

**OUT-OF-BUSINESS RATES OF GOVERNMENT-ASSISTED
AND NON-ASSISTED FIRMS IN MANITOBA,
1973-1984***

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Introduction

This paper addresses a question which has not previously been examined by Canadian researchers; that is, whether firms that receive government assistance are more or less likely to go out of business than firms that do not receive assistance. The question is difficult to answer, and this paper makes no claim to a fully satisfactory understanding of the connection between government assistance and firm failure. However, the initial evidence provided here is a crucial step in developing a complete understanding and may stimulate other researchers to investigate this important issue further.

This paper is concerned with manufacturing firms in the province of Manitoba that received assistance under a Canadian regional industrial incentive program under the Regional Development Incentives Act (RDIA). This program involves a substantial expenditure each year. The government assistance offered to firms in Manitoba under RDIA has varied between \$5 million and \$20 million per year since 1970. Researchers have been concerned about whether the program

*Financial assistance from the University of Manitoba/SSHRC Fund Committee is gratefully acknowledged. The comments of two anonymous referees improved the paper.

has been successful in achieving its objective.¹ In particular, a series of critical papers were published by Usher [12;13] and Woodward [14;15;16] that questioned the foundation and the structure of programs designed to assist some industrial firms in locating or expanding in designated regions. Both researchers offered insights into aspects of the program but left many other important issues unaddressed. Other researchers, such as Springate [11] and MacNaughton and Winn [7], addressed the implementation and political problems associated with the program. However, no research has yet addressed the question as to whether firms that receive government assistance are more or less likely to go out of business than firms that do not receive assistance.

The paper provides the first Canadian evidence on the relative rates at which government-assisted and non-assisted firms go out of business. In the following sections, the research methodology is outlined, and the results are then discussed. Briefly, the results suggest that government-assisted firms in Manitoba are significantly less likely to go out of business than a random sample of non-assisted firms in the same province. Furthermore, the presence of government assistance is a significant factor in explaining the difference between the two groups of firms, independent of the fact that government assistance tends to be given to firm sizes and industry categories with lower out-of-business rates than average. This paper does not prove that government assistance is a causal factor in the lower rate at which firms that have received government assistance go out of business, but it does provide the first empirical evidence on this relationship for Canada.

In the final section, some consideration is given to why such results might have been obtained. Several economic and institutional rationales are explored, and it is likely that, in practice, several of the factors identified are simultaneously at work. It may be that only a detailed examination of the characteristics of the firms, their interdependencies in the regional economy, and the characteristics of the program within a single study will enable the relative importance of these factors to be identified.

Methodology of the Study

The study is focused on firms that received assistance under the Regional Development Incentives Act (RDIA) administered by the Department of Regional Economic Expansion (DREE). The structure is different under the new Industrial and Regional Development Pro-

¹The RDIA program is designed to increase employment in the areas of the country with relatively high rates of unemployment (see Woodward [14]).

gram (IRDP), but a basic policy remains the provision of government assistance to some firms and not to others. It was decided that a study of firms going out of business needed to examine firms that received assistance sufficiently long ago that both the recipient firms and their competitors could make some adjustments. Consequently, it appeared preferable to focus on firms assisted under RDIA rather than on firms assisted under the new program.

The study includes all 310 firms in Manitoba that received assistance under RDIA from 1973 to 1977 inclusive, and examines whether they went out of business in any year up to and including 1984. The choice of Manitoba was dictated by geographical proximity to the researchers. Since the study required personal contact with individuals associated with some of the firms, geographic proximity reduced the resource cost of the study. Additionally, Manitoba contained a large number of firms that did not receive government assistance, so that a comparison between the two types of firms was facilitated.

The 1973-77 study period was chosen for three reasons. First, some limitation on the number of years included was required because of the cost; otherwise, the study period might have been extended. Second, DREE funds were not fully dispersed until the third year of firm operation, so it was decided that included firms should have begun receiving assistance at least three years prior to 1984, and preferably longer, so that DREE funds were fully dispersed to firms before the end of the study period. The 1973-77 study period permitted the industry to adjust to the post-assistance period for those firms receiving government assistance. Third, one important source of information on firm failure was not available prior to 1975, since that was the first year for which the bankruptcy records of Consumer and Corporate Affairs Canada were computerized. Including firms that received assistance prior to 1973 increases the risk that information on one of the ways that firms can go out of business, bankruptcy, might have been omitted from the study.

