

## THE BUSINESS FAILURES PROJECT—II. AN ANALYSIS OF METHODS OF INVESTIGATION

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IN a previous article various problems in procedure and methodology arising out of an investigation into the antecedents of business failures were presented.<sup>1</sup> The techniques employed to obtain the data were described and the immediate and more remote objectives were outlined. Since that time 598 bankruptcies from the District of New Jersey, comprising about two-thirds of all the bankruptcy cases in that District between October, 1929 and July, 1930, have been studied. The analysis of the results of these cases throws light on some of the methodological problems raised in the previous article.

As indicated in the earlier article, the method of securing the information from the bankrupts was by means of a weekly or bi-weekly clinic in the bankruptcy court. Pursuant to court notice those bankrupts whose petitions were filed during the week or two weeks preceding the date set for the clinic appeared in open court, together with their attorneys, and were examined by a staff of investigators, averaging eight in number. Each investigator examined one bankrupt at a time. The clinics lasted between two and three hours each and the investigators averaged two examinations each per clinic. After 58 cases had been covered it was found necessary to abandon the clinic.

The impossibility of continuing the clinic produced a dilemma. Sufficient information was not at hand to provide a basis for any adequate revision of the work-sheet, or to further the development of more adequate techniques for controlling errors and securing data from which inferences could be drawn as to the causal connection between bankruptcy and the various factors under investigation. Furthermore, the administrative machinery had been set up for a continuance of the study along the lines already indicated. The exigencies of the whole situation made it necessary to use several methods for collecting the work-sheet data. Some of the methods, as we will indicate, have

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<sup>1</sup> Clark, Douglas and Thomas, *The Business Failures Project—A Problem in Methodology* (1930) 39 *YALE L. J.* 1013.

produced data of little value. All of them, however, contributed toward the development of a new work-sheet, in which the most obvious sources of unreliability have been eliminated. This article describes the abortive attempts to collect data after the clinic had broken up, compares the clinic data with these others, and outlines the method of data collection now in operation, and the revisions in the new work-sheet. A subsequent article will deal with the data now being obtained by this method (as compared with the data obtained by the previous methods), indicating the frequency of certain presumably causal factors in the production of bankruptcy. Another article will describe a concurrent attempt to develop a method of investigating these factors in non-bankrupt cases, *i. e.* the attempt to develop a "control-group."

The methods other than the clinic that were developed to meet the situation were: (1) a personal interview with the bankrupt; (2) mailing of the questionnaire to the bankrupt, together with a letter from the staff, indicating the purpose of the study and asking the bankrupt to fill out the questionnaire and return it by mail; (3) mailing of the questionnaire to the bankrupt, together with a letter from the court directing and soliciting the bankrupt to fill out the questionnaire and return it by mail. These four methods are referred to hereafter as (a) the clinic, (b) the personal interview, (c) the personal letter, and (d) the court letter. The number of cases covered by each method were:

Clinic .....	58
Personal interview .....	91
Personal letter .....	90
Court letter .....	359
	598
Total .....	598

Because of the heterogeneity of the total, two classes of cases were taken out for special analysis in this article. They were 278 cases of retailers, and 104 cases of contractors (including partnership cases). The cases excluded from the analysis consisted of small groups of wholesalers and manufacturers and a larger group of wage-earners. An attempt was made to insure that the computations in Table I (below) were based on relevant cases only. All questions relating to the personal characteristics of the bankrupts were relevant for both partners in a partnership, and were, of course, irrelevant for corporations, except for the obvious one-man corporation. Certain questions were irrelevant for special cases only, *e. g.* "grade reached" was irrelevant when there had been no schooling, "inventory" was irrelevant when no stock was held, etc. All questions relating

to the firm rather than the individual included one partner's schedule only in partnership cases.

It was felt that no analysis of the frequency of presumably "causal" factors could be made, and no control group could be set up to test these causal factors, until some estimate could be made of the definiteness, completeness, and accuracy of the data obtained. Accuracy, of course, can be tested only by external checks, although it can be inferred from internal evidence in some cases. Even though the information be highly accurate, however, the study is inadequate unless a large proportion of the answers are complete and definite with regard to the essential questions. Unless such definiteness is obtained, the final frequency tables will be based on a sample of cases almost certainly selective and unrepresentative of the total group.

Ideally, the investigations of casual factors in bankruptcy should attempt two things: (1) An analysis by the case method of all probably relevant matters pertaining to the entire situation converging at bankruptcy. This would cover a wide range and would consider a variety of factors in the environment in which the bankrupt lived. It would entail a study of the adjustment or lack of adjustment of the bankrupt to society and would include such matters as physical and mental health, mental capacity and training, and economic factors. (2) A statistical study of the association of the factors found to be relevant, by comparison of bankrupts with a control group.

At this stage of such research it is quite obvious that inclusive analyses of the first sort would be impracticable. The project aimed at something less complete and was restricted almost entirely to sociological and economic factors. It was not possible to use existing methods for measuring intelligence, though an attempt was made. Nor did the situation warrant physical and psychiatric examinations, though efforts were made to develop that phase of the study.

The sociological data pertained to the individual and his family. The educational and vocational career of the bankrupt were covered in an attempt to produce qualitative data throwing some light on his capacity as a business man. While inconclusive by themselves, they added to the total situation significant factors aiding particular case analyses. For the same reason, age, nationality and language were covered. Questions respecting the family of the bankrupt were designed largely with the view of obtaining information concerning the economic strain produced by the bankruptcy. Such matters as size of family, number of contributors, medical expense, amount of rent or mortgage payments on the home were included.

