Small Business Failure Rates: Choice of Definition and the Size Effect

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Results of many previous studies on the rate of small business failure suggest an inverse relationship between size of business and propensity to fail. However, it has been suggested that this inverse relationship, between firm size and the rate of discontinuance, may more accurately be characterized as an inverse relationship between age of business and the rate of discontinuance. While some studies have confirmed the positive association between failure and age, they have generally found that a size effect persists even after controlling for age. The central objective of this study is to show how reported failure rates may depend heavily on the definition of failure adopted, and to examine the proposition that the results of previous studies reporting a negative association between propensity to fail and business size may have been driven by the choice of failure definition.

I. INTRODUCTION

Much small business literature, and the surrounding folklore, assumes that the probability of failure increases as the size of a business decreases; and that small business failure rates are unacceptably high. If government policy makers are influenced by this literature, and folklore, then policy concerning small business will be driven by this belief. However, the literature indicates a wide dispersion in reported failure rates. This large variance in reported failure rates must surely confuse policy makers, and others, interested in the small business sector. Haswell and Holmes (1989, p. 68) argued that:

> Although some indication of the rate of failure may be appropriate, attempts to increase the precision of these statistics may be neither fruitful nor helpful. In particular, failure statistics which enable broad cross-industry comparisons will be more useful than attempts to specify accurately the 'actual' rate of fail-

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ure. Instead it is suggested that resources be directed to further research into the causes of failure.

The difficulty with this line of reasoning is that it presupposes a problem that may not exist (or may be overstated). Presumably some level of failure would be expected in a competitive environment; as less efficient firms are replaced at the margin. We would also expect some businesses (especially small businesses) to close, or to be sold, for reasons other than failure.

Before allocating resources to determining the causes of small business failure (presumably with the aim of reducing the rate of failure), we should first be satisfied that the current rate of failure is unacceptably high. Government assistance, whether to very small businesses or to particular industry sectors, should not be based on incorrect conclusions resulting from inappropriate definitions of failure.[1]

The central objective of this study is to show how reported failure rates may depend heavily on the definition of failure adopted, and to test certain hypotheses concerning the relationship between reported failure rates and the size of shopping center within which a business is located. To the extent that size of shopping center may be a proxy for size of business it is hoped that a better understanding of the relationship between propensity to fail and size of shopping center will lead to a re-evaluation of the commonly held belief that smaller businesses experience higher failure rates. In turn it is hoped that a better understanding of the effect that choice of failure definition may have on reported failure rates will lead to improved policy decisions by governments, financial institutions and other groups with an interest in small business.

II.   DEFINITIONS OF SMALL BUSINESS FAILURE

Because there are no formal reporting requirements for the majority of small businesses, it is difficult, if not impossible, to obtain sufficient reliable information to measure their performance in an economic sense, ie rate of return on capital. Most studies have, therefore, relied on some recorded event as a surrogate measure of failure. The two events for which data has been most readily available are: the discontinuance of a business for any reason; and formal bankruptcy proceedings. Between these two extremes, two further definitions have been proposed: termination to prevent further losses (Ulmer & Nielsen, 1947); and failure to 'make a go of it' (Cochran, 1981).

The first definition of failure (discontinuance of a business for any reason) is the least homogeneous, with many variations in the way discontinuance is defined. At one extreme, discontinuance includes every change in ownership or closure (referred to as *discontinuance of ownership*). At the other extreme, a discontinuance is recorded only when a business ceases to operate (referred to as *discontinu-*

ance of business). Fredland and Morris, (1976, p. 7) argued that business discontinuance is a proxy for failure, as discontinuance suggests that resources have been shifted to more profitable opportunities. Churchill (1952, p. 13) notes, however, that the sale or liquidation of a business does not necessarily imply failure because many businesses are given up due to illness or retirement or because of alternative opportunities.

Both these definitions appear to be biased against small businesses because, other things being equal, small businesses have lower start-up and closure costs associated with them; and a greater dependency on the life cycle of their owners.[2] Establishing a small business generally requires a relatively lower level of capital and other commitments, such as rent and supplier credit. Given the comparatively lower hurdle for establishing a smaller business, they could be expected to have higher discontinuance (and establishment) rates. This would apply both to *discontinuance of ownership*, and to *discontinuance of business*.

