PURE PREMIUM TRENDS IN WORKMEN'S COMPENSATION

BY

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Workmen's Compensation Insurance is generally considered to be a line which is subject to unpredictable fluctuations. There are "good periods" of greater or less duration followed by "bad periods" of equally uncertain length. It is recognized that changes in wages and hours of labor as well as changes in the volume of industrial activity may have some effect on compensation costs but precisely what these effects are or when they will be felt are extremely difficult to determine.

The purpose of this paper is to present the results of a method of analyzing a fifteen-year period in two of the more important states. The method followed has been to separate the experience into industry groups and then to determine the indemnity and medical pure premiums as well as the indemnity claim frequency and indemnity average costs for each policy year. The analysis covers the period from 1928 to 1942 for New York and from 1929 to 1943 in Massachusetts. The period chosen in each state coincides with the period during which experience under the Unit Statistical Plan has been published.

The experience has been separated into six industry groups. The manufacturing group comprises all classifications within schedules 5 to 25; contracting, schedules 26 and 27; stevedoring, maritime and shipbuilding, schedules 28 through 30; commercial and clerical, schedules 34 and 35; care and custody, schedule 36 and all other, schedules 1 to 4, 31 to 33 and 37. Classifications which did not use payroll as the exposure base have been excluded throughout the entire period.

The losses used in calculating pure premiums and average costs are the actual losses as incurred without adjustment to reflect current benefit levels. The law amendments which have become effective during the period under review together with the estimated change in benefit level, as calculated by the National Council, are shown below:

Massachusetts		*New York*	
Effective Date	Estimated Effect	Effective Date	Estimated Effect
9/19/35	1.025	4/24/33	1.001
8/27/37	1.037	7/ 1/35	1.028
6/19/39	1.003	4/10/39	1.003
11/ 3/41	1.023	7/ 1/39	1.007
11/15/43*	1.024	7/ 1/40	1.008
		7/ 1/41	1.011
		7/ 1/42**	1.001
		7/ 1/43**	1.008

* Includes several amendments effective in August, 1943.
** Effective date of rate change incorporating amendments.

MASSACHUSETTS

The overall pure premiums which show an almost unbroken descent from policy year 1930 through 1943 are somewhat deceptive since they reflect the relatively rapid decrease in exposure of the high-rated groups such as contracting and stevedoring and maritime. It will be seen, for example, that the drop in total pure premium from 1931 to 1932 ($.72 to $.67) was not shown by any important individual industry group. This illustrates the effect which changes in distribution can have on a too-conglomerate average.

In the manufacturing group a remarkably even decrease in average pure premium is to be noted. Although there was a drop in almost every year, in no case was there a decrease of more than 10% in any one year. Such a condition might conceivably have been caused by a gradual withdrawal of heavy industry from the state but it is doubtful if any such withdrawal could have been gradual enough to produce the results shown. This possibility has been partially investigated by examining the trend of pure premiums for certain of the more important classifications and by calculating the average pure premium for the remainder. The classifications which were individually studied were those covering cotton spinning and weaving, wool spinning and weaving, cloth printing and boot or shoe manufacturing. These classifications accounted for approximately 27% of the total manufacturing payroll in 1929 dropping to 19% in 1941 and 16% in 1942. Since these classes have generally had lower pure premiums than the average, it appears that, if anything, there has been some withdrawal of light industry rather than heavy industry from the state. With these classifications excluded the average manufacturing pure premium dropped from a high of $.86 in 1930 to $.50 in 1942. Here again the decreases from one year to another were always less than 10%. It seems reasonable to conclude, therefore, that the freakishly smooth decrease in total pure premium for this group has not been caused by changes in the relative proportions of high-rated and low-rated classes.

The indemnity pure premium has decreased approximately 40% during the period whereas medical has dropped only about 20%. The average indemnity cost has not shown any decided trend but what trend there is appears to be slightly downward. The indemnity claim frequency calculated in terms of $100,000 of payroll shows roughly the same downward trend as the indemnity pure premiums with a net decrease during the period of approximately 40%. Although the claim frequencies for policy years 1942 and 1943 are somewhat lower than those for the five years immediately preceding, it should be noted that an even larger drop percentage-wise occurred in the three years following 1933.

The contracting industry group, probably because of its smaller volume, does not develop the same smooth pure premium curve as shown by manu-

facturing. Changes from one year to another have generally been less than 20% except in 1940. In this year there was a decided decrease in claim frequency which has continued through 1943. An investigation of the three largest classes, masonry, carpentry, and painting and decorating, which together account for some 25% of the total payroll exposure, indicates that these classes alone were not responsible.

Similarly with respect to stevedoring and maritime, a drop of more than 50% in average pure premium occurred in 1941. This was not due, as might at first be supposed, to the increase in shipbuilding operations but was shared generally by all classifications in this group. For the stevedoring classification alone the total pure premium dropped from $5.23 in policy year 1940 to $2.33 in 1941, probably because of the introduction of the practice of paying double time for the loading of explosives.

The pure premiums for the commercial and all other groups exhibit essentially the same trend as those for manufacturing with a slightly greater fluctuation from year to year. The one industry group in the state which has not indicated a downward trend is that composed of the care and custody classes. The trend for this group appears to be slightly upward through 1938 after which it declined at approximately the same rate as manufacturing.

In general, the Massachusetts pure premiums by industry group as shown on a semi-logarithmic graph present a fairly consistent picture. If we take the year 1932 as the depth of the depression, since in that year the total payroll was at its lowest point, it appears that the effects of the depression were felt primarily by contracting and stevedoring and hardly at all by other industries. It is very difficult to detect from the pure premiums themselves when the law amendments were passed or what effect, if any, the war has had on compensation costs.

New York

Although the total manufacturing payroll in New York has been twice as great as that in Massachusetts and losses have been three times as large, the pure premiums for this group have exhibited somewhat less consistency than in Massachusetts. However, there was only one year in which the change from one year to another was greater than 10%. This was in policy year 1935 when the total pure premium was $.95 as compared with $.86 in 1934. This appears to be due in part to the immaturity of the data which were taken from the second reporting under the Unit Statistical Plan and in part to an increase in the proportion of higher rated classes. It apparently was not caused by the changes in classification phraseology which took place in the manual revision of 1934.

Although the New York manufacturing pure premium was relatively stable throughout these years it would not be proper to assume that every classification within this group enjoyed the same stability. An important exception to the general rule was classification 2501 covering clothing manufacturing. This classification has approximately 20% of the total payroll of manufacturing in New York State and is larger than the manufacturing industry groups in most other states. Because of its importance it has been given a special place in the New York Exhibit.

The average cost of indemnity claims in clothing manufacturing decreased slowly from policy year 1928 through 1932 and then increased quite steadily through policy year 1942. The changes in average indemnity cost for this classification were very similar to those for manufacturing as a whole. As a matter of fact, the average indemnity cost in all industry groups in New York indicated approximately the same rate of decrease and increase throughout the period. The extremely rapid rise in total pure premium for this classification from 1928 through 1932 was caused by the increase in the claim frequency as well as by the increase in medical pure premium. The relationship between claim frequency and average wages is discussed later in this paper.

The contracting pure premiums in New York fluctuate somewhat less widely than in Massachusetts as might be expected in view of the larger volume. The average pure premium decreased approximately 30% from 1941 to 1942 and this decrease did not appear to be attributable solely to any of the more important classes. It is of interest to note that the peak in contracting pure premiums was not reached during the depth of the depression but was reached in 1935 and 1936 with a secondary peak in 1939.

Similarly for stevedoring and maritime the high point in pure premiums was reached in 1939 although this peak was only slightly higher than that reached in 1932 when the indemnity claim frequency also reached its highest point.

