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A cross-section empirical analysis examining the entry behaviour of small firms is provided in this paper. While we find that certain traditional market structure characteristics and entry barriers have a strong impact on small-firm entry behaviour, the reliance upon innovative strategy by small firms also explains a significant amount of the variation in the pattern of entry by small firms. We conclude that small-firm entry is at least partially determined by entry barriers, industry-specific characteristics facilitating retaliatory conduct by incumbent firms, and the reliance upon innovative strategy by small firms.

INTRODUCTION

Despite the emergence of an empirical literature (Geroski, 1983) regarding the importance of entry, most of these studies either have focused on the entry of relatively large firms or else have not distinguished between different firm sizes.[1] That is, the determinants of small-firm entry have not been examined as a distinct entity from that of large firms. Because a growing field in the literature suggests that small firms, considered in an absolute rather than a relative sense, may be behaviourly distinct and unique from their larger counterparts (Mills and Schumann, 1985; Carlsson, 1986), there is little reason to assume that small-firm entry is an exact replica of that of larger rivals. The purpose of this paper is to fill this gap in the literature and to examine the extent and determinants of small-firm entry in manufacturing industries.[2]

There are three contributions in this study. First, we examine the pattern of small-firm entry, as distinct from entry by all firms or by large firms, over manufacturing industries. Second, while most of the empirical studies have been restricted to examining market structure characteristics in explaining entry, we are able to include measures of small-firm strategy, and in particular the small-firm innovation rate, as a determinant of small-firm entry. Finally, we are able to implement the empirical analysis utilizing a complete cross-section of 247 manufacturing industries for small-firm net entry between 1978 and 1980. This is facilitated by using data newly released by the US Small Business Administration. We are able to test for the robustness of our econometric results and inferences with respect to different definitions and measures of what constitutes a small firm, ranging from fewer than 10 employees to just under 500 employees.

In Section I below, we briefly review the general results of the studies examining the determinants of entry for all firm sizes and suggest why small-firm entry may be a distinct phenomenon. In Section III we use six different measures of what constitutes a small firm to test the hypothesis that small-firm entry emanates from three major sources: (1) the positive inducement from industries with high growth and a high technological opportunity; (2) the absence of barriers impeding entry; and (3) the reliance of small firms on strategies enhancing the ease of entry. Finally, in Section IV a summary and conclusions are presented. We find that small-firm entry is facilitated in those

industries where the inherent scale disadvantages of small firms have been diminishing over time and where small firms have been able to implement a strategy of innovation. While other studies have found that R and D intensity actually promotes the entry of firms in general, we find that it clearly hinders the entry of small firms. In addition, while small-firm entry is not influenced by advertising expenditures, lagged profitability has no apparent effect on the entry behaviour of the smallest firms. Thus, small-firm entry is found to vary considerably from the pattern of large-firm entry that has emerged in the empirical entry literature. Finally, small firms tend to enter industries that are not dominated by small firms.

I. Entry by Large and Small Firms

Virtually every empirical study examining entry behaviour has considered the entry either of all new firms in an industry (generally approximated by the changes in the numbers of firms over a specific period or net entry) or else only of larger firms. While the results of these studies have not been unequivocal, certain tendencies have emerged. Theoretical models have predicted entry to be positively induced by high profits and growth (Bhagwati, 1970) and deterred in the presence of structural barriers such as capital intensity (Bain, 1956), and 'behavioural' barriers such as advertising intensity (Stonebreaker, 1976).

In fact, entry has been found to be positively related to growth in most studies (Orr, 1974; Gorecki, 1975; Duetsch, 1984; Khemani and Shapiro, 1986; and Highfield and Smiley, 1987). Most of these studies also found lagged profits to exert a positive influence on subsequent entry, with the exception of Orr (1974), who considered only the net entry of firms with either sales exceeding $5 million or assets exceeding $25 million, and Highfield and Smiley (1987). While Duetsch (1984) and Khemani and Shapiro (1986) found capital intensity to exert a negative influence on the entry of firms of all sizes, Highfield and Smiley (1987) found no such relationship. Similarly, both Orr (1974) and Khemani and Shapiro (1986) found advertising to be a significant barrier to entry of firms of all sizes, but neither Duetsch (1984) nor Highfield and Smiley (1987) identified the existence of a significant relationship. While market concentration is generally predicted to exert a negative influence on entry, most studies have not substantiated this.[3] Similarly, the existence of a high technological opportunity class has been hypothesized to induce entry[4] (Smiley, 1988), but only Highfield and Smiley (1987) have found evidence supporting this. Based on a number of empirical studies, it can reasonably be concluded that the entry of all firm sizes appears to take place in rapidly growing industries with relatively high price–cost margins and low advertising intensity, and where there is a relatively high level of technological opportunity or R and D intensity.