It should also be noted that corporate transfers of ownership are typically treated differently from transfers of ownership by sole traders or partnerships. Whenever a sole trader or partnership sells a business it is generally treated as a discontinuance of one business and the start-up of another; on the other hand, a transfer of shares in a company (even if in entirety) is generally not treated as a business discontinuance (Star & Massel, 1981). This inconsistency of treatment could lead to a serious bias in which sole traders or partnerships appear to discontinue (and by implication fail) more often than comparable corporate entities.

Dun and Bradstreet (1979, p. 15) defined as failures: businesses that go into bankruptcy or cease operations with resulting losses to creditors. The implication is that continuing businesses and businesses that cease without loss to creditors (although there may have been losses to the owners) are regarded as non-failed. This appears to be a very narrow definition of failure and may exclude many businesses that would commonly be regarded as having failed. For example, businesses that are barely breaking even, providing neither a reasonable income for the owner, nor a fair return to the investor, could be regarded as 'failing' businesses (Land, 1975, p. 1), but would not be included in this definition.

Using *bankruptcy* as a definition of failure should result in higher reported failure rates for larger businesses because, on average, they are likely to have relatively larger commitments and greater tangible assets. Creditors are more likely to pursue bankruptcy proceedings where the amounts owed are relatively large and where tangible assets exist.[3] Therefore, this definition of failure may be biased in favor of small businesses.

Ulmer and Nielsen (1947, p. 11) defined as failures, those firms that were disposed of (sold or liquidated) with losses to prevent further losses. Losses in this context include the owner's capital and, therefore, a business could be regarded as having failed even though there may have been no loss to creditors.

Defining failure to include businesses that were sold, or ceased, to prevent further losses, appears more relevant (particularly for owners or potential owners; advisers to small business; and policy makers) than using a measure based on either discontinuance or bankruptcy. However, it is not as simple, nor as objective a measure, because it has to rely, at least in part, on the opinion of someone associated with the business.

Cochran (1981, p. 52) suggested that 'failure should mean inability to "make a go of it", whether losses entail one's own capital or someone else's, or indeed, any capital'. This definition is wider than that suggested by Ulmer and Nielsen as it would, presumably, include as failed any businesses that were not earning an adequate return (or were not meeting other owner objectives). The main difficulty with this definition is that most studies have relied on business closure, or sale, to trigger the classification of the business as either failed or non-failed. However, some businesses may continue operating even though they would be classified as having failed under this definition. In addition, as mentioned above, an adequate return is hard to define: many small business proprietors may be willing to accept low financial returns as the cost of independence.

While this definition of failure appears to be the most relevant (particularly for owners or potential owners; advisers to small business; and policy makers) it is clearly the most subjective. It would generally have to rely on the opinion of someone associated with the business and, therefore, any results could be difficult to verify. However, the use of consistent judges (such as property managers) who are independent of the businesses concerned, may permit comparison between groups or types of business.

For these last two definitions of failure (*to prevent further losses* and *failed to 'make a go of it'*) there is no reason to believe that either would be biased for, or against, smaller concerns. It should be noted that generally the definition of failure used by researchers has, to a large extent, depended on the nature of the data available.[4]

III. PREVIOUS RESEARCH

The results of many previous studies on the rate of small business failure suggest an inverse relationship between size of business and propensity to fail. However, Jovanovic (1982) argued that this inverse relationship, between firm size and the rate of discontinuance, may more accurately be characterized as an inverse relationship between age of business and the rate of discontinuance. He argued that firms learn about their efficiency as they operate in an industry. The efficient grow and survive; the inefficient decline and fail. For this reason, older businesses are more likely to survive and to be larger businesses. Therefore, size may simply be

a proxy for age and indeed there may be little or no relationship between the size of a business and its propensity to fail, after controlling for age.

While some studies subsequent to Jovanovic confirm the positive association between failure and age (Stewart & Gallagher, 1986; Evans, 1987; Bates & Nucci, 1989; Dunne, Roberts, & Samuelson, 1989), they have generally found that a size effect persists even after controlling for age. The studies and their findings are summarized in Table 1.