The pure premium trends for the other three industry groups, commercial, care and custody, and all other show comparatively little fluctuation from year to year although each appears to be following its own course. The average pure premium for commercial has been almost constant since policy year 1935, that for care and custody has been gradually increasing while that for the all other industry group shows a tendency to decline slightly.

The pure premium curves for each of these two states seem to be straight enough for most industry groups to be dignified as "trends." The pure premium curves for Massachusetts are generally downward whereas those for New York are generally horizontal. The primary reason for this difference between states appears to be that in Massachusetts the average claim cost

has tended to remain constant whereas in New York the average cost has increased with increasing wages.

Effect of Wage Changes

Since compensation benefits are expressed in terms of weekly wages, it appears logical to suppose that changes in wages would directly affect average claim costs, particularly average indemnity costs. This appears to have been the case in New York but not in Massachusetts. Furthermore, if the accident frequency rate per man-hour is a constant there should be an inverse correlation between accident frequency and hourly wages.

Unfortunately, it is difficult to obtain data on hourly wages for most industries since many employees are paid by the piece rather than by the hour. Furthermore, for the purposes of this analysis it is unfortunate that weekly or hourly wages are not available by policy year. This is not too important an obstacle, however, since the average of two calendar years should be roughly equivalent to one policy year. The data which have been obtained are shown on Exhibit III. The weekly wages for New York manufacturing cover representative factories reporting to the New York Department of Labor and are based on the wages of office and shop workers for years through 1934 and on the wages of shop workers alone for 1935 and later years. The weekly wages for clothing manufacturing were also obtained from the New York Department of Labor and are based on data for approximately half of the industry. These figures were compiled on the same basis as those for manufacturing as a whole and include both office and shop workers prior to 1935 and shop workers only for 1935 and later. The weekly wages for Massachusetts manufacturing are based on reports for the entire industry in Massachusetts including shipbuilding and other war industries. In this respect they are not comparable to the indemnity claim frequencies. Furthermore, the weekly wages for both New York and Massachusetts include the effect of overtime. For the later years, therefore, they are approximately 5% higher than they would be if calculated on a straight-time basis.

The hourly wages for Massachusetts contracting are based only on a small proportion of the total contracting industry in the state. This proportion amounted to approximately 16% in the later years. For years prior to 1939 only building construction was included but in later years data were obtained on highway, bridge, marine and other types of construction.

Admittedly, therefore, the weekly and hourly wages obtainable are not ideally suited for the purpose in hand. If reliable data on both weekly and hourly wages by policy year could be obtained, either for industry groups or for individual classifications, there would be no reason why these figures could not be substituted for those which have been used in this paper.

The changes in weekly wages for New York clothing manufacturing appear to offer no adequate explanation for the rapid increase and decrease in indemnity claim frequency for this classification. There was a decrease of approximately 28% in weekly wages in this industry between 1929 and 1933 but this was no greater than the decrease for New York manufacturing as a whole. In later years average wages in this industry increased somewhat more slowly than wages in other industries but the claim frequency decreased a great deal more rapidly. The changes in claim frequency do not appear to be mere random fluctuations especially in view of the size of this classification. The rapid increase in frequency through policy year 1932 might be ascribed to malingering in view of the fact that the wage scale was lower than that prevailing in New York at the time, were it not for the rapid decrease in frequency following policy year 1932. By 1940 the average wages were approximately as high as in 1929 but the claim frequency was 40% lower. It goes without saying that it was impossible to make rates prospectively for this classification which would produce a 60% loss ratio every year. For policy year 1932 the loss ratio was 148.1% and for policy year 1936 it was 29.4%. Although an adequate explanation for the behavior of this classification is still to be found it may be of some value to know that changes in wages do not provide the answer.

The indemnity claim frequency for New York and Massachusetts manufacturing as well as Massachusetts contracting have been entered on a graph and compared with the reciprocals of weekly or hourly wages. For the two manufacturing groups there appears to be close correlation between wages and claim frequency for the years 1934 through 1940 when wages were increasing fairly slowly. There is considerably less correlation in the period prior to 1934 when wages were decreasing or after 1940 when wages were increasing. In New York, for example, an increase of 42% in wages between 1940 and 1942 was accompanied by a decrease in claim frequency of only 8%. Even after taking into account the effect of overtime in increasing weekly wages it is obvious that there is very little correlation here.

The indemnity claim frequencies for Massachusetts contracting decrease in a fairly straight line from policy year 1932 through 1943 with the exception of policy years 1938 and 1939. The hourly wages also follow a straight line from calendar year 1933 through 1945 but the two lines do not coincide. In policy year 1943 the claim frequency was 32% of what it was in 1932. Such a decrease, to be explained by changes in hourly wages alone, would have required an increase of more than 300%. The actual increase was approximately 60%. There therefore appeared to be some long-term forces working toward the reduction of accidents and it is conceivable that the combined efforts of insurance companies, employers, and manufacturers of prod-

ucts designed to increase industrial safety may account for part of the improvement which is not due to increases in wages. If this is indeed the case it is not logical to assume that this improvement will continue indefinitely.

Indemnity Claim Frequency

In order to facilitate comparison the indemnity claim frequencies already shown in Exhibits I and II have been shown separately in Exhibit IV and in the accompanying graphs. The similarity of the two sets of curves, to the writer's mind at least, is quite striking. This similarity is particularly noteworthy for the years following 1932. From 1932 through 1942 the claim frequency for contracting, according to a straight line of least squares, decreased approximately 60% in Massachusetts and 57% in New York. For manufacturing the decreases in the two states were almost identical, 33% in Massachusetts and 34% in New York. Approximately the same decreases were shown for the commercial group in both states and for the care and custody classes the decrease was approximately 15% in each state. Without considerably more information than we now possess, it is impossible to explain why the decreases were not the same for all industry groups but the fact that the trends were almost identical in the two states appears to indicate that the same explanation, once it is found, will hold good for both states. If similar results were shown for a number of other states these trends would be valuable as guides to the future even though it might be impossible to reduce them to a simple formula.

Summary

A trend by its very nature is a rather amorphous thing, somewhat like an ocean current or a trade wind. It may be none the less real, if it is confirmed by a wide range of observations. In Massachusetts and New York the trends in pure premiums and claim frequency cannot be readily explained by changes in wages or by the rises and falls in industrial activity, as indicated by the total insured payroll. The fact that these trends are not purely fortuitous, however, is demonstrated, if not proved, by the similarity of the trends in both states. One corroborates the other. Since Massachusetts and New York are both large states and the experience studied in this paper covers a reasonably long period, it seems probable that the trends in other states would be similar to those here discussed. It is conceivable, however, that the experience in some states might be similar to that exhibited by clothing manufacturing in New York; this might be expected to be true in states which are dominated by a single industry. Furthermore, we might expect abnormal results in states which have only recently enacted compen-

sation laws, in view of the opinion which has been expressed that compensation costs tend to rise during the first few years after a new law has been passed. This theory could be tested by comparisons among a number of states in which the compensation laws had been in effect for varying periods.

The method used in this paper has been applied principally in automobile insurance, to analyse separately the changes in frequency and average cost. As applied to compensation insurance the method could be made much more extensive, since separate analyses of medical costs and frequencies could be made, as well as of indemnity costs and frequencies by type of injury. Individual classifications or groups of classifications, not necessarily those used in this paper, could be studied separately, if conditions affecting these classifications appeared to be different from those affecting industry generally.

Although the compensation insurance business has been in existence for more than thirty years, during which time a large volume of statistics has been collected, in many respects we are still in the fact-finding stage. It is still possible to bring forward new theories which cannot be proved or disproved by loss ratios alone. If figures similar to those discussed here could be compiled for a number of states we would have available, in usable form, a wealth of material against which such theories could be tested.