The balance of the questions related for the most part to business practices. Capitalization of the business was sought for

the purpose of discovering cases of obvious under-financing which would handicap the business from the start. Subsequent financing was investigated to ascertain if the fixed charges were so heavy as to place a strain on the business. Questions pertaining to insurance were included, not only to discover if the lack of insurance was producing losses from which the business could not recover, but also as some earmark of prudent or unwise management. The kinds of books kept obviously would indicate whether the individual was operating by guess work or was attempting to order his business affairs efficiently. Data respecting credit extension and credit losses were also included not only because of their relevance to the quality of the management but also to reveal those cases in which such losses were so high as to be dangerous to successful operation. Other economic questions covered a wide range and included such questions as inventory, advertising practices and overhead.

In all there were 136 questions to be answered by the bankrupt and in addition about fifty more to be obtained from other sources. To answer these questions completely and intelligently the average bankrupt needed at least an hour. No doubt mere length tended to produce a large number of failures to answer or partial answers when the bankrupt was left to his own devices, as in the personal letter, or felt under no compulsion to answer, as in the personal interview. In view of the limitations of the methods used it probably would have been more satisfactory to have asked fewer questions and to have restricted their range.

The following analysis deals with the degree of definiteness and completeness obtained by the methods, and touches slightly the question of accuracy, but does not even approach the question of the frequency of occurrence of various factors in the several bankrupt groups. The answers have been classified as complete, partial and ambiguous, and no answer. By complete answer is meant one which on its face is responsive to the question and apparently definite and complete, while partial and ambiguous describe those answers which do not make sense or are so sketchy as to leave one in doubt as to the meaning. A crude example of the latter is the answer "yes" to the question, "Did the language used help or hinder the business?"

Certain typical questions were selected for analysis in order to discover the proportion of complete and definite answers to the other types of answers. The selection was made to include (1) simple questions calling for a categorical, short answer; (2) possibly misleading or ambiguous questions calling for judgment on the part of investigator or informant; (3) questions calling for detailed information depending on memory or access to records. These questions related both to economic and to sociological matters and to events both far distant and near.

All of the information for these questions was derived from the bankrupts. While numerous other questions might have been analyzed in the same manner it is felt that such analysis probably would not alter the conclusions materially, in view of the representativeness of these questions.

Of the questions calling for answers in terms of a single date, place, etc. or in terms of a simple choice between clear-cut alternatives or among several well-defined possibilities, an analysis was made of the one relating to the form of organization. This question was as follows:

- Form of organization: (a) individual
- (b) partnership
- (c) corporation

In both the retail and contractors' groups the question was answered definitely and completely by 98% of the firms. There can be no criticism of this question from the point of view of bringing out the definite information for which it was designed.

Of the questions formulated to elicit pertinent personal data about the bankrupts, perhaps the most essential were those relating to his education, vocational career, familial status and dependents. The question relating to education was as follows:

EDUCATION

a. Length of formal school attendance

- 1. Number of years at school\_\_\_\_\_
- 2. Grade reached\_\_\_\_\_
- 3. Location of schools\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Name of schools\_\_\_\_\_

b. Character of higher education—cultural, vocational

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

c. Correspondence courses, night school, etc.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

The questions regarding location and name of school were asked merely as a possible check on the other information, and therefore have no relevance to the present problem. It may be stated, parenthetically, that they were answered so infrequently as to be worthless as a check. This analysis concerns (1) the number of years in school, (2) the grade reached, (3) whether or not there

was any higher education, irrespective of its character, and (4) whether or not there was any education through correspondence courses or night school, irrespective of its character. The number of years in school brought a complete reply in 86% of the relevant cases of retailers and 89% of the contractors. From the point of view of the methods used in the inquiry, then, this question may be considered moderately successful. There are probably several reasons for failure to answer. Memory probably played some part, resentment because of the apparent irrelevance of the question, another part, etc. These factors almost certainly operated selectively to exclude the least well-educated group, and raise the suspicion that averages based on these data may be too high to be representative of the whole group.

With regard to the other parts of the question, the replies were distinctly less definite and the proportion of "no answers" larger. The grade reached was indicated definitely in only 60% of the cases of retailers and 68% of the contractors, the part regarding higher education in 53% of the retailers, and 60% of the contractors, and the part regarding correspondence and night schools in 59% of the retailers and 66% of the contractors. Several possible explanations occur.

Most people might be expected to remember more clearly the grade reached rather than the number of years spent in school, because of the frequent discontinuity of the latter. Yet a much larger proportion indicated the number of years spent in school than gave an answer regarding the grade reached. It is possible that persons retarded in grade as compared to years spent in school would resent having that fact known. The falling off of 25 to 30% complete answers in the parts of the question relating to higher education and night schools may have been due to a feeling that the answer to the first part in many cases carried an implicit answer to these parts. The slightly greater percentage of replies to the correspondence and night school question than to the higher education question seems to be due to a tendency to leave a question unanswered rather than record a negative, since the extra percentage can be accounted for by the greater proportion of affirmative replies in the correspondence-night school part of the question.

The question relating to the vocational career was as follows:

Vocational career (Describe job, name occupation, name employer, give dates, places, etc.)