Phillips and Kirchoff (1989) also noted that failure rates more than halved for firms that grew. They found that even a small amount of growth reduced the average failure rate, within 5 years, to 34%; and that the earlier in the life of the business that growth occurred, the lower the chance of failure. An exception to this pattern was found in mining companies; they exhibited increasing failure rates with growth. However, the paper provided little theoretical justification to support growth as a factor in reducing failure. Indeed, growth is often accompanied by a need for additional capital and many studies have identified under-capitalization as a major cause of failure.[5] This lack of a theoretical underpinning, together with a definition of failure that may be inappropriate, could have led the authors to the following curious comment suggesting a possible explanation for the unusual result found for mining companies. The authors suggested that, for mining companies, the increase in failure rates with growth 'may be due to mining firms growing too much at an early age. Such firms may be prone to over extension or even

Table 1
Summary of Studies Examining Failure as a Function of Age and Size

Author	Sample	Findings
Failure defined as 'Discontinuance of Ownership'		
Stewart & Gallagher 1986	UK: 1971-83 400,000 firms across all industries, from Dun and Bradsteet (UK)	Failure rates ranged from 5% - 8.1% p.a and varied inversely with size and age
Evans 1987	US: 1976-80 all firms operating in 100 manufacturing industries, from Dun and Bradsteet	Failure rates varied inversely with size and age
Phillips & Kirchoff 1989	US: 1976-86 3.62 million business firms, from Dun and Bradstreet	60% of new firms failed within 5 years and failure rates varied inversely with size and growth
Failure defined as 'Discontinuance of Business'		
Bates & Nucci 1989	US: 1982-86 125,000 business owners, from US Bureau of Census	Failure rate averaged 7.5% p.a. and was inversely related to size even after controlling for age
Dunne, Roberts & Samuleson 1989	US: 1967-77 200,000 manufacturing plants, from census of IRS social security tax records	45% of plants failed within 5 years and failure rates varied inversely with size and age

exhaustion of their natural resources and therefore fail' (p. 72). An alternative explanation may be that the owners of small high-growth mining companies were often bought out. Because of the definition of failure used by Phillips and Kirchoff (*discontinuance of ownership*) mining companies that were bought out would be recorded as failures.

The results of research to date appear to conflict with the suggestion by Jovanovic (1982) that the inverse relationship between firm size and the rate of discontinuance may more accurately be characterized as an inverse relationship between age of business and the rate of discontinuance. However, all the studies discussed above used either *discontinuance of business* or *discontinuance of ownership* to define failure. It is possible that the choice of failure definition may be clouding the issue and that the adoption of an alternative (more appropriate) definition of failure could result in a finding that supports Jovanovic's proposition.

IV. HYPOTHESES

Jovanovic (1982) appeared skeptical of studies that reported an inverse relationship between firm size and failure and he suggested that, other things being equal, this relationship may more accurately be characterized as an inverse relationship between age of business and the rate of discontinuance. However, rarely are other things equal. Businesses may vary on a number of dimensions, for example: type of industry; experience of owner; location, size, and age of business; debt levels; and the level of external advice received. The ultimate performance of a business will inevitably be impacted by these various factors. Given the difficulty obtaining suitable data on small businesses it is almost impossible to conduct a properly designed research study that adequately controls for the effects of these potentially confounding variables. The situation is made even more difficult by the lack of a generally agreed and suitable measure of *failure*.

This study is an attempt to highlight how different measures of failure might impact reported failure rates. In the remainder of this section a number of hypotheses are developed concerning the expected relationship between small business failure rates (for the various definitions of failure discussed previously) and size of shopping center within which a business is located.

From discussions with shopping center managers it was established that, in general, larger centers were typically located in the metropolitan area close to a major city; smaller centers, by comparison, were typically located in the outer suburbs or in country areas. Given the generally better location of the larger centers they could be expected to generate greater customer sales (per square meter of floor space) by comparison with a smaller center. Therefore, the costs (and revenues) associated with a business locating in a large center are likely to be greater than the costs associated with locating in a smaller center. The higher costs would

include both fixed and variable components. For example, the entry costs in terms of goodwill paid to obtain a lease in a large center are likely to be substantially higher than for entry into a smaller center. Similarly, the rental payments could be expected to be greater for larger centers; because of the better location which should result in higher sales (per square meter of floor space). The expected higher sales turnover in large centers would also require higher levels of working capital (for example, to finance higher stock levels).