EXHIBIT I

MASSACHUSETTS CLASSIFICATION EXPERIENCE

By Industry Group

MANUFACTURING, SCHEDULES 5-25

Pol. Year	No. of Classes	Payroll (in Thousands)	Indemnity		Losses		Pure Premiums		
			Claim Freq.	Avge. Cost	Indemnity	Medical	Ind.	Med.	Total
1929	375	668,054	2.68	191	3,423,426	1,562,199	.51	.24	.75
1930	371	547,533	2.48	221	3,005,285	1,297,746	.55	.24	.79
1931	373	430,549	2.54	197	2,151,486	1,046,946	.50	.24	.74
1932	367	336,561	2.64	183	1,621,671	858,867	.48	.26	.74
1933	368	391,874	2.52	178	1,751,102	986,403	.45	.25	.70
1934	361	424,196	2.23	190	1,794,643	1,014,105	.42	.24	.66
1935	323	469,950	2.24	188	1,979,732	1,125,661	.42	.24	.66
1936	310	540,027	2.10	177	2,002,978	1,249,203	.37	.23	.60
1937	318	516,871	1.82	194	1,832,035	1,137,836	.35	.22	.57
1938	317	478,954	1.79	193	1,652,521	1,055,433	.35	.22	.57
1939	317	548,318	1.78	187	1,823,606	1,272,839	.33	.23	.56
1940	317	662,798	1.77	164	1,920,862	1,461,791	.29	.22	.51
1941	318	927,052	1.77	171	2,802,706	2,043,394	.30	.22	.52
1942	325	1,204,672	1.63	181	3,570,009	2,282,870	.30	.19	.49
1943	326	1,297,173	1.58	204	4,178,548	2,388,826	.32	.19	.51
Total		9,444,582	2.00	188	35,510,610	20,784,119	.38	.22	.60

CONTRACTING, SCHEDULES 26 AND 27

1929	90	97,131	6.64	300	1,933,485	647,092	1.99	.67	2.66
1930	94	82,028	7.14	303	1,774,026	572,836	2.16	.70	2.86
1931	94	58,065	8.36	311	1,510,684	509,261	2.60	.88	3.48
1932	93	32,799	8.66	302	857,263	289,097	2.62	.88	3.50
1933	90	30,369	8.07	264	646,117	243,710	2.13	.80	2.93
1934	90	36,951	7.51	318	881,742	314,236	2.39	.85	3.24
1935	78	40,774	6.29	304	779,340	298,385	1.91	.73	2.64
1936	74	52,500	5.63	331	979,474	354,819	1.87	.67	2.54
1937	72	51,356	5.19	343	914,382	373,276	1.78	.73	2.51
1938	71	54,598	5.78	314	991,944	419,759	1.82	.77	2.59
1939	73	57,075	5.45	335	1,040,485	439,670	1.82	.77	2.59
1940	79	90,968	3.99	304	1,104,604	558,687	1.21	.61	1.83
1941	77	91,384	3.67	320	1,071,799	507,789	1.17	.56	1.73
1942	75	86,814	2.91	342	861,863	385,577	.99	.45	1.44
1943	72	70,044	2.78	333	648,982	273,273	.93	.39	1.32
Total		932,856	5.48	313	15,996,190	6,187,467	1.71	.66	2.38

STEVEDORING AND MARITIME, SCHEDULES 28-30

1929	40	12,041	9.18	270	297,869	87,152	2.47	.73	3.20
1930	40	12,230	8.14	199	198,342	84,100	1.62	.69	2.31
1931	41	7,083	11.63	238	195,841	63,071	2.77	.89	3.66
1932	42	3,040	16.81	149	76,349	30,224	2.51	1.00	3.51
1933	37	3,239	15.71	212	107,894	39,888	3.33	1.23	4.56
1934	32	3,665	11.81	265	114,798	35,326	3.13	.97	4.10
1935	33	4,057	11.93	212	102,675	52,730	2.53	1.30	3.83
1936	32	4,857	10.87	218	114,941	50,339	2.36	1.04	3.40
1937	33	5,200	10.27	233	124,220	54,571	2.39	1.05	3.44
1938	31	4,841	9.44	188	85,903	39,606	1.77	.82	2.59
1939	32	5,595	10.08	202	113,948	50,723	2.03	.91	2.94
1940	31	6,032	8.47	280	143,252	70,925	2.37	1.18	3.55
1941	32	10,089	5.28	212	113,080	63,375	1.12	.63	1.75
1942	32	27,299	3.51	233	222,984	152,648	.82	.56	1.38
1943	28	33,965	3.07	286	298,263	175,429	.88	.51	1.39
Total		143,233	6.98	231	2,310,359	1,050,107	1.61	.74	2.35

COMMERCIAL, SCHEDULES 34 AND 35

Pol. Year	No. of Classes	Payroll (in Thousands)	Indemnity		Losses		Pure Premiums		
			Claim Freq.	Avge. Cost	Indemnity	Medical	Ind.	Med.	Total
1929	89	558,626	.98	181	985,185	506,020	.18	.09	.27
1930	94	540,885	.98	180	951,232	490,256	.18	.09	.27
1931	85	485,289	.92	178	792,808	432,204	.16	.09	.25
1932	83	392,535	.98	166	640,175	393,909	.16	.10	.26
1933	82	399,331	.98	168	655,972	411,487	.17	.10	.27
1934	88	419,126	.92	164	631,016	410,691	.15	.10	.25
1935	80	431,633	.88	177	675,783	419,258	.15	.10	.25
1936	78	467,591	.82	164	627,759	447,994	.13	.10	.23
1937	80	491,162	.80	177	691,617	470,464	.14	.10	.24
1938	83	487,008	.74	187	674,984	463,923	.14	.09	.23
1939	82	511,862	.73	158	590,524	472,241	.12	.09	.21
1940	82	548,270	.71	172	665,212	569,394	.12	.11	.23
1941	82	606,325	.68	167	692,796	543,239	.11	.09	.20
1942	81	647,980	.63	194	793,829	523,388	.12	.08	.20
1943	82	718,436	.61	192	835,433	534,857	.12	.07	.19
Total		7,706,059	.81	175	10,904,325	7,089,325	.14	.09	.23

CARE, ETC., SCHEDULE 36

1929	29	64,207	2.69	169	292,829	135,617	.46	.21	.67
1930	26	64,208	2.66	167	285,856	145,410	.44	.23	.67
1931	26	59,672	2.63	177	277,674	134,380	.46	.23	.69
1932	24	50,802	2.68	165	225,027	114,349	.44	.23	.67
1933	24	50,380	2.87	170	245,980	120,914	.49	.24	.73
1934	27	53,307	2.74	174	254,207	148,300	.48	.28	.76
1935	22	55,815	2.72	149	224,274	150,669	.40	.27	.67
1936	21	60,628	2.86	145	251,546	163,001	.41	.27	.68
1937	20	64,821	2.68	189	329,310	187,717	.51	.29	.80
1938	22	65,314	2.69	188	331,575	192,560	.51	.29	.80
1939	23	67,519	2.58	159	276,464	194,848	.41	.29	.70
1940	22	69,516	2.58	169	303,456	208,192	.44	.30	.74
1941	22	76,553	2.58	135	266,739	207,625	.35	.27	.62
1942	23	86,919	2.28	192	380,391	222,392	.44	.25	.69
1943	23	111,257	1.84	213	435,488	227,520	.39	.21	.60
Total		1,000,918	2.55	171	4,380,816	2,553,494	.44	.25	.69