The size of firms and the industry in which they operate are likely to be important determinants of whether firms are going to survive or go out of business. Information on the names of firms receiving government assistance from DREE was reported to Parliament monthly. Unfortunately, the information lists only the new product and jobs involved in the request for government assistance, whereas many of the recipient firms were established businesses entering new markets or expanding in old markets. It was decided that this information alone would not provide reliable data on the total size of the firms or the industry categories in which the firms produced. Furthermore, the government-assisted firms are compared to a sample of 340 firms that did not receive government assistance during the study period, and

similar information on the standard industrial classification (SIC) and firm size was needed for the non-assisted firms.

A common source of data on these two characteristics for both government-assisted and non-assisted firms was found in the *Manitoba Trade Directory*, a provincial government publication containing information on 1500 firms and claiming to include the vast majority of Manitoba firms.² Of the 310 DREE-assisted firms, 142 are listed in the *Manitoba Trade Directory*, and the sample of 340 non-assisted firms are drawn randomly from this source. For the 142 DREE-assisted firms to be representative of the entire population of 310 assisted firms, the assumption is made that the remaining government-assisted firms are distributed across the two firm characteristics (SIC category and firm size) in the same way as the assisted firms included in the *Manitoba Trade Directory*. The *Manitoba Trade Directory* contains information on the number of employees for each firm, and this variable is used as the proxy for firm size.

The 340 firms that did not receive government assistance are drawn from the 1975 *Manitoba Trade Directory*. This represents one-quarter of the eligible firms listed for that year. Of the 1500 firms listed in 1975, 142 had received government assistance. Of the remaining 1358 firms, every fourth firm was chosen from an alphabetical listing of eligible firms, and this results in 340 firms in the sample of non-assisted firms. It would have been preferable to have this sample of firms drawn from across the study period rather than from the stock of firms in 1975. One justification for the choice of a single year is that the stock of firms is relatively constant and hence little changed from the 1973 beginning to 1977 end of the period for including government-assisted firms.

The purpose of this study is to test whether the firms that received government assistance had a lower rate of going out of business than would have been the case if no government assistance had been received. Consequently, it is necessary to hold constant all of the other factors, besides government assistance, that might be correlated with the rate at which the firms went out of business. Information was available on the size of the firms and the industry in which they operated, and these were thought to be characteristics that could be related to the propensity of the firms to go out of business. Information is not available on other factors such as differences in management skills, age, and capitalization although these factors may be rele-

²The *Manitoba Trade Directory*, with 1500 firms, claims to include the vast majority of Manitoba firms, and this claim is supported by independent Statistics Canada data. There are 1529 establishments reported in Statistics Canada (1982) Business Register Tables #27 & #28, Cycle 130, unpublished data reported in Cameron, Dean and Good [3:6].

vant. The industry category implicitly contains some information on markets, but not the information on the detailed market sizes, potentials and changes that is probably relevant. In this study the assumption is made that the selection of firms to receive government assistance is randomly distributed across these characteristics, although the possibility that this is not true is considered in the final section.

The samples of government-assisted and non-assisted firms were compared to see if there was a significant difference in the distributions of the two samples across the possible sizes of firms and the industries in which they operate. If there is no significant difference in the distribution of the samples across the two firm characteristics, then given the assumptions made, the difference in the rate at which the firms went out of business would be correlated with the difference in the government assistance available. However, if there is a significant difference between government-assisted and non-assisted in the distribution of the firms across the available size and industry categories, then these differences must be corrected for before any correlation with government assistance is made. This can be done by predicting the rate at which government-assisted firms go out of business on the assumption that they have the same out-of-business rate as the non-assisted firms but are distributed differently across the available firm sizes and industry categories, as compared with the sample of firms that did not receive government assistance. The out-of-business rate that is predicted in this way for government-assisted firms is then different from the actual out-of-business rate for the non-assisted firms only because of a difference in the industrial structure between the two samples. It is then possible to test whether the actual out-of-business rate for the government-assisted firms is significantly different from the out-of-business rate for the same government-assisted firms should they have gone out of business at the same rate as the non-assisted firms. This amounts to a test of whether the government assistance by itself, having adjusted for industrial structure, is significantly correlated with the out-of-business rate for the government-assisted firms. As noted above, this does not prove that government assistance is the causal factor, and alternative explanations are explored in the final section.