- a. In other occupations \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- b. Apprenticeship in present business \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- c. As an independent business man in present business.....  
 -----  
 -----  
 -----
- d. Length of time in business which failed.....  
 Dates -----  
 -----
- e. Present occupation.....  
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The data obtained on the first part were unsuited to this analysis because of the complexity of the factors involved and the almost universal incompleteness of the answers, taken as a whole. Parts b, c and d were selected for analysis in terms of whether or not the bankrupt had served an apprenticeship, how long he had been an independent business man, and the length of time he had been in the business which failed. The apprenticeship question brought only 58% complete replies for retailers, and 79% for contractors; the question relating to his career as an independent business man 55% for retailers, and 65% for contractors; and the question relating to the length of time in the business which failed 94% for retailers, and 96% for contractors. Probably the uncertainty in the bankrupt's mind as to the exact meaning of "apprenticeship" led to the small number of complete replies. In 92% of the retail cases, for example, where there had been an apprenticeship, a definite number of years was indicated. The range was from 1 to 24 years, and the high average of 7 years for these cases suggests some misunderstanding of the meaning of the question, since it is highly improbable, under modern industrial conditions, that apprenticeship would last so long. There is every reason to believe the time in the business which failed could be stated accurately, and would be so stated because of the extreme relevance of that question to the court proceedings. The failure to answer the question in 4 to 6% of the cases may have been due to carelessness.

Other questions, though calling for definite information which a bankrupt would be able to furnish from his memory without consulting records, were phrased so inartistically as to elicit information on only a part of the question or to render the entire answer ambiguous. Such a question was:

Do you carry life or health insurance?..... When was it taken?  
 ----- What amount?..... What is the annual premium?.....  
 Who is the beneficiary?.....

As should have been expected the tendency was to reply on either life or health and not both because of the ambiguous wording of the question.

The results obtained on this question are interesting. In respect to the groups mentioned, there were 93% definite, clear,

and complete answers to life insurance for the retailers and 89% for the contractors. These high percentages are in contrast to the 34% of the complete answers respecting health insurance for the retailers and 49% for the contractors.

Data collected on fire and burglary insurance for these groups brought very high percentages of complete answers—94% for fire insurance for the retailers and 88% for the contractors. For burglary insurance the percentages were 92% for the retailers and 82% for the contractors. These questions were simple and concise, calling merely for a yes or no answer and a statement of the amount.

Somewhat less satisfactory answers were obtained to the questions:

Did the debtor make use of a local credit bureau? (Yes or no)\_\_\_\_\_

At what intervals were inventory taken?\_\_\_\_\_ What books were kept?\_\_\_\_\_

The complete answers on the use of a credit bureau were 88% for the retailers, and 82% for the contractors; on inventory 71% for the retailers, and 58% for the contractors; and on books 81% for the retailers, and 83% for the contractors. This may have been due to less familiarity on the part of the bankrupts with the meaning of the terms or to the fact that the answer might have to be qualified or lengthy. Such could be true if the bankrupt's practice in respect to any of them had varied or had not been systematized or regular. It seems doubtful that with the use of the questionnaire method any more extended qualitative analysis could have been obtained of the debtor's method of credit investigation, in view of the fact that it would require more thoughtful answers, would take a great deal of time and therefore would be apt to be neglected. Thus the question calling for a categorical yes-no answer was probably the best one under the circumstances even though qualitative deficiencies may result.

One of the most important economic questions called for the following information:

- (1) Total net sales, open credit (last year in business)
- (2) Total net sales, deferred payments (last year in business)
- (3) Total net sales, all accounts (cash, open credit, deferred payments) (last year in business)
- (4) Net losses for bad debts, open credit (last year in business)
- (5) Net losses on deferred payments (last year in business).

The importance of these questions has been indicated above. The percentages of complete answers were:

	<i>Retailers</i>	<i>Contractors</i>
(2)	42%	45%
(3)	42%	40%

(4)	44%	48%
(5)	42%	47%

These low percentages of complete answers may have been due, to a large extent, to the fact that they required recourse to the books and accounts for complete and accurate answers. Even if the bankrupt desired to give full and accurate replies and was willing to spend time on them, he might not have been able to consult the books, since they were probably in the hands of one of the bankruptcy officials. Perhaps in other cases no books showing the information had been kept. In either event probably in the vast majority of cases the complete answers were furnished from memory alone. The difficulty of remembering these details no doubt was so great as to discourage the attempt. In addition, the discrimination necessary to distinguish between "open credit" and "deferred payments" may also have contributed to the giving of no answers.

The percentages of complete answers to the question, "Did the debtor fail in business before?" were consistently high, being 93% for the retailers and 87% for the contractors.

In the first part of this article, attention was drawn to the different methods of data collection. An analysis in terms of the different results obtained for each of these methods will indicate the extent to which the work-sheet itself was at fault in its failure to elicit definite replies. If the differential is very great between any of the methods, there will be an indication of the extent to which the work-sheet can function under favorable as compared with unfavorable circumstances. Unfortunately, however, the distribution of cases among methods was quite uneven, running as low as 41 retailers and 10 contractors in the personal letter group and 23 retailers and 14 contractors in the clinic group. No attempt was made to treat the retailers and contractors separately in the comparison of methods because of this deficiency in the number of cases. Even so, the number of cases in the last two groups is so small as to make an accurate comparison between the various methods somewhat difficult and percentages will be unreliable. But where there appear great differences in percentages of complete answers, these are taken as indicative of the differential, even though the actual numerical expression of this differential is not accurate. Before discussing the results obtained by these various methods it might be well to make some general observations about each.