ALL OTHER

1929	47	104,126	3.92	205	834,662	348,782	.80	.34	1.14
1930	46	100,169	3.65	242	886,970	359,343	.88	.36	1.24
1931	48	92,039	3.56	233	763,797	314,332	.83	.34	1.17
1932	47	77,746	3.35	245	637,978	259,864	.82	.33	1.15
1933	48	75,749	3.60	223	608,635	265,540	.80	.35	1.15
1934	54	73,088	3.03	200	442,927	219,101	.61	.30	.91
1935	48	70,423	2.84	247	493,684	228,370	.70	.33	1.03
1936	46	74,838	2.74	211	431,355	245,164	.57	.33	.90
1937	45	78,445	2.47	221	428,016	244,469	.55	.31	.86
1938	47	80,024	2.66	246	522,905	263,430	.65	.33	.98
1939	49	81,657	2.46	205	410,676	248,882	.50	.31	.81
1940	54	84,487	2.42	252	515,138	275,773	.61	.33	.94
1941	52	94,347	2.33	206	452,897	303,069	.48	.32	.80
1942	48	101,220	2.22	227	510,637	265,473	.51	.26	.77
1943	47	115,581	2.05	240	568,211	287,677	.49	.25	.74
Total		1,303,939	2.88	227	8,508,488	4,129,269	.65	.32	.97

GRAND TOTAL (Excluding Per Capita and Flying Hours)

Pol. Year	No. of Classes	Payroll (in Thousands)	Indemnity		Losses		Pure Premiums		
			Claim Freq.	Avge. Cost	Indemnity	Medical	Ind.	Med.	Total
1929	670	1,504,185	2.44	212	7,767,456	3,286,862	.51	.22	.73
1930	671	1,347,053	2.31	228	7,101,711	2,949,691	.53	.22	.75
1931	667	1,132,697	2.29	220	5,692,290	2,500,194	.50	.22	.72
1932	656	893,483	2.24	202	4,058,463	1,946,310	.45	.22	.67
1933	649	950,942	2.20	192	4,015,700	2,067,942	.42	.22	.64
1934	652	1,010,333	2.00	204	4,119,333	2,141,759	.41	.21	.62
1935	584	1,072,652	1.95	204	4,255,488	2,275,073	.40	.21	.61
1936	561	1,200,441	1.87	197	4,408,053	2,510,520	.37	.21	.58
1937	568	1,207,855	1.67	214	4,319,580	2,468,333	.36	.20	.56
1938	571	1,170,739	1.68	217	4,259,832	2,434,711	.36	.21	.57
1939	576	1,272,026	1.64	204	4,255,703	2,679,203	.34	.21	.55
1940	585	1,462,071	1.61	197	4,652,524	3,144,762	.32	.21	.53
1941	583	1,805,750	1.58	189	5,400,017	3,668,491	.30	.20	.50
1942	584	2,154,904	1.46	201	6,339,713	3,832,348	.29	.18	.47
1943	578	2,346,456	1.37	216	6,964,925	3,887,582	.30	.16	.46
Total		20,531,587	1.83	207	77,610,788	41,793,781	.38	.20	.58

NOTE: All data taken from fourth reportings under the Unit Statistical Plan, except as follows:

Policy Years

1936, 1939 and 1940	Third Report
1937 and 1941	Second Report
1938, 1942 and 1943	First Report

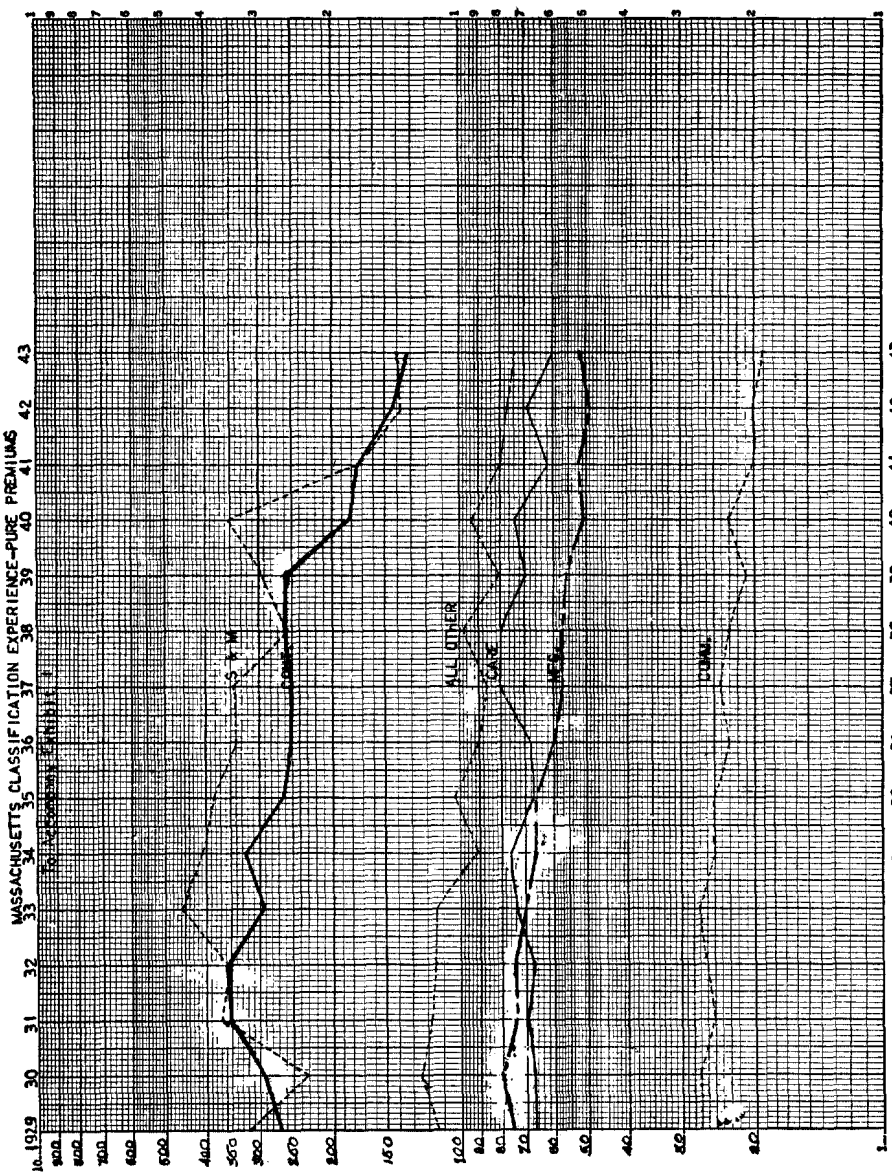

MASSACHUSETTS CLASSIFICATION EXPERIENCE—PURE PREMIUMS
ALL OTHER
CARP.
MFG.
CONST.
S. & W.
DOM.