The information on the samples of government-assisted and non-assisted firms is provided in Tables 1 and 2 respectively. In both cases the firms are categorized by 8 sizes and 20 industry categories. It is appropriate to test whether the two samples are drawn from the same population across one or both of the two characteristics. Using a chi-squared test, it is not possible to accept the hypothesis at the 95 percent confidence level that they are drawn from the same distribution

Table 1

THE DISTRIBUTION OF GOVERNMENT-ASSISTED FIRMS BY
STANDARD INDUSTRIAL CLASSIFICATION (SIC) AND BY
NUMBER OF EMPLOYEES, MANITOBA, 1975*

Industry	Number of Employees								Total
	1-10	11-25	26-50	51-100	101-200	201-500	501-1000	Over 1000	
Food and beverage	5	5	3	3	0	0	0	0	16
Tobacco products	0	0	0	0	0	0	0	0	0
Rubber and plastic	1	3	0	1	1	0	0	0	6
Leather	0	0	0	0	0	0	0	0	0
Textile	0	1	1	1	0	0	0	0	3
Knitting mills	0	0	1	0	1	0	0	0	2
Clothing	0	0	0	1	4	1	1	0	7
Wood	1	3	3	2	0	2	0	0	11
Furniture & fixtures	1	5	2	1	1	0	0	0	10
Paper & allied ind.	1	1	0	0	3	0	0	0	5
Printing & publishing	3	8	1	4	1	0	0	0	17
Primary metals	0	1	2	1	1	1	0	0	6
Metal fabricating	7	6	2	0	2	1	1	0	19
Machinery	2	2	2	2	2	3	0	0	13
Transportation	2	3	2	1	0	1	1	2	12
Electrical products	1	1	2	1	0	0	0	0	5
Non-metallic mineral products	0	0	0	1	0	0	0	0	1
Petroleum & coal products	0	0	0	0	0	0	0	0	0
Chemicals & chemical products	0	0	2	1	0	0	0	0	2
Miscellaneous	2	1	2	1	0	0	0	0	7
Total	26	40	25	21	16	9	3	2	142

* Only 142 of the 310 government-assisted firms are listed in the *Manitoba Trade Directory*.

Source: *Manitoba Trade Directory*. Winnipeg: Department of Industry, 1975.

Table 2

THE DISTRIBUTION OF NON-GOVERNMENT-ASSISTED FIRMS BY
STANDARD INDUSTRIAL CLASSIFICATION (SIC) AND BY
NUMBER OF EMPLOYEES, MANITOBA, 1975

SIC Code	Number of Employees								Total
	1-10	11-25	26-50	51-100	101-200	201-500	501-1000	Over 1000	
Food & beverage	16	9	5	2	8	3	1	0	44
Tobacco products	0	0	0	0	0	0	0	0	0
Rubber & plastic	3	2	0	0	0	0	0	0	5
Leather	0	4	1	1	1	1	0	0	8
Textile	8	4	0	1	0	0	0	0	13
Knitting mills	0	0	0	0	0	0	0	0	0
Clothing	9	4	4	3	4	1	1	0	26
Wood	10	2	0	2	1	0	0	0	15
Furniture & fixtures	14	2	1	2	1	1	0	0	21
Paper & allied ind.	0	1	2	1	1	1	0	0	6
Printing & publishing	30	7	4	4	3	1	0	0	49
Primary metals	1	0	2	0	0	0	0	1	4
Metal fabricating	18	10	6	4	0	1	0	0	39
Machinery	8	3	2	2	3	1	1	0	20
Transportation	4	5	5	1	1	0	0	0	16
Electrical products	5	3	0	1	1	1	0	0	11
Non-metallic mineral products	13	4	0	1	2	1	0	0	21
Petroleum & coal products	2	0	0	0	0	0	0	0	2
Chemicals & chemical products	3	4	4	2	0	0	0	0	13
Miscellaneous	18	6	0	1	1	1	0	0	27
Total	162	70	36	28	27	13	3	1	340