Given the above, it seems reasonable to suggest that businesses located in large centers are likely to require relatively higher levels of capital; to cover both higher entry costs and additional working capital needs. While these additional capital requirements may be provided by the owner it is more likely that where there are larger capital needs that some part of the required funding will come from a third party, such as a bank. Given that creditors are more likely to pursue bankruptcy proceedings where the amounts owed and the potential asset base are relatively large, it seems reasonable to suggest that businesses located in larger shopping centers (with relatively higher capital needs) are more likely to end in bankruptcy when things go wrong. Therefore, a reasonable hypothesis is that:

H1: *The probability of failure, as measured by bankruptcy, is positively related to shopping center size.*

Conversely, given the comparatively lower hurdle for establishing a business in a small shopping center they could be expected to have higher discontinuance (and establishment) rates. Owners would generally have less to lose if they sold or walked away from a business in difficulty that had been established in a small shopping center with relatively less owner or third party input. Therefore, it is reasonable to hypothesize that:

H2: *The probability of failure, as measured by discontinuance of ownership, is negatively related to size;* and

H3: *The probability of failure, as measured by discontinuance of business, is negatively related to size.*

There is little in the literature to suggest that using either, *failing to 'make a go of it'* or disposed of *to prevent further losses* as a definition of failure, will result in differential failure rates for small (compared to large) businesses. Indeed, Jovanovic (1982) believed that the inverse relationship between firm size and failure may more accurately be characterized as an inverse relationship between age of business and the rate of discontinuance. Therefore, it is reasonable to hypothesize that:

H4:   *The probability of failure, defined as sale or closure to prevent further losses, is not related to size;* and

H5:   *The probability of failure, defined as sale or closure because the owners failed to 'make a go of it', is not related to size.*

V. DATA SET

A major difficulty in studying small business is the lack of a reliable data source. Bannock and Doran (1980, p. 123) noted that 'Perhaps the most important gap in British Statistics, and indeed in virtually all other countries, is in statistics on new enterprise formation (births) and failures (deaths)'. Once a small business has ceased operating, information concerning the business becomes difficult to obtain. Typically most of the information resides with the owner as there is no systematic reporting of information on small businesses in the same way as is provided for larger concerns and particularly for listed companies.

This study uses data provided by managed shopping centers. Managed shopping centers normally keep on file information concerning their current, and past, small business tenants.[6] The data were collected using an instrument that had been pre-tested and then used for a pilot study prior to commencing the main study.[7]

The final questionnaire was administered nationally to shopping center managers and the resulting data set contained 5,196 small business start-ups over the period 1961-90 in 51 managed shopping centers across the five mainland states of Australia and the Australian Capital Territory.

VI. METHODOLOGY

The failure rate each year, for a given definition, was calculated as follows:

$$p = x/n \qquad \qquad ...(1)$$

Where:
    $p \equiv$ sample proportion of failed businesses;
    $x \equiv$ number of businesses failing in a given period; and
    $n \equiv$ number of businesses in the sample.[8]

Information available on shopping center size was limited: the best available measure of size of each shopping center was the number of small businesses operating within the center at the end of the study. Therefore, as a proxy for size, the data were split into two groups: small businesses located in large shopping centers

Table 2
Comparing Average Annual Failure Rates for Businesses
Located Within Large and Small Shopping Centers

	All	*Large*	*Small*
Bankruptcy	0.7%	0.8%**	0.6%
Prevent further losses	2.3%	2.4%	2.2%
Failed to 'make a go of it'	4.1%	4.1%	4.1%
Discontinuance of ownership	9.4%	9.0%**	10.2%
Discontinuance of busienss	3.9%	3.7%**	4.3%

Notes: *Significantly different from the failure rate in small shopping centers at 5% level using a one tail test.

　　　　**Significantly different from the failure rate in small shopping centers at 1% level using a one tail test.

(those containing more than 50 small businesses); and small businesses located in small shopping centers (those containing 50 or fewer small businesses).[9]

VII.   RESULTS

The average failure rates for businesses in the two groups of shopping centers are reported in Table 2.

The results support hypotheses 1, 2, 3, 4, and 5. As predicted, the failure rate is higher for large businesses when bankruptcy is used as the definition of failure. Conversely, the failure rate is lower for large businesses when either *discontinuance of ownership* or *discontinuance of business* is used as the definition of failure. For the remaining two definitions, *disposed of to prevent further losses* and *failed to 'make a go of it'*, size does not appear to be a factor in the reported failure rates. These results suggest that conclusions from some previous studies demonstrating a relationship between propensity to fail and size of business may have been driven by the choice of failure definition.