EXHIBIT II

NEW YORK CLASSIFICATION EXPERIENCE

By Industry Group

MANUFACTURING, SCHEDULES 5-25

Pol. Year	No. of Classes	Payroll (In Thousands)	Indemnity		Losses		Pure Premiums		
			Claim Freq.	Avge. Cost	Indemnity	Medical	Ind.	Med.	Total
1928	445	1,425,462	2.26	269	8,676,608	3,670,468	.61	.26	.87
1929	441	1,382,446	2.26	272	8,515,292	3,645,610	.62	.26	.88
1930	438	1,149,396	2.23	261	6,681,738	3,228,815	.58	.28	.86
1931	435	910,381	2.54	238	5,517,524	2,992,949	.60	.33	.93
1932	435	690,442	2.83	223	4,360,165	2,499,857	.63	.36	.99
1933	438	817,749	2.54	226	4,692,934	2,758,223	.57	.34	.91
1934	432	922,434	2.18	252	5,074,771	2,861,332	.55	.31	.86
1935	393	1,030,431	2.19	283	6,381,056	3,382,550	.62	.33	.95
1936	376	1,222,854	2.12	290	7,534,750	4,053,501	.62	.33	.95
1937	373	1,188,964	1.94	303	6,991,886	3,859,803	.59	.32	.91
1938	374	1,187,363	1.82	311	6,731,326	3,883,066	.57	.32	.89
1939	375	1,300,936	1.80	327	7,663,974	4,379,841	.59	.34	.93
1940	379	1,565,768	1.78	344	9,590,265	5,348,176	.61	.34	.95
1941	384	2,142,258	1.70	354	12,900,946	6,782,987	.60	.32	.92
1942	382	2,802,404	1.64	371	17,052,019	7,422,051	.61	.26	.87
Total		19,739,288	2.02	296	118,365,254	60,769,229	.60	.31	.91

CONTRACTING, SCHEDULES 26 AND 27

1928	103	408,733	5.58	461	10,505,793	2,800,731	2.57	.69	3.26
1929	95	387,290	5.57	454	9,789,356	2,876,392	2.53	.74	3.27
1930	102	323,996	6.09	442	8,726,272	2,822,863	2.69	.87	3.56
1931	99	231,618	7.19	413	6,880,721	2,317,483	2.97	1.00	3.97
1932	98	137,293	7.77	359	3,828,409	1,409,832	2.79	1.03	3.82
1933	96	106,096	8.03	335	2,852,616	1,165,964	2.69	1.10	3.79
1934	92	111,140	7.45	403	3,339,699	1,267,660	3.01	1.14	4.15
1935	83	139,228	7.13	445	4,417,374	1,575,426	3.17	1.13	4.30
1936	80	196,680	6.27	514	6,334,197	2,124,865	3.22	1.08	4.30
1937	78	213,976	5.63	524	6,307,552	2,095,428	2.95	.98	3.93
1938	81	233,222	5.19	591	7,158,561	2,307,924	3.07	.99	4.06
1939	87	262,029	5.03	642	8,455,329	2,522,408	3.23	.96	4.19
1940	84	257,706	4.79	630	7,789,223	2,441,128	3.02	.95	3.97
1941	91	265,150	4.17	665	7,353,230	2,386,506	2.77	.90	3.67
1942	90	249,523	3.21	603	4,837,826	1,553,415	1.94	.62	2.56
Total		3,523,680	5.65	495	98,576,158	31,668,025	2.80	.90	3.70

STEVEDORING AND MARITIME, SCHEDULES 28-30

1928	61	40,021	8.76	327	1,147,294	319,860	2.87	.80	3.67
1929	60	43,789	8.22	351	1,263,735	359,452	2.89	.82	3.71
1930	61	36,182	8.01	362	1,049,977	280,295	2.99	.78	3.68
1931	60	26,433	7.80	333	687,350	201,048	2.60	.76	3.36
1932	56	19,318	9.01	337	586,680	194,185	3.04	1.00	4.04
1933	50	22,919	8.94	330	676,507	197,628	2.95	.86	3.81
1934	36	24,224	7.64	352	650,661	185,640	2.69	.76	3.45
1935	35	28,492	7.45	335	711,401	234,682	2.50	.82	3.32
1936	34	34,680	7.00	412	1,000,128	298,050	2.88	.86	3.74
1937	35	33,899	6.19	415	870,216	273,865	2.57	.80	3.37
1938	35	30,283	6.54	455	902,291	280,496	2.98	.93	3.91
1939	35	33,942	7.27	438	1,082,053	351,513	3.19	1.03	4.22
1940	35	50,122	6.45	411	1,329,422	476,346	2.65	.95	3.60
1941	34	93,181	5.07	459	2,167,744	746,280	2.33	.80	3.13
1942	34	167,295	3.91	473	3,098,193	980,402	1.85	.59	2.44
Total		684,780	6.33	398	17,223,652	5,379,742	2.52	.78	3.30

COMMERCIAL, SCHEDULES 34 AND 35

Pol. Year	No. of Classes	Payroll (in Thousands)	Indemnity		Losses		Pure Premiums		
			Claim Freq.	Avge. Cost	Indemnity	Medical	Ind.	Med.	Total
1928	92	2,054,625	.69	281	3,958,993	1,786,996	.20	.08	.28
1929	95	2,198,325	.69	299	4,568,819	2,087,029	.21	.09	.30
1930	101	2,178,482	.73	269	4,272,698	2,190,786	.20	.10	.30
1931	92	1,958,633	.80	258	4,058,013	2,244,927	.21	.11	.32
1932	96	1,655,836	.83	252	3,444,367	1,959,248	.21	.12	.33
1933	101	1,663,711	.84	279	3,876,204	2,164,170	.23	.13	.36
1934	96	1,724,331	.76	318	4,162,528	2,159,762	.24	.13	.37
1935	90	1,817,930	.77	330	4,608,428	2,434,268	.25	.14	.39
1936	87	1,975,467	.71	340	4,790,403	2,574,990	.24	.13	.37
1937	88	2,080,302	.68	351	4,965,844	2,755,202	.24	.13	.37
1938	89	2,085,144	.65	382	5,150,990	2,857,030	.25	.13	.38
1939	89	2,172,407	.65	366	5,164,317	3,005,476	.24	.14	.38
1940	91	2,343,189	.65	365	5,576,024	3,296,529	.24	.14	.38
1941	94	2,578,955	.60	381	5,898,453	3,380,208	.23	.13	.36
1942	96	2,717,498	.55	409	6,093,115	2,922,125	.22	.11	.33
Total		31,204,835	.70	325	70,589,196	37,818,746	.23	.12	.35

CARE, ETC., SCHEDULE 36

1928	27	342,404	2.26	275	2,124,027	850,676	.62	.25	.87
1929	30	375,074	2.33	282	2,462,892	1,039,091	.65	.28	.93
1930	25	404,922	2.37	256	2,448,964	1,177,831	.61	.29	.90
1931	24	377,382	2.57	249	2,414,968	1,232,745	.64	.33	.97
1932	23	331,061	2.71	236	2,119,630	1,173,673	.64	.35	.99
1933	24	346,814	2.91	241	2,432,008	1,361,863	.70	.39	1.09
1934	27	361,634	2.73	233	2,306,688	1,363,167	.64	.37	1.01
1935	26	381,569	2.71	276	2,852,972	1,587,073	.75	.41	1.16
1936	24	415,565	2.63	271	2,964,237	1,700,178	.71	.41	1.12
1937	24	441,256	2.55	281	3,162,224	1,864,651	.72	.42	1.14
1938	25	450,408	2.49	295	3,300,652	1,985,196	.73	.44	1.17
1939	26	477,540	2.40	314	3,586,299	2,083,800	.75	.44	1.19
1940	26	485,403	2.44	338	4,009,705	2,273,650	.82	.47	1.29
1941	28	497,441	2.53	343	4,322,905	2,464,235	.87	.49	1.36
1942	28	531,620	2.43	371	4,796,489	2,318,212	.90	.44	1.34
Total		6,220,093	2.53	288	45,304,660	24,476,041	.73	.39	1.12

