of 386 widows. The indicated deduction is contrary to the assumption in the Dutch table which makes the probability of remarriage a simple function of the attained age of the widow, without regard to the elapsed period of widowhood. According to the Dutch table the likelihood of remarriage during the thirty-first year of life is the same for a woman whose husband has died the year before as for a woman who has been ten years a widow. According to Pennsylvania experience a woman of thirty lately widowed, is much more likely to remarry within three years than a widow of twenty-five who has already remained unmarried for five years. If the latter conclusion should be substantiated

it would have important results for the construction of a remarriage table to be used in the valuation of death claims. It would mean that the widow's age at her husband's death and the elapsed period of widowhood are the decisive data and that the attained age of the widow, without regard to the duration of widowhood, is an incorrect basis of valuation. Pennsylvania experience to date is, of course, inconclusive.

It is altogether too early to construct an American Remarriage Table. But the meagre data thus far published⁴ raise serious doubts as to the adequacy of the Dutch table for the computation of insurance rates and reserves and point the need for thorough statistical analysis of American experience. For the present it is important to ascertain the birth rate and date of death or remarriage of every industrial widow and to compile the returns in such wise as will permit the derivation of remarriage rates both by the attained ages of widows and by age at the husband's death and the duration of widowhood. To collect an adequate volume of data will require the co-operation of many agencies. The Pennsylvania Bureau will contribute its quota by making this year the double analysis above suggested for the years 1916 to 1921, inclusive.

TABLE I.
REMARRIAGE RATES BY AGES—ALL WIDOWS
Penna. Schedule Z Experience—Policy Years 1916-1919.

Age of Widow at Husband's Death 1	All Industries except Coal Mining			Coal Mining		
	No. of Widows 2	No. Re- married 3	Remar- riage Rate* 4	No. of Widows 5	No. Re- married 6	Remar- riage Rate 7
All ages.....	1665	155	3.28	987	166	7.38
Under 21.....	54	18	14.06	57	24	19.83
21 and under 26...	181	41	8.13	124	31	10.33
26 and under 31...	248	42	5.90	219	51	9.06
31 and under 36...	237	23	3.57	175	33	7.08
36 and under 41...	214	12	1.87	168	18	4.03
41 and under 46...	180	9	1.66	81	7	3.18
46 and under 51...	185	5	.93	73	..	....
51 and under 56...	123	2	.56	39	2	1.63
56 and under 61...	106	2	.66	30	..	....
61 and over.....	121	..	....	14	..	....
Age not given.....	16	1	2.22	7	..	....
Average Age.....	40	30	....	35	29	....

*Rate per hundred per annum.

TABLE II.
 REMARRIAGE RATES BY AGES—WIDOWS WITHOUT DEPENDENT* CHILDREN
Penna. Schedule Z Experience—Policy Years 1916-1919.

Age of Widow at Husband's Death 1	All Industries except Coal Mining			Coal Mining		
	No. of Widows 2	No. Re-married 3	Remarriage Rate 4	No. of Widows 5	No. Re-married 6	Remarriage Rate 7
All ages	626	43	2.47	145	14	3.24
Under 21	14	7	25.92	8	3	17.64
21 and under 26	39	10	8.93	14	4	10.00
26 and under 31	44	9	7.20	16	3	6.00
31 and under 36	38	4	3.81	11	2	5.26
36 and under 41	45	1	0.76	16	1	1.96
41 and under 46	51	3	2.11	7	1	3.85
46 and under 51	97	4	1.42	21	..	....
51 and under 56	88	2	0.78	12	..	....
56 and under 61	90	2	0.78	24	..	....
61 and over	112	..	....	14	..	....
Age not given	8	1	5.00	2	..	....
Average age	48	32	....	43	28	....

*Only children under 16 years of age are deemed dependent under the Pennsylvania Workmen's Compensation Act. The group of widows without dependent children thus includes not only childless widows but mothers whose youngest children are past the age of sixteen. Note, e. g., that almost 60 per cent. of the entire number (431 out of 771) are at least fifty years of age.

TABLE III.
 REMARRIAGE RATES BY AGES—WIDOWS WITH ONE DEPENDENT CHILD
Penna. Schedule Z Experience—Policy Years 1916-1919.