VIII.   DISCUSSION OF RESULTS

It is possible that size of shopping center may be a reasonably good proxy for size of business (as measured by annual sales) within the shopping center. As discussed previously, the rental payments could be expected to be greater for larger centers; because of their better location which should result in higher sales (per square meter of floor space).

To test this assertion we contacted each of the shopping center managers that had supplied the original data for this study and asked for further data on annual sales or rental charges. Few center managers had sales data and where such infor-

mation was available it was deemed to be confidential and could, therefore, not be released. Similarly, rental information was deemed to be commercially sensitive and, therefore, confidential. However, we were able to determine that the average rent for the largest center in the small shopping center group was about 70% of that charged by the three largest centers from the large shopping center group. This information provides some limited support for the belief that size of shopping center may be a reasonable proxy for the size of businesses (as measured by retail sales) operating within a center.

Further, for a number of the centers we were able to obtain information, for the last year of the study (1990), on the number of shoppers attracted to the shopping center. The foot-fall traffic through a center is probably the major determinant of the annual rent that can be charged within the center. The more customers attracted to the center the greater the likely sales revenue for the businesses located within the center. Annual data on shoppers attracted to the center were received from 19 (37%) of the managed shopping centers. These 19 centers accounted for some 62% of the businesses in the data set.

As expected, there was a significant ($p<.01$) correlation between number of shoppers attracted to the center and the number of shops within the center. Furthermore, this relationship persisted after standardizing the number of shoppers by the number of shops within the center. In other words, there was still a significant correlation ($p<.05$) between shoppers per shop and the number of shops within the center. This data provides further support for our proposition that size of center (measured by the number of shops within the center) may be a reasonable proxy for the average size of business (as measured by annual sales) within the center.

If it is accepted that size of shopping center is a reasonable proxy for size of businesses within the center then the results provided may have wider implications that challenge the traditional belief that smaller businesses have a higher propensity to fail. Indeed, if bankruptcy is used as the definition of failure small businesses had a lower propensity to fail.

Given the limitations of the data set, and to provide further insight into the relationship between size and the rate of business failure, additional data were obtained for each year over the period 1972-90 on: Australian company delistings; reasons for the delistings; and the number of listed companies. Table 3 shows that the average annual rate of company delistings in Australia was 11.2%. Given that listed companies would generally not meet the definition of a small business, this additional data set can be used to compare failure rates between listed companies (large businesses) and the data set of small businesses located within managed shopping centers.

Da Silva Rosa (1994, p. 104) provided reasons for Australian company delistings for the period 1920 to 1989. Table 4 summarizes his findings. From Table 3 and Table 4 the annual rate of failure, as measured by *discontinuance of*

ownership and *bankruptcy*, can be estimated for publicly listed Australian companies. There is insufficient information to estimate failure rates using the other failure definitions.

The annual rate of failure associated with *bankruptcy* for publicly listed Australian companies is estimated as 1.3% (11.58% * 11.2%). This rate of failure is significantly higher (p<.01) than the average rate of 0.7% for the small businesses operating in managed shopping centers. To estimate the discontinuance rate for publicly listed Australian companies the effects of name changes had to be removed from Table 4. Name changes would not normally be included in any measure of failure and had been excluded from the managed shopping center database. Excluding name changes, the annual failure rate for listed Australian companies, measured as *discontinuance of ownership*, can be estimated at 7.9% (11.2% * (100 - 29.44)%). This discontinuance rate is significantly lower (p<.01) than the aver-

Table 3
Delisting Rates For Australian Public Companies 1972-90

Year	No. Listed Companies	Delistings	
		Number	Percentage
1990	1276	244	19.1%
1989	1396	121	8.7%
1988	1420	194	13.7%
1987	1372	176	12.8%
1986	1097	153	13.9%
1985	998	130	13.0%
1984	949	120	12.6%
1983	932	107	11.5%
1982	974	102	105%
1981	1022	100	9.8%
1980	1031	120	11.6%
1979	1074	118	11.0%
1978	1135	111	9.8%
1977	1220	104	8.5%
1976	1268	127	10.0%
1975	1347	119	8.8%
1974	1398	127	9.1%
1973	1461	140	9.6%
1972	1560	157	10.1%
Totals	22930	2570	11.2%

Notes: (1) Data on delistings were compiled from the Australian Stock Exchange delisting records by Gavin Martin of the Department of Accounting and Finance, The University of Western Australia, 1993.