Source: *Manitoba Trade Directory*, Winnipeg: Department of Industry, 1975.

of firm sizes.³ Also, using a chi-squared test, it is not possible to reject the hypothesis at the 95 percent confidence level that the samples have the same distribution across industry categories.⁴ However, the significant difference between the two samples in one of the characteristics suggested that the study proceed on the conservative assumption that the industrial structure is different for the two groups of firms.⁵ Consequently, a predicted failure rate was computed for the government-assisted firms on the assumption that the government-assisted firms had a different industrial structure but went out of business at the same rate as the non-assisted firms. This was done by computing the out-of-business rates for each of the 160 cells for the sample of non-assisted firms and weighting this out-of-business rate for each cell by the number of government-assisted firms in that same firm size and industry category. This yielded the number of government-assisted firms that would be predicted to go out of business if the government-assisted firms went out of business at the same rate as the non-assisted firms. Adding the predictions for each cell yielded the total number of government-assisted firms that are predicted to go out of business, given their own industrial structure, if they went out of business at the same rate as the non-assisted firms.

It is useful to clarify the comparisons that are made and the significance of each comparison. The study yields data on the actual number of firms that went out of business, both in the sample of government-assisted and the sample of non-assisted firms. In addition, an out-of-business rate is predicted for the government-assisted firms, assuming that they go out of business at the same rate as the non-assisted firms but have a different industrial structure. A comparison of the actual out-of-business rate for the non-assisted firms and the predicted out-of-business rate for the government-assisted firms is a test of the difference due to the difference in the firm sizes and industrial categories for the two samples and not a test for the presence of government assistance. This is because the out-of-business rate for each of the 160

³For a chi-squared test to be appropriate, each cell must have at least five observations. Combining the three largest employment size categories ensures that this condition was met. The chi-squared statistic, with 5 degrees of freedom, is 37.08. The critical value at the 5 percent level is 11.07.

⁴Again combining industry categories to ensure that each cell has at least five observations leaves 13 industry categories for the chi-squared test. The chi-squared statistic is 20.34 with 12 degrees of freedom. The critical value at the 5 percent level is 21.026.

⁵To anticipate the results, this is conservative since it attributes some of the observed difference in the rate at which the government-assisted firms go out of business to the difference in the industrial structure of the firms in the two samples. This would then tend to understate the effect of government assistance alone.

cells is the same, since in both cases it is the out-of-business rate for the non-assisted firms that is used. A second test is a test of the difference between the actual out-of-business rate for the government-assisted firms and the predicted out-of-business rate for the same government-assisted firms. Any difference is attributed to the existence of the government assistance alone. These two comparisons account for the entire difference between the actual out-of-business rates for the government-assisted and non-assisted firms if there are no other significant factors to be included in the study.

The study was designed to find out how many of the 650 firms went out of business. The procedure adopted was to start with the 1985 *Manitoba Trade Directory* to see if each firm was still in business. Since firms must respond annually to be reincluded in the Directory, a current listing indicated that the firm was recently still in business. This procedure was successful in locating approximately 500 of the 650 firms.

Tracking down the firms that were not included in the 1985 *Manitoba Trade Directory* was done in several iterative stages. First, the bankruptcy records of Consumer and Corporate Affairs Canada were searched for the missing firms. This turned up a small number of the firms. Second, phone contact was attempted with the firm or its senior executive, using information provided in the 1975 *Manitoba Trade Directory*. When contact could be made, this procedure provided still more information on the status of the firms in question. Third, telephone contact was made with competitors or individuals who were knowledgeable about a specific industry, such as officials of trade associations or relevant government departments. This provided some information on still other firms. Fourth, letters were written to the firms still missing enclosing a questionnaire asking for their status, and this questionnaire was followed up with a second questionnaire asking for their status approximately three weeks later. This procedure provided information on still more firms. At the completion of the study, 20 firms had still not been located. Of these, 11 had received government assistance and nine were unassisted. While it is tempting to assume that any firm so difficult to find must be out of business, this has not been done, and the missing firms are simply listed as missing. Partly this caution reflects our knowledge of the factors that make a firm difficult to locate, factors which, in retrospect, might have been a part of such a study. Firms were found that had changed name for a number of reasons (including death of the previous owner) and firms that had sold out to a large concern and were being operated as separate divisions. As long as the firm was still operating in some form, it was classified as still in business. This may be the case for the 20 missing firms, so an assumption of their demise is difficult to support.