ALL OTHER

1928	58	216,161	3.58	397	3,073,221	948,441	1.42	.44	1.86
1929	59	230,525	3.57	408	3,355,617	1,115,423	1.46	.48	1.94
1930	62	226,687	3.73	402	3,400,057	1,127,922	1.50	.50	2.00
1931	64	204,513	3.77	355	2,737,472	1,088,581	1.34	.53	1.87
1932	67	167,710	3.88	317	2,062,635	889,549	1.23	.53	1.76
1933	69	165,565	3.81	348	2,194,331	864,905	1.33	.52	1.85
1934	69	161,065	3.44	385	2,135,773	874,520	1.33	.54	1.87
1935	59	165,857	3.36	368	2,053,881	893,402	1.24	.54	1.78
1936	59	182,951	3.39	423	2,622,198	1,020,247	1.43	.56	1.99
1937	61	197,952	3.01	412	2,455,157	1,053,637	1.24	.53	1.77
1938	59	204,835	2.87	432	2,538,077	1,042,335	1.24	.51	1.75
1939	59	214,951	2.78	420	2,512,115	1,074,450	1.17	.50	1.67
1940	63	226,278	2.76	468	2,918,289	1,154,427	1.29	.51	1.80
1941	65	237,903	2.65	450	2,839,000	1,118,512	1.19	.47	1.66
1942	61	257,696	2.37	577	3,532,637	1,077,967	1.37	.42	1.79
Total		3,060,649	3.23	409	40,430,460	15,344,318	1.32	.50	1.82

GRAND TOTAL (Excluding Building Wrecking, Per Capita, Cabs, Flying Hours, and Man Days)

Pol. Year	No. of Classes	Payroll (in Thousands)	Indemnity		Losses		Pure Premiums		
			Claim Freq.	Avge. Cost	Indemnity	Medical	Ind.	Med.	Total
1928	786	4,487,406	1.96	335	29,485,936	10,377,172	.66	.23	.89
1929	780	4,617,449	1.92	338	29,955,711	11,122,997	.65	.24	.89
1930	789	4,319,665	1.90	324	26,579,706	10,828,512	.62	.25	.87
1931	774	3,708,960	2.02	297	22,296,048	10,077,733	.60	.27	.87
1932	775	3,001,660	2.04	268	16,401,886	8,126,344	.55	.27	.82
1933	778	3,122,854	1.97	271	16,724,600	8,512,753	.54	.27	.81
1934	752	3,304,828	1.78	301	17,670,120	8,712,081	.54	.26	.80
1935	686	3,563,507	1.81	326	21,025,112	10,107,401	.59	.28	.87
1936	660	4,028,197	1.79	351	25,245,913	11,771,831	.63	.29	.92
1937	659	4,156,349	1.65	361	24,752,879	11,902,586	.59	.29	.88
1938	663	4,191,255	1.58	389	25,781,897	12,356,047	.62	.29	.91
1939	671	4,461,805	1.58	403	28,464,087	13,417,488	.64	.30	.94
1940	678	4,928,466	1.56	406	31,212,928	14,990,256	.63	.31	.94
1941	696	5,814,888	1.49	409	35,482,278	16,878,728	.61	.29	.90
1942	691	6,726,036	1.40	417	39,410,279	16,274,172	.59	.24	.83
Total		64,433,325	1.73	350	390,489,380	175,456,101	.61	.27	.88

NOTE: All data taken from second reportings under the Unit Statistical Plan, except for policy year 1942, for which the first reporting was used.

CLASS 2501—CLOTHING MANUFACTURING

Policy Year	Payroll (In Thousands)) (Incl. Ex-Med.)	Indemnity		Losses		Pure Premiums		
		Claim Freq.	Avge. Cost	Indemnity	Medical	Ind.	Med.	Total
1928	340,469	1.11	156	592,010	368,590	.17	.11	.28
1929	322,794	1.29	141	586,823	382,216	.18	.12	.30
1930	214,939	1.64	140	492,450	325,370	.23	.15	.38
1931	167,347	2.27	135	510,837	371,974	.31	.22	.53
1932	123,596	2.77	129	442,460	332,870	.36	.27	.63
1933	182,149	1.74	131	416,252	346,222	.23	.19	.42
1934	221,976	1.21	160	430,981	363,206	.20	.16	.36
1935	239,600	1.05	206	519,149	391,314	.22	.16	.38
1936	282,592	.87	199	488,036	415,033	.17	.15	.32
1937	254,256	.79	203	405,806	367,466	.16	.14	.30
1938	267,994	.77	242	498,523	419,741	.18	.16	.34
1939	281,686	.73	287	592,827	482,695	.21	.17	.38
1940	334,887	.75	303	759,932	578,931	.23	.17	.40
1941	396,336	.66	331	868,645	596,741	.22	.15	.37
1942	500,053	.57	330	936,926	596,045	.19	.12	.31
Total	4,130,674	1.06	196	8,541,657	6,338,414	.21	.15	.36

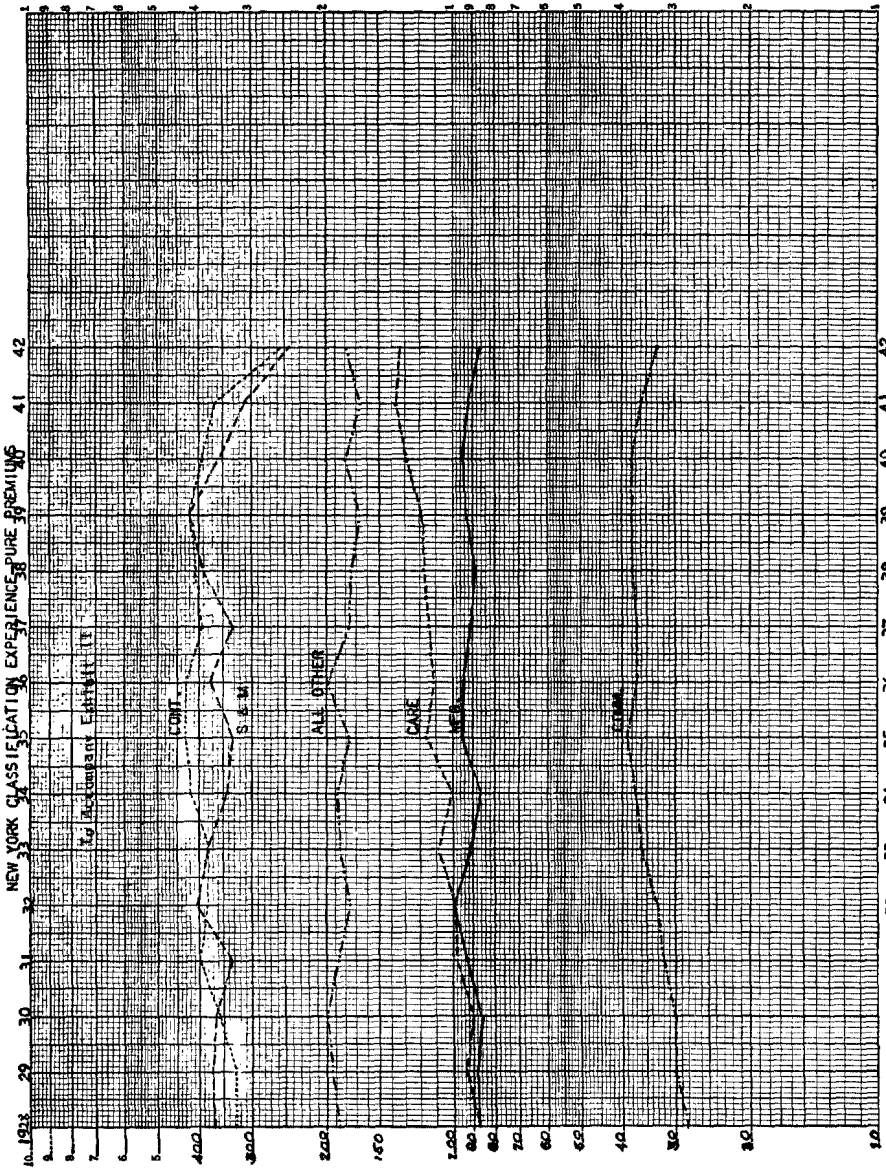

NEW YORK CLASSIFICATION EXPERIENCE PURE PREMIUMS
1 to Accompany Exhibit II
CONT.
S. & M.
ALL OTHER
CONST.
MFG.
CONST.