(2) Data on the number of listed companies were extracted from the June issues of the Australian Stock Exchange Journal for the respective years.

Table 4
Reasons For Company Delistings 1920-89

Reason	*Frequency*	*Percentage*
Name Change	1353	29.44%
Merger/Takeover	1950	42.43%
Liquidation/Receivership	532	11.58%
Other	761	16.56%
Totals	4596	100.00%

Note: Reasons for company delistings were compiled from da Silva Rosa, R., 'The Ecopnomic Consequences of Takeovers in Australia: A Re-Examination', Unpublished PhD Thesis, The University of Western Australia, 1994.

age rate of 10% reported in Table 2 for small businesses operating in managed shopping centers. Although the time periods for the two data sets are not identical, there is sufficient overlap to suggest that these results provide further support for hypotheses 1 and 2. These additional results also support the proposition that the results of previous studies reporting a negative association between propensity to fail and business size may have been driven by the choice of failure definition.

IX. SUMMARY, LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The results of this study suggest that if *bankruptcy* is used to define failure, there is a positive association between size of shopping center within which a business is located and propensity to fail. However, if failure is defined as either *discontinuance of ownership* or *discontinuance of business* there is a negative relationship between size of shopping center within which a business is located and propensity to fail. Between these extreme definitions, if failure is defined as *failed to 'make a go of it'* or *disposed of to prevent further losses,* no significant relationship is found between failure rates and size of shopping center within which a business is located.

Further evidence collected from Australian publicly listed companies supports the belief that the above results may also apply to business size (as opposed to size of shopping center within which the business is located). If this is accepted then the results have wider implications that challenge the traditional belief that smaller businesses have a higher propensity to fail.

This study assumes that center managers can provide an unbiased and consistent opinion on the primary reason for a business being sold or ceasing to operate. However, individual managers may disagree on the primary cause of a discontinuance, and the center manager's opinion may be different from that of the small

business owner. To reduce this potential limitation, center managers were provided with a set of instructions that had been developed during a pre-test and pilot study. In addition, center managers were encouraged to provide as much information as possible and to contact the researchers with any difficulties.

Given this potential limitation and the lack of a good measure of business size, future research using alternative data sources could usefully explore further the relationship between propensity to fail and business size, under various definitions of failure. It is hoped that clarification of this issue will help to ensure that future policy decisions by governments; financial institutions; and other groups with an interest in small business, are more soundly based.

NOTES

1. For example, Lowe, McKenna and Tibbits (1991, p. 79), based on bankruptcy statistics, questioned the provision of government assistance to the manufacturing sector because manufacturers have a higher "failure" rate compared to the retail and service sectors. However, the higher failure rate exhibited by manufacturers could be a function of the definition of failure used.
2. Ang (1992) noted that 'Small businesses can terminate due to the departure or demise of a single individual or the dissolution of a partnership'.
3. Storey, Keasey, et al. (1987, p. 42) suggested that 'manufacturers are more likely to be placed into liquidation' because they are more likely to have purchased fixed assets in order to operate their business. Also, Garrod and Miklius (1990, p. 42) reported that bankruptcies represented 11% of discontinuances for manufacturing concerns but only 6% of retail discontinuances. Similarly, Stewart and Gallagher (1986, p. 46) noted that: 'Sectors which have high capital costs are likely to have higher levels of liquidations and bankruptcies. The firms will be more likely to be in debt and will find it harder to cease trading and simply switch to something else.'
4. Further discussion of these definitions and the justifications advanced for their adoption is provided in Watson and Everett (1993).
5. See, for example, Hall and Young (1991); Peterson, Kozmetsky and Ridgway (1983).
6. For purposes of this study a small business is defined along the lines proposed by the Wiltshire Committee (1971, p. 7) which defined a small business as 'A business in which one or two persons are required to make all the critical management decisions: finance, accounting, personnel, purchasing, processing or servicing, marketing, selling, without the aid of internal specialists and specific knowledge in only one or two functional areas'. The definition used is also in line with more recent definitions proposed by Ang (1991, p. 3) and by Osteryoung and Newman (1993, p. 227).
7. A copy of the final instrument and accompanying instructions can be obtained from the authors.
8. For a given period, n equals: the number of continuing businesses; businesses that were sold or ceased for reasons not associated with failure under the given definition; and the businesses that failed during the period.
9. Fifty was chosen as the cut-off point because it provided a clear break in the data. The next biggest center had 59 continuing businesses; almost 20% bigger than the cut-off center. Using 50 as the cut-off resulted in 32 shopping centers (with 806 continuing businesses) in the small group and 19 shopping centers (with 1,847 continuing businesses) in the large group.