Although there has been to date no examination of the determinants of small-firm entry, several distinctions from the general pattern of entry might be expected to emerge.[5] First, while there is ambiguity between the pattern of entry for large firms or all firm sizes and capital intensity, small-firm entry would be expected to be impeded in the presence of high capital barriers. As White (1982) found, the existence of small firms is negatively related to capital intensity. Similarly, while Highfield and Smiley (1987) argue that the start-up

of new firms is induced in high R and D industries, small-firm entry would be expected to be deterred in high R and D industries. As virtually every empirical study has shown, small firms face a severe scale disadvantage with respect to R and D (Mansfield, 1981; Kamien and Schwartz, 1975). Nor does it seem likely that profitability and advertising intensity would play as large a role in inducing and deterring small-firm entry as for large firms, since the entry of small firms is often in certain product niches within the industry. This is supported by Storey and Jones (1987), who found that local labour market conditions are more decisive than profitability in influencing local rates of new-firm formation.

There is some evidence that small firms pursue different strategies from their larger counterparts in order to survive in the same industries with larger firms (Caves and Pugel, 1980; Mills and Schumann, 1985). Implementing such strategies enables small firms to compensate for size-inherent disadvantages and the entry-deterring strategies by existing firms (Yip, 1982). One such example is the strategy of product innovation, which Caves and Pugel (1980) find to be one important strategy that small firms deploy to overcome inherent scale disadvantages.

Finally, a recent literature has emerged arguing that, through the application of 'flexible specialization' in certain industries, small firms have been able to enter and exist in markets where they previously would have experienced severe scale disadvantages (Mills and Schumann, 1985; Carlsson, 1987; Piore and Sabel, 1984).[6] To the extent to which small firms are able to employ 'flexible production' techniques, the inherent scale disadvantage of small firms would be reduced, enabling them to enter the industry more easily.

II. Empirical Model

The empirical model to be estimated is

$$SFE = \beta_1 GR + \beta_2 PCM + \beta_3 KL + \beta_4 AD + \beta_5 RD + \beta_6 SKILL + \beta_7 CR + \beta_8 SFIR + \beta_9 UNION + \beta_{10} CRSFP + \beta_{11} SFP + \mu$$

where the dependent variable is defined as the change in the number of firms with fewer than 500 employees between 1978 and 1980, divided by the average total number of firms in the industry in 1978 and 1980.[7] Unlike most other empirical entry studies, the US Small Business Administration data refer only to new enterprises (firms) and not just to new subsidiaries or branches (establishments) of existing firms.[8] Highfield and Smiley (1987), using the same data set for all firm sizes, used a similar net entry rate measure.[9]

Several qualifications must be made concerning the use of the net change in the number of firms over a specified time period as a measure of entry. First, this is a measure of net entry, which obscures the actual amount of gross entry occurring in each industry by adding in the number of firms that exited. The extent to which net entry deviates from actual entry depends upon the extent of exit in the industry. However, as for Orr (1974) and Duetsch (1984), data constraints do not enable us to control for industry exit. While Duetsch controlled for industry size by including the value-of-shipments as an explanatory variable in his regression analysis estimating the number of new entrants (of all sizes), we control for size by transforming the net entry measure into

a net entry rate measure by dividing the dependent variable by the average number of firms, of all sizes, in the industry. This is the identical procedure used by Highfield and Smiley (1987). Thus, the small-firm entry rate measures the amount of small-firm net entry as a percentage of the total number of firms in the industry.[10] Using just the number of firms in the industry in either 1978 or 1980 in the denominator produced virtually identical regression results. The small-firm entry rate varies between −1 and 1, but because it approximates a normal distribution, with no industries taking on either of the extreme values, the method of ordinary least squares would not result in any considerable inefficient estimation (Judge *et al.*, 1980).

GR refers to the 1972–77 industry growth rate of value-of-shipments. As has been found in the empirical literature for large firms, we expect that a positive relationship should emerge between lagged market growth and small-firm entry. *PCM* is defined as the 1977 industry price–cost margin and has generally been found to exert a positive influence on subsequent entry of large firms. However, as Storey and Jones (1987) found for new-firm formation, *PCM* may not exert a strong influence on small-firm entry. Since most small and new firms are in local rather than national markets, the profitability of the industry at the national level may be less important than variations in price–cost margins across different regions (Storey and Jones, 1987).