Age of Widow at Husband's Death 1	All Industries except Coal Mining			Coal Mining		
	No. of Widows 2	No. Re-married 3	Remarriage Rate 4	No. of Widows 5	No. Re-married 6	Remarriage Rate 7
All ages	322	38	4.22	170	38	8.74
Under 21	32	8	9.52	37	16	20.25
21 and under 26	58	13	8.55	35	10	11.36
26 and under 31	45	7	5.60	31	7	8.24
31 and under 36	36	2	2.15	18	1	1.75
36 and under 41	42	6	5.08	18	4	9.52
41 and under 46	37	2	1.85	9	..	....
46 and under 51	34	..	....	12	..	....
51 and under 56	18	..	....	6	..	....
56 and under 61	10	..	....	4	..	....
61 and over	8	..	....	..	..	....
Age not given	2	..	....	..	..	....
Average age	35	27	....	31	24	....

TABLE IV.

REMARRIAGE RATES BY AGES—WIDOWS WITH TWO DEPENDENT CHILDREN

Penna. Schedule Z Experience—Policy Years 1916-1919.

Age of Widow at Husband's Death 1	All Industries except Coal Mining			Coal Mining		
	No. of Widows 2	No. Remarried 3	Remarriage Rate 4	No. of Widows 5	No. Remarried 6	Remarriage Rate 7
All ages	259	28	3.70	153	25	5.98
Under 21	5	3	25.00	12	5	20.83
21 and under 26 . .	42	9	7.03	29	8	12.90
26 and under 31 . .	58	7	4.21	33	6	7.23
31 and under 36 . .	51	6	4.08	19	3	6.00
36 and under 41 . .	36	2	1.75	19	1	1.85
41 and under 46 . .	33	..	....	9	1	4.55
46 and under 51 . .	16	1	2.32	19	..	....
51 and under 56 . .	11	..	....	11	1	2.22
56 and under 61 . .	5	..	....	1	..	....
Age not given . . .	2	..	....	1	..	20.00
Average age	34	28	....	34	28	....

TABLE V.

REMARRIAGE RATES BY AGES—WIDOWS WITH THREE DEPENDENT CHILDREN

Penna. Schedule Z Experience—Policy Years 1916-1919.

Age of Widow at Husband's Death 1	All Industries except Coal Mining			Coal Mining		
	No. of Widows 2	No. Remarried 3	Remarriage Rate 4	No. of Widows 5	No. Remarried 6	Remarriage Rate 7
All ages	211	23	3.85	169	31	7.56
Under 21	3	..	....	..	..	....
21 and under 26 . .	30	4	4.76	26	6	10.70
26 and under 31 . .	52	9	6.34	48	11	9.48
31 and under 36 . .	50	7	5.65	33	8	8.88
36 and under 41 . .	31	1	1.09	21	4	7.41
41 and under 46 . .	20	2	3.00	16	2	3.77
46 and under 51 . .	19	..	....	10	..	....
51 and under 56 . .	2	..	....	4	..	....
56 and under 61 . .	1	..	....	1	..	....
61 and over	1	..	....	..	..	....
Age not given . . .	2	..	....	..	..	....
Average age	34	30	....	33	31	....

TABLE VI.
 REMARRIAGE RATES BY AGES—WIDOWS WITH FOUR OR
 MORE DEPENDENT CHILDREN
Penna. Schedule Z Experience—Policy Years 1916-1919.

Age of Widow at Husband's Death 1	All Industries except Coal Mining			Coal Mining		
	No. of Widows 2	No. Re- married 3	Remar- riage Rate 4	No. of Widows 5	No. Re- married 6	Remar- riage Rate 7
All ages	247	23	3.13	359	58	6.32
21 and under 26..	12	6	22.20	20	3	5.45
26 and under 31..	49	9	5.81	91	24	10.48
31 and under 36..	62	4	2.27	94	19	8.09
36 and under 41..	60	2	1.08	94	8	3.19
41 and under 46..	39	2	1.72	40	3	3.09
46 and under 51..	19	..	....	11	..	....
51 and under 56..	4	..	....	6	1	6.67
Age not given... .	2	..	....	3	..	....
Average age.....	36	30	....	35	32	....

TABLE VII.
 REMARRIAGES BY YEARS—ALL WIDOWS
Penna. Schedule Z Experience—Policy Years 1916-1919.