An attempt was also made to identify the year in which a firm had gone out of business. This was only partly successful. As part of the search procedure, the bankruptcy records of Consumer and Corporate Affairs Canada were searched for bankruptcies prior to 1985, so the precise year of bankruptcy could be provided. Some of the firms that went out of business for reasons other than declaring official bankruptcy could also be identified with a specific year of closure. However, some of the data were collected from such indirect sources as competitors and officials of trade associations, and information on the year of closure was not always available from these sources.

Results

The major results are reported in Tables 3 and 4. First, part of the search procedure for identifying firms that were not still in business involved searching the bankruptcy records of Consumer and Corporate Affairs Canada. Consequently, it is possible to report data on the bankruptcy rates for both the government-assisted and non-assisted firms included in the study. The bankruptcy figures for the government-assisted firms apply to the 310 firms that received assistance during the 1973-77 period, irrespective of the firm size or industry classifications. Only three of the 310 government-assisted firms had gone bankrupt by 1984. There were four official bankruptcies among the sample of 340 non-assisted firms by the end of 1984. These yield bankruptcy rates of 1 to 1.18 percent of the stock of government-assisted and non-assisted firms respectively.

It is difficult to find comparable data on bankruptcy rates for Canada, and such data are not available for Manitoba. Both Statistics Canada and Consumer and Corporate Affairs Canada publish data on the total number of bankruptcies per year, but do not relate this total to a specific base such as the total number of firms. Dun and Bradstreet report the number of bankruptcies per 10,000 recorded firms, which does permit calculation of an overall bankruptcy rate at the national level. Using the Dun and Bradstreet data, Mason and Strain [8] report the national bankruptcy rate fluctuated near .9 percent per year during the 1970s. The evidence suggests that the bankruptcy rate is similar for the samples of government-assisted and non-assisted firms in Manitoba, and similar overall for the total sample of 650 firms in Manitoba and the total for Canada as a whole.⁶

⁶The comparison of bankruptcy rates is complicated by a consideration of why firms go bankrupt. The assumption made in the discussion in the text is that there is a possibility that some of the stock of firms will go bankrupt for firm-specific reasons, such as deficiencies in management or capital resources. These are not

This study, however, attempts to document the number of firms that went out of business for any reason, of which bankruptcy is only one. Mason and Strain [8] express the conventional wisdom that for every firm that declares bankruptcy, ten firms go out of business. Such estimates are difficult to verify without a detailed search for missing firms, but such a search was appropriate for this study. The government-assisted firms were the most difficult to locate; of the 27 firms that were missing, 16 were out of business and 11 could not be located. For the 56 missing firms that did not receive assistance, 47 were found to be out of business and 9 could not be located. The greater success in locating non-assisted firms is partly due to the fact that they were all listed in the 1975 *Manitoba Trade Directory*, and so historical information was available on the addresses and names of the chief officers for these firms in 1975. Such data were not available for all the government-assisted firms, and even the assisting government department was unable to find addresses at this late date for all the firms that received assistance from 1973 to 1977.

The results of this search suggest that only a small percentage of the firms that go out of business actually declare bankruptcy. Of the 19 government-assisted firms that were out of business for all reasons, 3, or 15.8 percent, declared official bankruptcy. For the sample of firms that did not receive assistance, 51 were out of business for all reasons and 4 of these declared official bankruptcy. This amounts to 7.8 percent of non-assisted firms that declared bankruptcy. It does appear that bankruptcy is just the tip of the iceberg when examining the number of firms that go out of business.