KL is the 1977 capital–labour ratio, defined as the total capital stock divided by total employment (in thousands of dollars), and β_3 is expected to be less than zero for reasons explained above. *AD* is defined as advertising intensity, measured as advertising expenditures divided by value-of-shipments, 1977, and has been found to have a negative effect on entry in general.

RD is defined as the ratio of industry total R and D expenditures-to-sales, 1977; and, while Highfield and Smiley (1987) found it to be positively related to entry of all firms, we expect it to be negatively related to small-firm entry for the reasons discussed above. We also include a measure of the extent to which the industry relies upon skilled labour, *SKILL*, which is defined as the number of professional and kindred workers as a percentage of total employment, and provides an alternative measure of the technological opportunity class. *CR* is defined as the four-firm concentration ratio in 1977, and is expected to exert a negative influence on small-firm entry.

SFIR is defined as the small-firm innovation rate, measured as the number of innovations in the industry contributed by firms with fewer than 500 employees, divided by small-firm employment (thousands of employees) in 1982. Because the innovations are the result of inventions made, on average, 4·2 years earlier (Acs and Audretsch, 1987, 1988), in some sense *SFIR* represents the invention rate in 1977 of inventions that subsequently proved to be commercially viable by 1982. Since small-firm innovation strategy is hypothesized to be a mechanism for compensating for the presence of entry barriers, we expect that *SFIR* should be positively related to small-firm entry. *UNION* is defined as the percentage of employees in the industry that belong to a union, measured in 1975. Because unionization has been found to exert a positive influence upon wage rates, we expect that small firms, which typically can avoid becoming unionized by virtue of their size, would be induced to enter industries in which their larger counterparts have relatively high wages. Thus, we predict a positive relationship between *UNION* and small-firm entry.

CRSFP is defined as the relative change in small-firm productivity and is measured as the small-firm change in sales-per-employee between 1976 and 1982, divided by the industry average change in sales-per-employee over the same period. Thus, a value of *CRSFP* exceeding one suggests that the productivity change of small firms over this period has been greater than that of large firms, while a value of *CRSFP* of less than one implies that the productivity change of small firms has been less than that of their larger counterparts. Since this measure should reflect the change in the inherent cost disadvantage faced by small firms, we expect a positive relationship to emerge between *CRFSP* and small-firm entry. That is, the greater small-firm productivity has increased relative to that of large firms, the greater should be small-firm entry, *ceteris paribus.* Finally, *SFP* is defined as the small-firm presence in the industry, measured as the share of industry sales accounted for by firms with fewer than 500 employees. Including this variable enables us to test whether small firms tend to enter those industries where small firms already dominate the industry or industries with only a low small-firm presence. All of the variables are defined and further data explanations are provided in the Appendix. The linear form of the model follows in the tradition of virtually every empirical entry paper (Geroski, 1983).[11]

III. Empirical Results

Using the 1978–80 small-firm net entry rate, *SFE*, as the dependent variable, the regression model was estimated for 247 four-digit SIC industries. Equation (1) in Table 1 shows that the lagged growth rate has a statistically significant and positive effect on small-firm entry. The positive and statistically significant coefficient of *PCM* suggests that small firms are induced to enter those industries that have been profitable, even after controlling for other major influences. Although the coefficients of *KL* and *AD* are negative, neither is statistically significant, implying that advertising intensity and capital intensity do not represent substantial entry barriers for firms with fewer than 500 employees. However, the negative and significant coefficient of *RD* implies that R and D intensity does present an entry barrier to small firms.

While the level of market concentration generally has not been found in the literature to exert a negative effect on the entry of firms of all sizes, the negative and significant coefficient of *CR* suggests that small firms are, in fact, deterred from entering industries that are highly concentrated. The positive and statistically significant coefficient of *SFIR* implies that innovation is a strategy that small firms can undertake to facilitate entry. Small-firm entry is, therefore, found to be positively related to the small-firm innovation rate. As expected, the coefficient of *UNION* is positive and significant, implying that small firms tend to prefer to enter highly unionized industries over non-unionized industries, *ceteris paribus.* Similarly, the positive and significant coefficient of *CRSFP* suggests that the greater the increase in small-firm productivity, relative to that of large firms, the greater is the rate of entry. Finally, the negative and significant coefficient of *SFP* suggests that, in fact, after controlling for other influences, small firms do not tend to enter those industries in which there is already a considerable presence of small firms. Rather, the negative relationship between small-firm presence and small-firm