The "clinic" was theoretically the most ideal of the four for a scientific study. It necessarily brought the interviewer and the bankrupt together, permitted an extensive cross-examination of the bankrupt, and enabled the interviewer to fill out the questionnaire and make copious notes of matters not covered by

the questionnaire. As actually used, however, it had certain distinct limitations. With eight examinations going on at one time in one small courtroom and twelve or more bankrupts and their attorneys waiting in the same room, the tendency to hurry the examination was almost unavoidable. Consequently the examinations did not seem as thorough and effective as they could have been if the interview had been held in private with no requirements for haste and without the disconcerting features of a semi-public examination. Secondly, the kind of examination used was not the traditional bankruptcy examination, and though legal, it was unfamiliar. The tendency on the part of the bankrupts and their attorneys was either to treat it lightly or to look on it with suspicion. While there was apparent cooperation, this attitude militated against effectiveness. Coupled with the physical conditions attendant on the examination it made that technique considerably less valuable than originally contemplated.

The personal interview method was an extremely difficult one to use. It was expensive and time consuming and few bankrupts would consent to an examination without approval of counsel. To convince an attorney of the appropriateness of an examination was difficult, as he was naturally suspicious. The general attitude was that if an examination was desired the regularly constituted bankruptcy officials could order one. Even if counsel consented it was usual for him to require the examination in his presence so that he could protect his client if occasion arose. This meant a hurried examination as the counsel's time was valuable and the examiner was under great pressure to complete it with dispatch. If a personal interview were obtained without the presence of counsel the conditions normally were not conducive to thoroughness. It might be late at night, or at lunch hour, or while the bankrupt was being constantly interrupted. Further, being under no compulsion the bankrupt usually ruled the situation. Occasionally, a bankrupt with leisure and unusual cooperation was found and the examiner could take his time. Normally great persistence was required and an extreme amount of cajoling was necessary to approximate a thorough examination.

Both the personal letter and court letter methods had all of the disadvantages of having schedules filled out by the subjects under investigation rather than by the investigator or with the aid of the investigator. Thus observational errors would be increased—perhaps to great proportions. There was present in the court letter, however, an element of compulsion absent from the personal letter, because of the fact that the former was official. In this sense the court letter method was more comparable to the clinic than the others. For complete an-

swers it might be expected that the court letter would produce higher percentages than the personal letter and even might exceed the personal interview. For reliability of data, however, the personal interview and clinic theoretically would be better.

The following paragraphs compare the four methods with respect to the specific questions analyzed above, in light of the data set forth in Table I.

TABLE I.

Bankruptcy Cases among Retailers and Contractors in New Jersey,  
October, 1929—July, 1930  
Analyzed by Method of Inquiry and Completeness of Answers  
to Specific Questions

Question relating to	METHOD OF INQUIRY								
	No. of Relevant Cases	COURT LETTER			No. of Relevant Cases	PERSONAL INTERVIEW			
		Percentage of Answers that are Complete	Partial & Ambiguous	No Answer		Percentage of Answers that are Complete	Partial & Ambiguous	No Answer	
Life insurance .....	238	95	1	4	53	91	6	3	
Health insurance .....	238	40	1	59	53	30	6	64	
Fire insurance .....	222	92	1	7	51	100	0	0	
Burglary insurance ....	222	86	0	14	51	96	0	4	
Use of credit bureau ...	222	84	0	16	53	96	0	4	
Inventory .....	222	63	2	35	51	80	2	18	
Books kept .....	222	81	6	13	51	89	11	0	
Net sales, open credit..	222	29	9	62	51	63	0	31	
Net sales, deferred pay't	222	29	5	66	51	69	5	26	
Net losses, open credit..	222	35	11	54	51	59	19	22	
Net losses, deferred pay't	222	33	6	61	51	60	7	33	
Apprenticeship .....	238	61	11	28	53	80	7	13	
Time ind. bus. man ....	238	53	15	32	53	73	0	27	
Time in bus. which failed	238	96	1	3	53	96	0	4	
Years in school .....	238	89	2	9	53	87	4	9	
Grade reached .....	219	67	16	17	50	35	12	53	
Higher education, etc...	238	54	5	41	53	47	0	53	
Correspondence school, etc.	238	62	0	38	53	57	2	41	
Previous failure .....	238	96	0	4	53	96	0	4	
Type of organization ..	222	99	1	0	54	95	0	6	

  

Question relating to	METHOD OF INQUIRY								
	No. of Relevant Cases	PERSONAL LETTER			No. of Relevant Cases	CLINIC			
		Percentage of Answers that are Complete	Partial & Ambiguous	No Answer		Percentage of Answers that are Complete	Partial & Ambiguous	No Answer	
Life insurance .....	51	90	0	10	37	77	17	6	
Health insurance .....	51	34	0	66	37	44	19	37	
Fire insurance .....	49	82	2	16	37	85	3	12	
Burglary insurance ....	49	90	0	10	37	92	5	3	
Use of credit bureau ..	49	80	0	20	37	92	0	8	
Inventory .....	49	57	10	33	36	83	3	14	
Books kept .....	49	73	2	25	37	97	3	0	
Net sales, open credit..	49	58	6	36	37	76	3	21	
Net sales, deferred pay't	49	51	4	45	37	59	3	38	
Net losses, open credit..	49	54	6	40	37	78	8	14	
Net losses, deferred pay't	49	53	4	43	37	68	0	32	
Apprenticeship .....	51	53	12	35	37	63	11	26	
Time ind. bus. man ....	51	46	20	34	37	54	29	17	
Time in bus. which failed	51	86	2	12	37	94	0	6	
Years in school .....	51	75	4	21	37	92	3	6	
Grade reached ..	46	50	21	29	37	84	8	8	
Higher education, etc...	51	56	4	40	37	69	3	28	
Correspondence school, etc.	51	61	0	39	37	80	0	20	
Previous failure .....	51	87	0	13	37	59	0	41	
Type of organization ..	49	92	3	5	37	100	0	0	