Furthermore, the results suggest that there is a difference between the percentages of firms out of business for all causes when comparing the government-assisted and non-assisted firms. When examining the government-assisted firms, 19 of 310 firms are out of business, amounting to 6.1 percent of the total number of firms that received assistance under RDIA in the 1973-77 period. For the sample of 340 firms that did not receive assistance, 51, or 15 percent of the total, are out of business. These totals suggest that there is a difference in the percentage of firms out of business in the two groups and that fewer of the government-assisted firms went out of business by 1984. What is

invariant over time and may be correlated to the age of the firms, but this additional complication is ignored. If the firms go bankrupt principally because of changes in the external environment, then an adjustment for firm-years would be appropriate, since such shocks occur each year. The McKinley [10] study suggests that firm-specific causes are most important (management difficulties). The Mason and Strain [8] study indicates that external factors, interest rates and business conditions, are relatively unimportant. These results support the interpretation used in this study.

Table 3

THE STATUS OF ASSISTED AND NON-ASSISTED FIRMS
MANITOBA, 1985

Type of Firm	Total Firms	Firms In Business	Status of Firms Out of Business		
			Bankrupt	Other	Missing
Assisted firms that received assistance in:					
1973	44	36	1	5	2
1974	44	39	0	3	2
1975	72	62	1	7	2
1976	67	64	0	1	2
1977	83	79	1	0	3
Total, assisted firms:	310	280	3	16	11
Non-assisted firms:	340	280	4	47	9

Sources: *Monthly Report to Parliament on Industrial Incentive Grants*, Ottawa: Queen's Printer, various years; *Manitoba Trade Directory*, Winnipeg: Department of Industry, various years; Winnipeg: Manitoba Telephone Directories, various years; and personal contact with the firms of industry-knowledgeable individuals.

Table 4

DATE OF FIRM FAILURE BY TYPE OF FIRM
MANITOBA, 1975-1984 INCLUSIVE

Year	Government-Assisted			Non-Assisted		
	Bankrupt	Other	Total	Bankrupt	Other	Total
1975	0	2	2	1	3	4
1976	0	0	0	0	13	13
1977	1	3	4	1	4	5
1978	0	1	1	1	7	8
1979	2	3	5	0	3	3
1980	0	1	1	1	10	11
1981	0	2	2	0	6	6
1982	0	2	2	0	1	1
1983	0	2	2	0	0	0
1984	0	0	0	0	0	0
Total	3	16	19	4	47	51

Sources: *Monthly Report to Parliament on Industrial Incentive Grants*, Ottawa: Queen's Printer, various years; *Manitoba Trade Directory*, Winnipeg: Department of Industry, various years; Winnipeg: Manitoba Telephone Directories, various years; and personal contact with the firms of industry-knowledgeable individuals.

not known is if the presence of government assistance alone explains the difference or whether the difference is simply due to the propensity of the government to give assistance to firm sizes and industry categories in which firms are less likely to go out of business.

As noted above, it is possible to isolate the influence of the presence of government assistance by predicting the number of government-assisted firms that would go out of business if the government-assisted firms went out of business at the same rate as the non-assisted firms but had a different industrial structure. Using the sample of 142 government-assisted firms on which information on both firm size and industry category are available (Table 1) and the actual proportions of non-assisted firms that went out of business in each category, the predicted out-of-business rate for the government-assisted firms is 14.62 firms, or 10.3 percent of the total. Since the sample of 142 government-assisted firms on which detailed data are available is assumed to be representative of the 310 firms that received government assistance in total,⁷ this suggests that the predicted out-of-business rate for the 310 government-assisted firms is 32 firms, or 10.3 percent, if they had gone out of business at the same rate as the non-assisted firms. Comparing this result with the 15 percent of the non-assisted firms that went out of business is then a comparison of how much of the difference is due to the actual differences in the distribution of the two samples of firms across the available firm sizes and industry categories, since the going out of business rate is the same in both cases.⁸

This permits a test of whether the rate at which the government-assisted firms went out of business was significantly lower due to the presence of government assistance. The actual number of the 310 government-assisted firms out of business is 19 firms, while the number predicted to be out of business if they went out of business at the same rate as the non-assisted firms is 32. Using the test of the

⁷Based on the rate at which the firms went out of business, the sample of 142 firms does appear representative of the 310 government-assisted firms. Of the sample of 142 government-assisted firms, 5 firms went out of business compared to 19 of the total of 310 government-assisted firms in the study. A test of the difference in proportions between the two results cannot reject the hypothesis that the same proportion of the firms went out of business. The z-value is 1.12 with the critical value at 1.96 at the 95 percent confidence level.