REFERENCES

Ang, J. S. (1991). Small business uniqueness and the theory of financial management. *The Journal of Small Business Finance, 1*(1), 1-13.

Ang, J. S. (1992). On the theory of finance for privately held firms. *The Journal of Small Business Finance, 1*(3), 185-203.

Bannock, G., & Doran, A. (1980). *The promotion of small business: A 7 - country study*. Report Prepared By Economists Advisory Group Ltd. for Shell UK Ltd.

Bates, T., & Nucci, A. (1989). An analysis of small business size and rate of discontinuance. *Journal of Small Business Management,* October, 1-7.

Churchill, B. C. (1952). Survival patterns of the postwar business population. *Survey of Current Business,* December, 12-19.

Cochran, A. B. (1981). Small business mortality rates: A review of the literature. *Journal of Small Business Management, 19*(4), 50-59.

da Silva Rosa, R. (1994) *The economic consequences of takeovers in Australia: A re-examination.* PhD, The University of Western Australia.

Dun, & Bradstreet. (1979). *The business failure record.* New York: Dun & Bradstreet.

Dunne, T., Roberts, M. J., & Samuelson, L. (1989). The growth and failure of U.S. manufacturing plants. *The Quarterly Journal of Economics, 104,* 672-698.

Evans, D. S. (1987). The relationship between firm growth, size, and age: Estimates for 100 manufacturing industries. *The Journal of Industrial Economics, XXXV*(June), 567-581.

Fredland, E. J., & Morris, C. E. (1976). A cross section analysis of small business failure. *American Journal of Small Business, 1*(July), 7-18.

Garrod, P., & Miklius, W. (1990). Modeling the timing of business firm exits. *Small Business Economics, 2,* 141-153.

Hall, G., & Young, B. (1991). Factors associated with insolvency amongst small firms. *International Small Business Journal, 9*(2), 54-63.

Haswell, S., & Holmes, S. (1989). Estimating the small business failure rate: A reappraisal. *Journal of Small Business Management,* July, 68-74.

Jovanovic, B. (1982). Selection and the evolution of industry. *Econometrica, 50*(3), 649-670.

Land, N. R. (1975). Too much emphasis on management assistance? *Journal of Small Business Management, 13*(3), 1-5.

Osteryoung, J. S., & Newman, D. (1993). What is a small business. *The Journal of Small Business Finance, 2*(3), 219-231.

Peterson, R. A., Kozmetsky, G., & Ridgway, N. M. (1983). Perceived causes of small business failures: A research note. *American Journal of Small Business, VIII*(1), 15-19.

Phillips, B. D., & Kirchoff, B. A. (1989). Formation, growth and survival; Small firm dynamics in the U.S. economy. *Small Business Economics, 1,* 65-74.

Star, A. D., & Massel, M. Z. (1981). Survival rates for retailers. *Journal of Retailing, 57*(2), 87-99.

Stewart, H., & Gallagher, C. (1986). Business death and firm size in the UK. *International Small Business Journal, 4*(1), 42-57.

Storey, D., Keasey, K., Watson, R., & Wynarczyk, P. (1987). *The performance of small firms: Profits, jobs and failures.* London: Croom Helm.

Ulmer, M. J., & Nielsen, A. (1947). Business turn-over and causes of failure. *Survey of Current Business*(April), 10-16.

Watson, J., & Everett, J. E. (1993). Defining small business failure. *International Small Business Journal, 11*(3), 35-48.

Wiltshire Committee (Chairman: Wiltshire, F. M.). (1971). *Report of the Committee on small business* (Parliamentary Paper No. 82). Canberra, The Government Printer of Australia.

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