EXHIBIT III

COMPARISON OF WAGES AND CLAIM FREQUENCY

Year	N. Y. MANUFACTURING		N. Y. CLOTHING MFG.	
	Weekly Wages (Calendar Year)	Indemnity Claim Frequency (Policy Year)	Weekly Wages (Calendar Year)	Indemnity Claim Frequency (Policy Year)
1928	29.44	2.26	25.91	1.11
1929	29.99	2.26	26.00	1.29
1930	28.81	2.23	26.10	1.64
1931	26.42	2.54	23.92	2.27
1932	22.73	2.83	19.72	2.77
1933	21.83	2.54	18.81	1.74
1934	23.19	2.18	20.54	1.21
1935	23.19	2.19	22.71	1.05
1936	24.08	2.12	23.45	.87
1937	25.74	1.94	23.78	.79
1938	24.71	1.82	23.34	.77
1939	25.85	1.80	24.26	.73
1940	27.09	1.78	24.47	.75
1941	31.68	1.70	27.15	.66
1942	38.40	1.64	30.71	.57

Year	MASS. MANUFACTURING		MASS. CONTRACTING	
	Weekly Wages (Calendar Year)	Indemnity Claim Frequency (Policy Year)	Hourly Wages (Calendar Year)	Indemnity Claim Frequency (Policy Year)
1929	23.97	2.68	.986	6.64
1930	22.92	2.48	1.031	7.14
1931	20.99	2.54	.992	8.36
1932	18.34	2.64	.899	8.66
1933	17.10	2.52	.798	8.07
1934	18.54	2.23	.805	7.51
1935	19.35	2.24	.818	6.29
1936	20.56	2.10	.823	5.63
1937	21.57	1.82	.895	5.19
1938	20.53	1.79	.927	5.78
1939	20.80	1.78	.888	5.45
1940	23.59	1.77	.927	3.99
1941	27.38	1.77	1.010	3.67
1942	34.33	1.63	1.218	2.91
1943	39.82	1.58	1.266	2.78

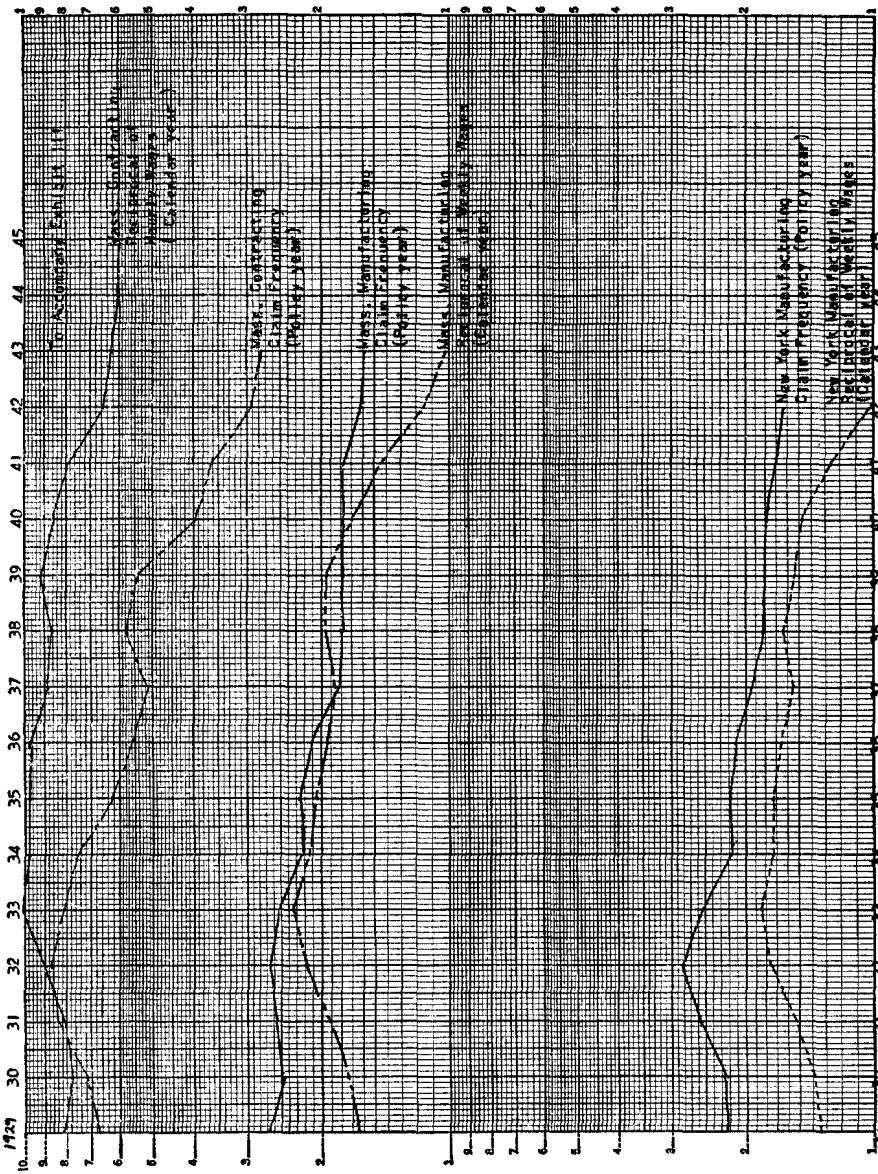

Mass. Contracting
Claim Frequency
(Policy Year)
Mass. Manufacturing
Claim Frequency
(Policy Year)
New York Manufacturing
Claim Frequency (Policy Year)
1929