⁸A test of difference between two proportions is appropriate here. Comparing the 10.3 percent of the government-assisted firms with the 15 percent of the non-assisted firms yields a z-statistic of 1.373 (critical value = 1.96). This suggests that the difference in the industrial structure of the two samples did not make a significant difference in the rate at which the firms went out of business, although as noted, the distribution of the two samples across the available firm sizes is significantly different (see p. 173 and footnote 3).

difference in proportions, it is not possible to accept the null hypothesis that the rates at which they went out of business is the same.⁹ This result is invariant to whether the test is on the number of firms out of business among the 142 government-assisted firms whose industrial structure is known.¹⁰ There is a significant difference in the number of firms out of business among the government-assisted firms associated specifically with the presence of the government assistance, although causation is not proven. Fewer of the government-assisted firms went out of business.

An additional issue concerns when the firms went out of business. This information is available for the few firms that went bankrupt beginning in 1975, the earliest year of computerized bankruptcy records, until 1984, the latest year for which official bankruptcy records were searched. Firms that went out of business during other years are included with the firms for which the date of expiry is unknown. The data are provided in Table 4. There are a limited number of data points, even if the sample from which these were drawn is large. It would be interesting to examine why the rates fluctuate and why the fluctuation appears to be greater for non-assisted than for assisted firms. Unfortunately, the limited data did not permit exploration of these issues.

Economic and Institutional Explanations

The first Canadian evidence on the out-of-business rates for government-assisted and non-assisted firms is interesting in itself. However, these results raise a number of questions that may be usefully addressed in future research. In particular, why is the out-of-business rate lower for government-assisted firms? Additionally, what is the relative importance of each of the various factors that may be at work? Finally, is this result common across the regions of Canada?

The current literature suggests several explanations that may be consistent with these results. Some of these can be categorized as economic and some as institutional explanations. It is interesting to examine briefly some of these potential explanations. The policy implications of the various explanations is sometimes different, so that it may be important to sort out the quantitative contribution of each one to the final result.

⁹The z-value is 5.5 with a critical value of 1.96, suggesting that the null hypothesis of no difference between the proportions cannot be accepted at the 95 percent confidence level.

¹⁰The z-value is 2.25 with a critical value of 1.96, again suggesting that the null hypothesis of no difference between the proportions cannot be accepted at the 95 percent confidence level.

Economic Explanations

One possible explanation is suggested by a model developed by Usher [12], who noted that industrial assistance programs are only available for marginal expansions of an industry. Under increasing costs, the marginal expansion could only be undertaken at a cost higher than would allow the firm to earn a normal return on its investment. Consequently, some assistance is required to compensate the firm for the cost disadvantage on the marginal investment or the industry will not expand. In Usher's explanation, the marginal investment is identified with the entry of a new firm, but this need not be so. The marginal investment could also be undertaken by an established firm, as are many of the firms included in this study.

Usher argued that the supply curve for an industry may be upward sloping because of firm-specific factors or because of industry-wide pecuniary externalities. If firm-specific factors are involved, then a marginal subsidy program does not affect the other firms in the industry and so the government assistance program can work. If industry-wide pecuniary externalities are involved, then other firms in the industry are affected and so the program will be ineffective. The reason for arriving at this conclusion in the case of pecuniary externalities is that the assisted firm receives compensation for higher cost conditions that will be faced by all firms, and so secures a competitive advantage over the existing firms in the industry. In Usher's model [12], with identical firms and the marginal investment being undertaken by a new firm, the new firm will replace an older established firm and the net increase in industry output will be zero. However, it is not necessary for the marginal investment to be undertaken by a new firm to get essentially the same result. In the firms included in this study, the marginal expansion may be undertaken by an established firm that begins with strong capitalization. In that event, the assisted firm will still survive, and some other firm, which may also be established but less well capitalized, will leave the industry, and the net increase in industry output will again be near zero. This second effect, working through industry-wide pecuniary externalities, can be called the Usher effect.