The percentages of complete answers on the form of organization were all very high, irrespective of method, personal letter showing up least well with 92% complete answers compared with 99% for court letter, 95% for personal interview and 100% for clinic.

The clinic had again the most marked success with the education questions: For years in school, it was the only method bringing over 90% complete replies, and the personal letter brought only 75%. On grade reached, the clinic brought 84% complete replies, with the other methods markedly inferior and the personal interview as low as 35%. The clinic was still superior on the higher education question, but all four methods seem quite inadequate, the range in percentage of complete replies being from 47% to 69%. On correspondence courses, also, the replies were inadequate, averaging about 60% for all except the clinic which brought 80%.

The low percentage on the personal interview on three out of four of these questions may be explained in part by the fact that the field workers as well as the bankrupts rated the question as unimportant or regarded a complete answer on the first point sufficient. Furthermore, the field workers were working under pressure and fearful of not being able to finish all of the answers. They therefore probably made a selection of economic questions which they regarded as more important. This hunch is partly substantiated by the relatively higher percentage of answers by the personal interview method on the economic questions.

A curious difference in methods is shown by the percentages on apprenticeship and length of time as an independent business man. On apprenticeship the court letter has 61% complete answers, the personal letter 53% and the clinic only 63%. On length of time as independent business man the court letter has 53%, personal letter 46% and clinic 54%. This lack of substantial differences between the first two methods and the last is surprising, not that the percentages for the court letters and personal letters were unusually low but that the clinic was not higher. The ascendancy of the personal interview group (80% for apprenticeship and 73% for independent business man) is difficult to explain.

The insurance questions, primarily economic, were quite uniformly successful irrespective of the method employed, with the exception of health insurance, although the clinic has only 77% complete on life insurance.

On the questions relating to the use of the credit bureau, the differences in methods probably are not significant and do not show any inferiority of the court letter method. The same is true for books kept. In regard to inventory, however, the in-

ferior showing of the court letter and personal letter method is striking, (63% and 57%, as compared with 80% and 83% for personal interview and clinic). A hunch that the term "inventory" was not understood might be justified by these percentages, since in the personal interview and clinic groups the examiner could explain the term.

In respect to the questions pertaining to business done on credit and credit losses, the percentages for the court letter and personal letter are consistently below those for the personal interview and the clinic. The court letter is especially inferior, ranging from 29% to 35%. The personal letter ranges from 51% to 58%. The personal interview is slightly superior, ranging from 59% to 69%, and the clinic superior to these others with a range of 59% to 78%.

It is difficult to explain the higher percentage in personal letter cases than in court letter cases. As noted above, the element of compulsion was lacking with the personal letters and was present with the court letters. Therefore, a lower percentage of complete answers might be expected in the former. The differential may be due to the fact that there was too small a number of cases in the personal letter group to test adequately the efficiency of that method.

The higher percentage in the clinic cases in comparison with the other methods may well reflect the superiority of that method. But the percentages in the questions referring to deferred payments hardly justify this conclusion, even in view of the somewhat unfavorable circumstances in which the examiners were working in the clinic. The mediocre showing of the personal interview may be explained in part by the disadvantages the field workers were under in the examination. The low percentage in the court letter cases might tend to support the contention that this method is distinctly inferior. However, on other questions discussed below, the percentage of complete answers by that method showed some superiority.

There was a surprising falling off of complete answers in the clinic cases to the question, "Did you ever fail in business before?" the clinic percentage of complete answers was 59% compared with 96% for court letter, 87% for personal letter and 96% for personal interview. This anomaly is difficult to explain. Even though the clinic group was much smaller than the court letter group, there were 15 clinic cases in which there was an ambiguous answer or no answer at all, while there were only 11 among the larger court letter group, (41% as compared with 4%).

The following table gives the distribution of the percentages in the previous tables, showing first the complete answers and

second the complete answers combined with the partial and ambiguous answers:

TABLE II

## DISTRIBUTION OF PERCENTAGES BY METHODS ON ALL QUESTIONS

Percentages	Court Letter		Personal Interview		Personal Letter		Clinic	
	Complete	Complete plus partial and ambiguous	Complete	Complete plus partial and ambiguous	Complete	Complete plus partial and ambiguous	Complete	Complete plus partial and ambiguous
under 20	0	0	0	0	0	0	0	0
20-	2	0	0	0	0	0	0	0
30-	2	3	2	1	1	1	0	0
40-	1	2	1	2	1	0	1	0
50-	2	1	2	1	3	2	3	1
60-	4	3	3	2	1	7	3	3
70-	0	1	1	3	2	3	3	3
80-	4	4	4	2	4	4	4	5
90-	5	6	7	9	3	3	6	8
Total	20	20	20	20	20	20	20	20