EXHIBIT IV

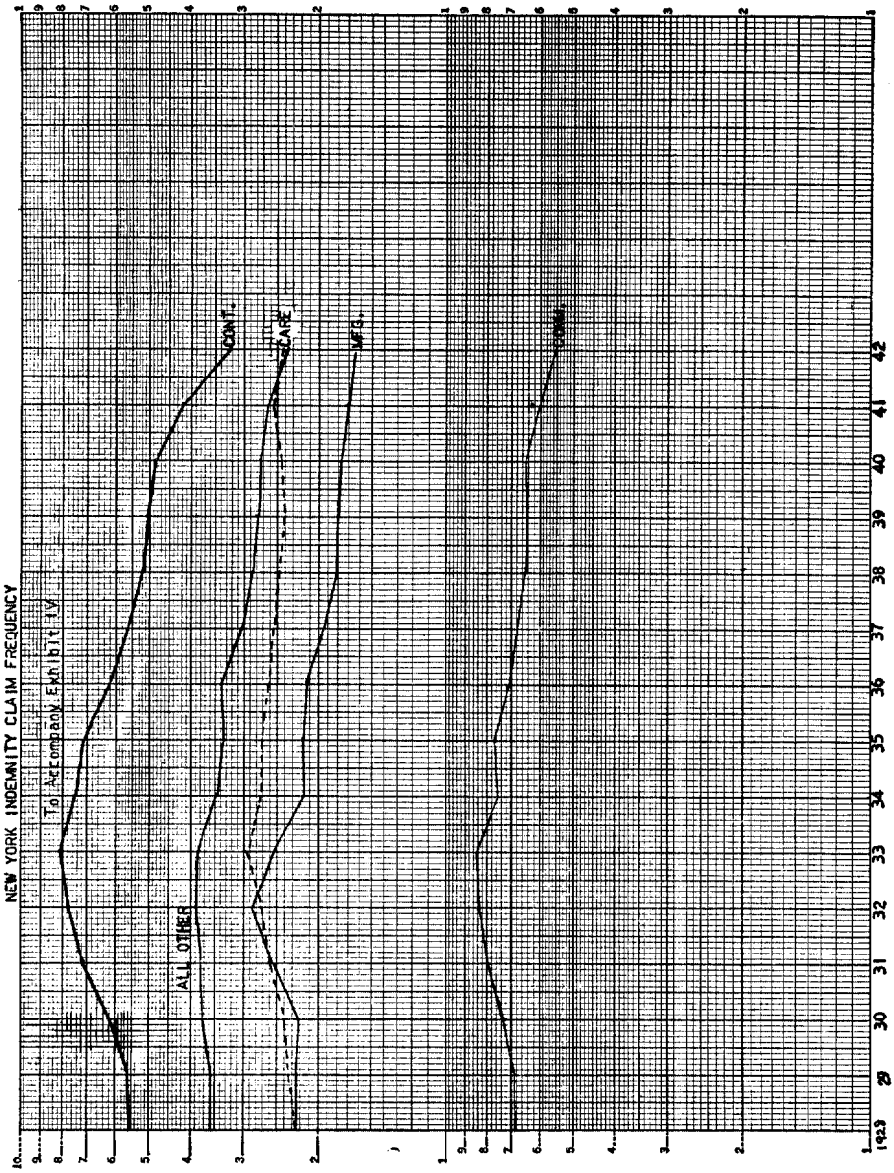
INDEMNITY CLAIM FREQUENCY

MASSACHUSETTS

Pol. Year	INDUSTRY GROUP					
	Mfg.	Contr.	S. & M.	Comm.	Care, etc.	All Other
1929	2.68	6.64	9.18	.98	2.69	3.92
1930	2.48	7.14	8.14	.98	2.66	3.65
1931	2.54	8.36	11.63	.92	2.63	3.56
1932	2.64	8.66	16.81	.98	2.68	3.35
1933	2.52	8.07	15.71	.98	2.87	3.60
1934	2.23	7.51	11.81	.92	2.74	3.03
1935	2.24	6.29	11.93	.88	2.72	2.84
1936	2.10	5.63	10.87	.82	2.86	2.74
1937	1.82	5.19	10.27	.80	2.68	2.47
1938	1.79	5.78	9.44	.74	2.69	2.66
1939	1.78	5.45	10.08	.73	2.58	2.46
1940	1.77	3.99	8.47	.71	2.58	2.42
1941	1.77	3.67	5.28	.68	2.58	2.33
1942	1.63	2.91	3.51	.63	2.28	2.22
1943	1.58	2.78	3.07	.61	1.84	2.05

NEW YORK

1928	2.26	5.58	8.76	.69	2.26	3.58
1929	2.26	5.57	8.22	.69	2.33	3.57
1930	2.23	6.09	8.01	.73	2.37	3.73
1931	2.54	7.19	7.80	.80	2.57	3.77
1932	2.83	7.77	9.01	.83	2.71	3.88
1933	2.54	8.03	8.94	.84	2.91	3.81
1934	2.18	7.45	7.64	.76	2.73	3.44
1935	2.19	7.13	7.45	.77	2.71	3.36
1936	2.12	6.27	7.00	.71	2.63	3.39
1937	1.94	5.63	6.19	.68	2.55	3.01
1938	1.82	5.19	6.54	.65	2.49	2.87
1939	1.80	5.03	7.27	.65	2.40	2.78
1940	1.78	4.79	6.45	.65	2.44	2.76
1941	1.70	4.17	5.07	.60	2.53	2.65
1942	1.64	3.21	3.91	.55	2.43	2.37


NEW YORK INDEMNITY CLAIM FREQUENCY
To Accompany Exhibit IV
CONST.
MFG.
ALL OTHER
1929
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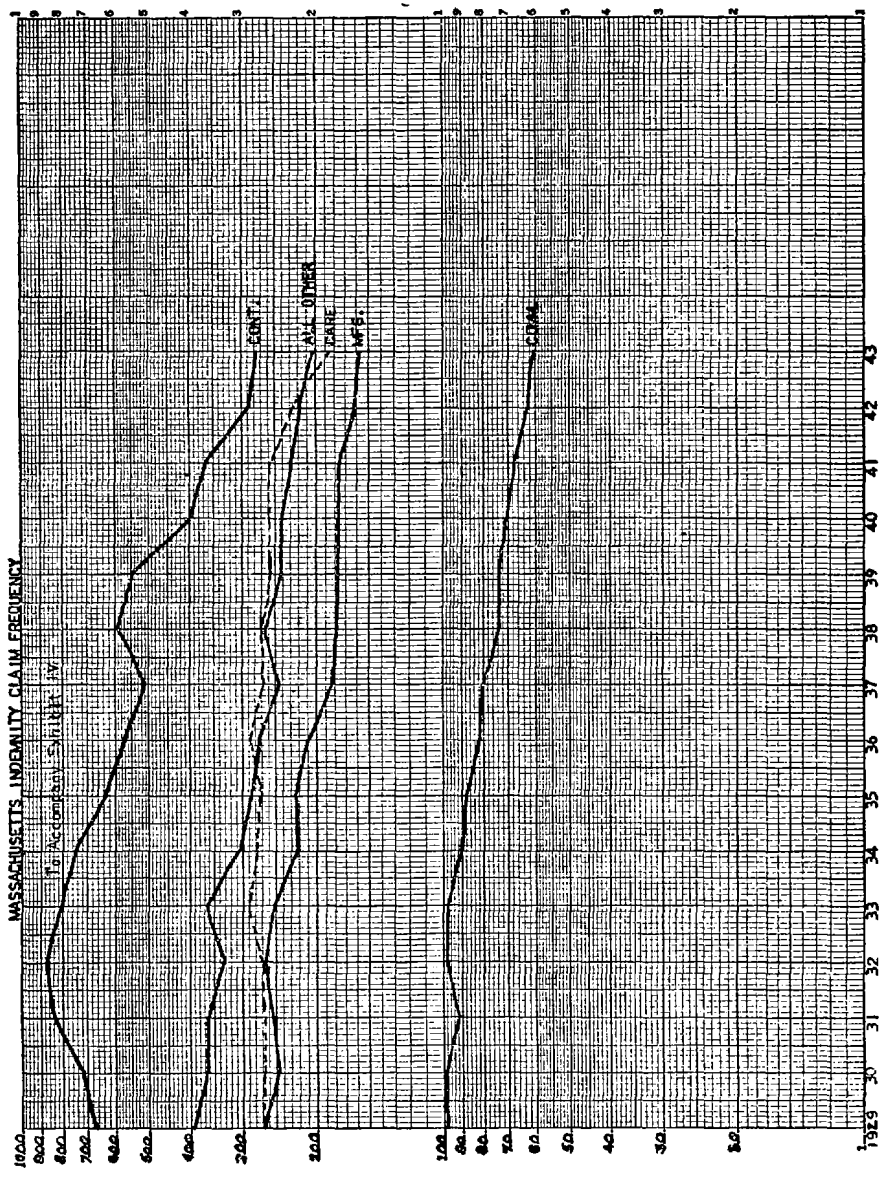
MASSACHUSETTS INDEMNITY CLAIM FREQUENCY
Per Accident Subject to Act
CONST.
ALL OTHER
TRADE
MFG.
CONST.
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