Age of Widow at Husband's Death 1	All Industries except Coal Mining			Coal Mining		
	No. of Widows 2	No. Re- married 3	Years Exposed 4	No. of Widows 5	No. Re- married 6	Years Exposed 7
All ages	1665	155	4731	987	166	2603
14	1	..	5	1	1	....
16	2	..	6	1	..	3
17	7	3	15	6	2	14
18	9	4	24	7	3	16
19	7	3	12	11	7	19
20	28	8	67	31	11	69
21	26	7	67	10	3	25
22	32	10	90	27	5	71
23	21	5	45	20	8	47
24	28	3	83	21	5	51
25	74	16	220	46	10	105
26	41	7	105	40	8	97
27	38	9	106	37	10	91
28	46	6	132	37	7	102
29	34	3	93	29	7	78
30	89	17	276	76	19	194
31	44	3	122	33	10	91
32	42	5	113	41	6	111
33	47	7	107	29	5	67
34	39	3	100	19	4	43
35	65	5	202	53	8	145

TABLE VII—Continued

Age of Widow at Husband's Death 1	All Industries except Coal Mining			Coal Mining		
	No. of Widows 2	No. Re- married 3	Years Exposed 4	No. of Widows 5	No. Re- married 6	Years Exposed 7
36	41	4	127	35	3	101
37	34	2	96	28	6	56
38	45	4	135	30	5	72
39	20	1	50	23	..	64
40	74	1	232	52	4	156
41	28	1	80	18	1	50
42	47	2	151	20	3	57
43	30	3	89	14	..	34
44	24	2	65	14	2	33
45	51	1	155	15	1	44
46	30	..	74	14	..	44
47	27	..	90	7	..	24
48	31	..	95	11	..	30
49	44	2	118	13	..	38
50	53	3	159	28	..	85
51	21	1	59	12	..	44
52	28	..	82	9	1	20
53	23	..	59	5	1	16
54	26	1	77	6	..	23
55	25	..	81	7	..	20
56	24	..	71	6	..	14
57	17	..	53	8	..	24
58	13	1	39	6	..	17
59	14	..	40	4	..	8
60	38	1	100	6	..	12
61	6	..	13	2	..	5
62	14	..	43	4	..	14
63	15	..	41	..	..	..
64	10	..	29	2	..	7
65	19	..	47	2	..	5
66	10	..	34	1	..	3
67	9	..	26	2	..	5
68	5	..	10	..	..	..
69	6	..	12	1	..	4
70	8	..	18	..	..	..
Over 70	19	..	44	..	..	..
Age not given	16	1	45	7	..	25

TABLE VIII.
REMARRIAGE OF WIDOWS
All Industries except Coal Mining.

Age Periods (Nearest Year at Death of Husband)	Years Elapsed from Death of Husband																	
	All Widows			Under One Year			One Year & under Two			Two Years & under Three			Three Years & under Four			Four Years & Over		
	No. of Widows 2	No. Rem. 3	Rem. Rate 4	No. of Widows 5	No. Rem. 6	Rem. Rate 7	No. of Widows 8	No. Rem. 9	Rem. Rate 10	No. Widows 11	No. Rem. 12	Rem. Rate 13	No. of Widows 14	No. Rem. 15	Rem. Rate 16	No. of Widows 17	No. Rem. 18	Rem. Rate 19
All	1665	153	3.28	1665	33	2.05	1525	69	5.12	1168	40	4.07	771	10	1.76	386	3	1.38
Under 21	54	18	14.06	54	4	7.69	47	11	28.94	25	3	13.63	17	..	....	7	..	....
21 and under 26	181	41	8.13	181	10	5.68	166	13	8.97	124	11	10.58	79	5	8.77	38	2	8.70
26 and under 31	248	42	5.90	248	8	3.33	224	16	7.96	180	17	11.41	116	1	....	61	..	....
31 and under 36	237	23	3.57	237	4	1.76	212	14	7.69	154	4	3.08	100	1	....	48	..	....
36 and under 41	214	12	1.87	214	4	1.90	204	3	1.64	162	3	2.21	104	1	....	57	1	....
41 and under 46	180	9	1.66	180	..	....	170	8	5.44	128	..	....	98	1	....	56	..	....
46 and under 51	185	5	.93	185	3	1.68	168	..	....	139	2	1.75	89	..	....	40	..	....
51 and under 56	123	2	.56	123	..	....	113	1	....	90	..	....	57	1	....	33	..	....
56 and under 61	106	2	.66	106	..	....	99	2	2.33	72	..	....	52	..	....	25	..	....
61 and over	121	..	....	121	..	....	107	..	....	84	..	....	51	..	....	17	..	....
Age not given	16	1	....	16	..	....	15	1	....	10	..	....	8	..	....	4	..	....