Some differentiation should be made between the ambiguous answers and the "no answers." In the former a fairly reliable inference may often be made as to the complete answer intended, whereas in the latter no such inferences can be safely made. In the previous paragraphs, therefore, the most conservative view has been taken of the answers; only those obviously complete have been included. This represents a minimum, and would be markedly increased in some cases by the inclusion of the inferential answers from the ambiguous group. Thus, a glance at the column headed Complete plus Partial and Ambiguous in Table II shows this to be especially true in the court letter group for the questions relating to losses on open credit, apprenticeship, time as independent business man, and grade reached. In the personal interview group, this is true with regard to books, losses on open credit, and grade reached. In the personal letter group, the percentage of usable cases relating to inventory, apprenticeship, time as independent business man and grade reached would be significantly changed by including inferential answers; in the clinic group the same is true of life insurance, health insurance, apprenticeship, and time as independent business man. It is interesting to note that apprenticeship, time as independent business man, and grade reached would thus have been appreciably affected in three out of the four groups. The inclusion of these cases in "complete" answers would increase the amount of data from which frequency tables could be formed.

In respect to questions with 80% or more complete answers there appears to be little choice among the clinic (with 10) the personal interview (with 11) and the court letter (with 9), though some inferiority is seen in the personal letter, which has 7. However, with respect to questions with less than 60% complete answers the ascendancy of the clinic is more marked.

It has only 4 as contrasted to 7 for the court letter and 10 for the personal letter. Here also the personal interview seems about on a par with the clinic since it has but 5 below 60%. The four instances where the clinic falls below 60% are: (1) health insurance; (2) amount of business done on deferred payment basis; (3) length of time in business as independent business man; and, (4) previous failure. Health insurance obviously was a poorly phrased question and therefore may be eliminated in an appraisal of the different methods. On this question under all four methods the percentages were extremely low. On the questions regarding net sales on deferred payments and length of time in business as an independent business man the clinic shows very slight superiority over the court letter and personal letter and produces lower percentages than the personal interview. However, the percentages obtained by the personal interview were only 69% and 73% respectively. Thus these two questions did not produce satisfactory results by any method. The same cannot be said for the question respecting previous failure, for the clinic broke down and the other methods produced quite satisfactory results. On this question it is therefore obvious that the clinic was inferior for some unknown reason. If the first three questions were eliminated, the clinic would have only 1 below 60%, as contrasted to 4 for the personal interview, 4 for the court letter and 7 for the personal letter.<sup>2</sup>

Including, however, the partial and ambiguous answers in the total percentage of complete answers, the increases in percentages on these three questions are:

	Court Letter		Personal Interview		Personal Letter		Clinic	
	from	to	from	to	from	to	from	to
Health	40%	41%	30%	36%	34%	34%	44%	63%
Def. pay't	29	34	69	74	51	55	59	62
Ind. bas.	53	68	73	73	46	66	54	83

<sup>2</sup> This analysis seems to carry an implicit assumption of the clinic's superiority. Since the personal interview seems actually to come out as well in some aspects, an analysis should perhaps be made from this point of reference also. In five instances—health insurance, net losses on open credit, grade reached, higher education, and correspondence school—the personal interview falls below 60%. Excluding health insurance in which all four methods were inferior, there are two cases (net losses on open credit and higher education) where the court letter and personal letter show similar inferiority. The clinic is so slightly superior to these other methods that the deficiency seems to be definitely one of the phrasing of the questions rather than the method of inquiry. In the questions on grade reached and correspondence schools, however, the deficiency of the personal interview is not shared by the clinic, and the implication must be that the method rather than the question was at fault. Thus, on the basis discussed above, the only questions which could legitimately be eliminated are those referring to net losses on open credit and higher education. If these two questions (and health insurance) were eliminated, personal interview would have 2 below 60%, clinic 3 below 60%, court letter 4 below 60%, personal letter 7 below 60%.

The first two questions still produce such unsatisfactory results that they may be eliminated in an appraisal of methods. But the third with a fairly high percentage in the clinic may be retained. Eliminating these two the number of answers below 60% (including partial and ambiguous in complete) are clinic 1; court letter 4; personal interview 3; and personal letter 1.

The percentages above 80% (with partial and ambiguous included in the complete answers) are 13 for the clinic, 7 for personal letter, 11 for personal interview and 10 for court letter. Thus taking into consideration the number of answers below 60% as well as the number above 80% the clinic seems somewhat superior to the other methods with the personal interview second.

When the economic questions are segregated from the sociological, the following is the distribution of percentages:

TABLE III

## DISTRIBUTION OF PERCENTAGES BY METHODS ON ECONOMIC QUESTIONS

Percentages	Court Letter		Personal Interview		Personal Letter		Clinic	
	Complete	Complete plus partial and ambiguous	Complete	Complete plus partial and ambiguous	Complete	Complete plus partial and ambiguous	Complete	Complete plus partial and ambiguous
under 20	0	0	0	0	0	0	0	0
20-	2	0	0	0	0	0	0	0
30-	2	3	1	1	1	1	0	0
40-	1	2	0	0	0	0	1	0
50-	0	0	1	0	5	2	2	1
60-	1	1	3	2	0	3	1	3
70-	0	0	0	2	1	1	3	1
80-	3	3	2	1	3	3	2	3
90-	4	4	6	7	3	3	4	5
	13	13	13	13	13	13	13	13