The Usher effect can work through either the output or input markets. In some cases, assisted firms directly compete with non-assisted firms and so may depress output prices and reduce average revenues for non-assisted firms. However, in many cases firms are competing in similar or related markets for labour, capital, and land, and it can be through these markets that input prices for the industry rise. To the extent that there is an Usher effect at work, the out-of-business rate would be lower for government-assisted than for non-assisted firms. This is consistent with the results reported here.

A second explanation is that assistance might succeed in permanently overcoming the disadvantages of locating in a region. If a firm faces firm-specific cost disadvantages, such as initially learning to operate either in the region or in a new product market, then initial assistance may be justified. Indeed, if the increased economic activity generates agglomeration economies, then costs will be reduced for firms already operating in the region. Fewer new firms that receive assistance should then go out of business relative to new firms without assistance. Established firms that receive assistance have already overcome the disadvantages of operating in the region but, to the extent that they are operating in a new product market, will be more likely to survive than they would have been if they had undertaken the same initiative without the assistance. This explanation has a problem in practice, since actual employment in the affected sectors has risen marginally while government claims of new jobs created amount to much of the total employment actually occurring. This phenomenon was documented by Usher [12] and confirmed recently by Cameron, Dean and Good [3] specifically for Manitoba.

A third explanation is that the assisted firms are better managed than the existing firms. McKinley [10] reports that financial problems account for only about 3 percent of firm bankruptcies while management difficulties may account for 70 percent of firm failures. If assisted firms are better managed, then they should go out of business less often. There are two reasons to suggest that this may be the case. First, branch plants of existing firms, including multinational corporations, may be differentially successful at obtaining government assistance [4]. These firms receive managerial assistance from the head office of the enterprise and so may be better managed than independent enterprises. Second, the management of many existing firms in the disadvantaged region may be below average. This may be true where the existing firms are run largely as family businesses with a history of operating in relatively uncompetitive markets [1]. Such firms may be less likely to be expanding or entering new product markets as compared with better managed firms. In both cases assisted firms may not have required the government assistance. However, with government assistance, the assisted firms are predicted to have a lower failure rate than non-assisted firms. This is consistent with the results reported above.

Institutional Explanations

Institutional factors may also be involved. Over half of the government-assisted firms have less than 50 employees and over one-third have less than 25 employees (Table 1). These are small businesses, and small businesses prefer government programs to be as simple as possi-

ble. Indeed, few of them acquire their financing through government programs [3]. There may be a self-selection process at work, whereby those firms that apply for assistance are better able to cope with the bureaucratic decision-making process. Indeed, some firms may actually court bureaucratic contacts in order to increase their chances of securing government assistance. Self-selection may work in another way also. It may be the more innovative and aggressive firms that are seeking to expand, and these firms may dominate the more staid and conservative firms with or without government assistance. In short, the lower rate at which government-assisted firms go out of business may be due to a fundamental difference in their possibilities for success before assistance is considered.

It may also be that government officials are differentially successful at picking firms likely to succeed. The evidence cited above indicates that they may have a tendency to be conservative in their choices and pick firm sizes and industries with the greatest probability of success. After the documentation of some spectacular failures, such as in Mathias [9], this conservatism may be understandable. It is also understood that politics is not absent from the program [7]. However, despite these problems it may be that the selection process used by government officials is designed to identify other firm characteristics, such as superior management, that predispose a firm to succeed. In short, the government-assisted firms may be more successful precisely because government assisted firms with greater potential for success even in the absence of assistance.

Summary and Conclusions

This study was undertaken to identify the out-of-business rate of government-assisted firms in Manitoba and to identify whether the presence of government assistance was correlated with the rate at which they went out of business. To do this the going-out-of-business rate was also computed for a random sample of non-assisted firms. While the results need to be interpreted with caution, they suggest that the going-out-of-business rate is lower for the government-assisted firms and that this is related to the presence of government assistance even after firm size and industry category are accounted for. This is the first such study of this question that we are aware of in Canada.

However, there are other issues that arise when possible explanations are considered. There are several factors that may explain the results in part, and it would be useful to know which of them are most important quantitatively. It might even be possible to attempt to quantify the relative importance of each factor. To do so would

require detailed information on the characteristics of each firm, its interactions with other firms, and the characteristics of the program itself. This is a formidable task, but one that may justify the use of the significant resources required to tackle it.

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