N. B. This above table shows the number of remarriages and the remarriage rate per hundred per annum in the first, second, third, fourth, and fifth years of widowhood respectively. It will be seen that few marriages occurred after the third year. The concentration of remarriages in the early years of widowhood is still more striking in the coal mine experience shown below.

TABLE IX.
REARRIAGE OF WIDOWS
By Age of Widow and Years Exposed
COAL MINING

Age Periods (Nearest Year at Death of Husband) 1	Years Elapsed from Death of Husband																	
	All Widows			Under One Year			One Year & under Two			Two Years & under Three			Three Years & under Four			Four Years & Over		
	No. of Widows 2	No. Rem. 3	Rem. Rate 4	No. of Widows 5	No. Rem. 6	Rem. Rate 7	No. of Widows 8	No. Rem. 9	Rem. Rate 10	No. Widows 11	No. Rem. 12	Rem. Rate 13	No. of Widows 14	No. Rem. 15	Rem. Rate 16	No. of Widows 17	No. Rem. 18	Rem. Rate 19
All.....	1010	167	6.25	1010	65	6.79	866	66	8.64	652	24	4.43	411	10	3.45	200	2	1.69
Under 21.....	57	24	19.83	57	10	19.23	45	11	30.56	27	3	15.00	16	..	....	5	..	....
21 and under 26	126	31	10.10	126	14	11.97	103	8	8.99	78	5	7.81	46	3	10.34	15	..	....
26 and under 31	226	51	8.73	226	20	9.43	187	19	11.38	140	8	7.02	86	3	4.62	47	1	....
31 and under 36	178	33	6.96	178	14	8.28	151	12	8.96	114	5	5.21	73	2	3.85	41	..	....
36 and under 41	170	19	4.19	170	6	3.70	148	10	7.64	111	3	3.30	71	1	....	33	..	....
41 and under 46	82	7	3.13	82	1	....	73	5	8.06	52	..	....	34	1	....	18	..	....
46 and under 51	77	..	....	77	..	....	74	..	....	60	..	....	39	..	....	19	1	....
51 and under 56	39	2	1.63	39	..	....	35	1	....	30	..	....	23	..	....	14	..	....
56 and under 61	31	..	....	31	..	....	26	..	....	19	..	....	13	..	....	5	..	....
61 and over ...	17	..	....	17	..	....	17	..	....	14	..	....	6	..	....	1	..	....
Age not given..	7	..	....	7	..	....	7	..	....	7	..	....	4	..	....	2	..	....

N. B. This table includes beehive coke burning, culm recovery and surface coal mining which were excluded in Tables I to VII.

TABLE X.
 REMARRIAGE RATES OF WIDOW WITH SPECIFIED NUMBER OF DEPENDENT CHILDREN

Age of Widow at Husband's Death 1	All Industries except Coal Mining						Coal Mining					
	All 2	No Children 3	One Child 4	Two Children 5	Three Children 6	Four or more 7	All 8	No Children 9	One Child 10	Two Children 11	Three Children 12	Four or more 13
21 and under 26	8.13	8.93	8.55	7.03	4.76	2.22	10.33	10.00	11.36	12.90	10.70	5.45
26 and under 31	5.90	7.20	5.60	4.21	6.34	5.81	9.06	6.00	8.24	7.23	9.48	10.48
31 and under 36	3.57	3.81	2.15	4.08	5.65	2.27	7.08	5.26	1.75	6.00	8.88	8.09

NOTES

1. The writer is indebted to Miss Myrtle E. Snyder, Statistician of Pennsylvania Bureau, for several tabulations presented below. Several of the tables were published in the *Statistical Analysis* issued by the Bureau.

2. See *Statistical Analysis*, 1916-1920, Table XII. The aggregate remarriage rate from Pennsylvania experience, exclusive of coal mining is 3.28; the aggregate rate from the Dutch table for widows of the same age distribution is 3.46. The Dutch rates are higher for the older and lower for the younger ages.

3. Some fluctuations occur in the year of maximum remarriage rate but there is no exception to the rule that few remarriages occurred after the third year of widowhood. Both because of the limited period of observation and because the widow's pension in any case runs out with the sixth year, to solve the question will require at least ten year's experience and at least ten thousand deaths under acts which pay compensation during widowhood.

4. By the Pennsylvania Compensation Rating & Inspection Bureau, the United States Employees' Compensation Commission and the Industrial Commissions of Washington and Oregon.