TABLE IV

## DISTRIBUTION OF PERCENTAGES BY METHODS ON SOCIOLOGICAL QUESTIONS

Percentages	Court Letter		Personal Interview		Personal Letter		Clinic	
	Complete	Complete plus partial and ambiguous	Complete	Complete plus partial and ambiguous	Complete	Complete plus partial and ambiguous	Complete	Complete plus partial and ambiguous
under 20	0	0	0	0	0	0	0	0
20-	0	0	0	0	0	0	0	0
30-	0	0	1	0	0	0	0	0
40-	0	0	1	2	1	0	0	0
50-	2	1	1	1	3	0	1	0
60-	3	2	0	0	1	4	2	0
70-	0	1	1	1	1	2	0	2
80-	1	1	2	1	1	1	2	2
90-	1	2	1	2	0	0	2	3
	7	7	7	7	7	7	7	7

Thus as respects the complete answers below 60% there were on the sociological questions 10 out of 28 (36%) and on the economic questions 16 out of 52 (31%). Above 80% there were on the sociological again 10 out of 28 (36%), while the economic

rose to 54% (27 out of 52). Including the partial and ambiguous in the complete answers there were 4 out of 28 (14%) on the sociological and 10 out of 52 (19%) on the economic below 60%. Above 80% there were on the sociological 12 out of 28 (43%) and on the economic 29 out of 52 (56%). This suggests the importance which the factor of unbelief on the part of the bankrupts in the relevancy of certain questions to the phenomena of business failures may have. To a certain extent this may also have been true of the examiners, though over half of the sociological questions in the clinic cases rose above 80%. This indicates that the examiners first must be convinced of the relevancy of questions before such questions produce wholly satisfactory results. This may require preliminary training of the examiners or the selection of examiners with sociological and economic training and interests.

On completing the work in New Jersey it was decided to transfer to a district where the conditions for examination of bankrupts could be made more favorable. Accordingly arrangements were made with the Department of Commerce and the Department of Justice and with certain business groups in Boston to transfer the project there. The three referees in bankruptcy having jurisdiction over the metropolitan area of Boston extended offers of cooperation. As a result the examination of the bankrupts was integrated into and made a part of the official examination by the trustee.<sup>3</sup> It did not take the place of the latter but supplemented it. This produced ideal conditions for an interview. Being an integral part of the regular bankruptcy machinery it was accepted. The bankrupts are examined one at a time, with very few other persons present except the attorney, a few interested creditors and the trustee. These conditions are favorable to producing complete and detailed data. As a result the methodological problems arising out of the New Jersey cases discussed in this article, while not entirely absent, have become so minor as to be of little consequence.

The worksheet was revised in light of the New Jersey experience. The questions were reworded in such a way that a choice would have to be made among mutually exclusive categories, thus adapting the materials for use on the Hollerith machine. For most questions the examiner need not now make his

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<sup>3</sup> This arrangement was made possible only because of the interest and cooperation of Hon. Thomas D. Thacher of the Department of Justice, of Dr. Julius Klein, Dr. Frank M. Surface, Mr. H. C. Dunn, Dr. W. C. Plummer, and Mr. Hugh Butler of the Department of Commerce, and of Hon. Arthur Black, Hon. Charles C. Cabot, and Hon. B. Loring Young, referees in bankruptcy in Boston.

The Department of Commerce is cooperating in the Boston study as it did in the New Jersey study. It is represented in this study by Mr. Victor Sadd.

own classification but need only fit the particular type given into the classification provided on the form. The classification was made, of course, on the basis of the experience in the New Jersey cases. Some of the data cannot be so classified or coded, for example, books kept, nature of previous business experience, debtor's statement as to cause of failure, etc. In fact, an attempt to code all of the data would sacrifice the qualitative for the quantitative. Indeed, one criticism of the attempt to code any such data except simple answers such as dates, etc., is that the data lose significance without explanatory notes. This objection is not present in the new form to any considerable degree since space is provided for writing comments of significance in interpreting the coding, and the examiners almost invariably use those spaces.

The form of various questions was changed to eliminate the ambiguous answers. Thus the badly worded health insurance question noted previously was altered in such a way that various combinations of health and other insurance or health alone could be noted. Further, questions tending to produce a yes or no answer when such an answer was not proper were eliminated. The former worksheet had interspersed throughout many questions asking whether or not a particular factor (e.g., size of family) helped or hindered the business. The results obtained in New Jersey gave rise to a suspicion that these questions were suggesting to the bankrupts plausible explanations for their failure, enabling them to shift the responsibility for failure to any available person or event, rather than developing points for qualitative appraisal, as had been planned. Accordingly in the revised worksheet, these questions were eliminated. After the bankrupt has completed the examination and given his own statement as to the cause or causes of his failure he is then asked if certain factors contributed to his failure. Since these follow rather than precede the bankrupt's statement they serve their original purpose without coloring the bankrupt's judgment.

Certain questions were rephrased so as to elicit more reliable information. As noted above, it was suspected that "apprenticeship" was misunderstood. Accordingly the question appearing in the revised worksheet is, "How many years in the same business, occupation or trade?" ("same" refers to the bankrupt's business at the time of his failure). This is followed by asking what position the bankrupt occupied in the former business or occupation.

The investigator's tendency on the former education question to treat an answer to number of years in school as complete without giving the grade reached is avoided in the new worksheet by eliminating the question on years and asking for information merely on the grade reached and nature of the educa-

tion received. Other complex questions were broken up and the parts treated separately.

Additions were made to certain questions. This was true respecting insurance. It was found in New Jersey that a surprising number (approximately 4%) of the cases were in bankruptcy primarily as a result of automobile accident judgments. This cause was rather obvious since the assets would exceed the liabilities by substantial margins if the accident judgment were deducted. As a consequence questions regarding other types of insurance were added and the question was completely rephrased to elicit data on all forms of insurance, personal and business. As to wage earners, additional information was sought respecting wages for the year preceding bankruptcy as well as regularity of employment. The question on credit losses was refined even further by the addition of a question as to losses suffered as a result of the bankruptcy or insolvency of others. The New Jersey experience indicated that there was an important interlocking of bankruptcies. On the whole there were few questions on the New Jersey questionnaire eliminated entirely. The revised worksheet covers much the same subject matter, the revisions being attempts merely to produce more complete and better-defined data.

TABLE V

Bankruptcy Cases Among Retailers (68) and Contractors (51) in Boston,  
Oct. 1930-Mar. 1931  
Analyzed by Completeness of Answers to Specific Questions

	No. of relevant cases	Percentage of Answers that are	
		Complete	No Answer
Life insurance	118	99	1
Health insurance	118	99	1
Fire insurance	119	91	9
Burglary insurance	119	91	9
Use of credit bureau	119	97	3
Inventory	116	95	5
Books kept	119	95	5
Net sales, open credit	119	86	14
Net sales, deferred pay't	119	85	15
Net losses, open credit	119	87	13
Net losses, deferred pay't	119	87	13
Apprenticeship	118	98	2
Time ind. bus. man	119	100	0
Time in bus. which failed			
Years in school	118	100	0
Grade reached			
Higher education, etc.			
Correspondence school, etc.	119	100	0
Previous failure			
Type of organization	119	100	0

As anticipated, the change in method, involving better conditions of interview and more thorough control of the field workers, along with the improvements in the wording of the questions

and the shortening of the worksheet, has produced a marked improvement in the percentage of complete answers in the Boston cases. Table V indicates the percentages for the questions considered in this article, calculated from the schedules of retailers and contractors received to date. The rewording of the questions eliminated the possibility of ambiguity in these questions; all questions were either answered completely or not answered at all. Four of the new questions (in which seven of the old have been merged) brought 100% complete replies. Six others (in which seven of the old have been merged) brought between 95% and 100% complete replies. Two of the others were between 90% and 95% and four between 85% and 90%. The great improvement is indicated by the fact that 16 out of the 20 questions brought well over 90% answers, whereas with the old worksheet the clinic brought this percentage in only six out of twenty questions, and the personal interview in only seven. It is disappointing to find four questions still in the 80-90% group. These were the questions referring to net sales and net losses on open credit and deferred payments. It is doubtful whether this percentage can be brought much higher without additional independent investigations, since it seems that the data sought are too complicated to be handled by this method of inquiry. In those cases where books exist, an attempt is being made to get this information. As indicated in the previous article plans had been made in New Jersey to make intensive accounting analyses of books and accounts. Due to the disruption of the program following the abandonment of the clinic this was not possible. Now in Boston the accounting analyses are being made whenever there is a set of books which warrant it. This analysis is to ascertain (1) if the answers given by the bankrupt to the economic questions are accurate and complete; (2) if the books were kept adequately; (3) if they reveal weaknesses in the financial structure or in the management which might have contributed to the failure. This analysis covers a wide range, and includes the balance sheets and profit and loss statements over as long a period preceding bankruptcy as possible, thus enhancing greatly both the completeness and the accuracy of the economic data. In order to obtain comparable data on all cases analyzed by the accountant an additional form has been prepared for his use, which he fills out from the books and returns along with the balance sheets and the profit and loss statements and his own conclusions.

This somewhat pedantic and perhaps over-detailed account of the meagreness of data obtained by various uses of the questionnaire is given for several reasons. Perhaps the most important is its educative value to those interested in socio-legal research. Unless hypotheses can be so formed as to elicit definite infor-

mation from the group under investigation, very little light will be thrown on the validity of these hypotheses. It is easy to neglect this factor in this type of research. Questionnaires are broadcast, incomparable methods of data collection are employed, and a final analysis is made on the basis of a fraction of the cases under investigation, or of some questions from one group of schedules, other questions from an overlapping group, etc. The uncertainties inherent in such data are completely lost sight of in the frequency tables which are usually presented with all the false definiteness that mere numbers can attain. The fallacy involved in such a procedure is indicated by this analysis of the types of replies received in a preliminary study of bankruptcy. Although frequency tables will be presented in a subsequent article, they will be presented only because, incomplete as the data are, they represent the most adequate in this almost untouched field.

A further reason for this detailed consideration is that it indicates the improvement that results when due regard is given to a careful phrasing of questions, training of field workers, and control of the conditions of investigation. The Boston situation, while still imperfect in many respects, is producing definite and complete answers to an extent that will make frequency tables more truly representative of the groups studied.

Perhaps a word should be added in justification for side-stepping the question of accuracy or the reliability of the data. Reliability must be determined by external checks, but external checks have no point of reference until the original body of data has attained a relatively high degree of definiteness and completeness. It must first be shown whether by any of the existing methods the data can be obtained. Then the question of how accurately they get the data must be faced.

The general aim is to avoid two pitfalls: (1) the production of a large body of complete and definite data which may nevertheless be highly inaccurate, and (2) to avoid the production of a small, unrepresentative body of data, which may nevertheless be highly accurate.