TABLE 1

REGRESSION RESULTS FOR MODELS OF SMALL-FIRM ENTRY

(*t*-ratios listed in parentheses)[a]

Variable	Equation (1)	(2)	(3)	(4)
Intercept	−0·185 (−0·042)	−6·460 (−1·734)*	−6·597 (−1·759)*	−1·630 (−0·505)
GR	41·803 (3·361)**	41·047 (3·258)**	39·588 (3·126)**	39·654 (3·096)**
PCM	0·016 (1·854)*	0·017 (1·971)**	0·017 (1·962)**	0·015 (1·699)*
KL	−0·043 (−1·003)	−0·031 (−0·735)	−0·043 (−1·005)	−0·035 (−0·820)
AD	−1·397 (−0·275)	1·320 (0·262)	1·898 (0·375)	0·484 (0·095)
RD	−1·133 (−2·019)**	−1·067 (−1·874)*	−1·042 (−1·822)*	−1·031 (−1·784)*
SKILL	−0·088 (−0·004)	7·745 (0·368)	10·170 (0·481)	7·113 (0·333)
CR	−0·121 (−3·108)**	−0·101 (−2·592)**	−0·101 (−2·576)**	−0·075 (−1·959)*
SFIR	1·497 (2·067)**	1·544 (2·105)**	1·605 (2·175)**	1·453 (1·953)*
UNION	0·085 (1·991)**	0·098 (2·271)**	1·088 (2·523)**	— —
CRSFP	0·527 (2·191)**	0·505 (2·071)**	— —	— —
SFP	−0·070 (−2·694)**	— —	— —	— —
R^2	0·184	0·159	0·143	0·120
F	4·811**	4·448**	4·405**	4·068**

[a] The small-firm entry rate is measured as the net change in the number of firms with fewer than 500 employees between 1978 and 1980, divided by the average of the total number of firms in 1978 and 1980. The dependent variable has been multiplied by 100, and the coefficient of *AD* has been divided by 100.

* Statistically significant at the 90 per cent level of confidence for a two-tailed test.

** Statistically significant at the 95 per cent level of confidence for a two-tailed test.

entry suggests that small firms tend to enter industries that are not dominated by small firms, supporting the hypothesis of Piore and Sabel (1984).

Estimation bias arising from multicollinearity is obviously a concern in a cross-section regression analysis of the type reported in Table 1. Because the simple correlation is −0·39 between *SFP* and *CR*, and −0·20 between *SFP* and *KL*, *SFP* was omitted from equation (2). The effect on the coefficient of *CR* is only slight, and the coefficients of *GR*, *PCM*, *RD*, *SFIR*, *UNION* and *CRSFP* remain virtually unchanged, while the coefficients of *KL*, *AD* and *SKILL* are still statistically insignificant.[12] Because the simple correlation between *UNION* and *CR* is 0·28, and between *UNION* and *KL* is 0·18,

UNION is dropped in equation (4), and *CRSFP* is omitted in equation (3). As with *SFP*, deleting *UNION* and *CRSFP* from the regression equations leaves the results virtually unchanged. While deleting these variables does not have much of an impact on the estimated coefficients of the remaining variables included in the regressions, the omission of each of these variables causes an additional substantial reduction in R^2, along with a decrease in the F-ratio. Thus, it is concluded that multicollinearity does not appear to present severe estimation problems and that the regression results remain robust with respect to either the inclusion or omission of these variables.[13]

To consider how robust the regression results are with respect to varying definitions of what constitutes a small enterprise, the regression equations

TABLE 2

REGRESSION RESULTS FOR ALTERNATIVE MEASURES OF SMALL-FIRM ENTRY

(t-ratios in parentheses)[a]

	Equation (and small-firm measure)				
Variable	(1)	(2)	(3)	(4)	(5)
Intercept	−1·531 (−0·548)	−1·173 (−0·384)	−0·904 (−0·238)	−0·018 (−0·004)	−0·485 (−0·114)
GR	24·335 (2·766)**	34·363 (3·642)**	37·698 (3·351)**	39·633 (3·372)**	39·356 (3·201)**
PCM	0·007 (1·312)	0·009 (1·304)	0·010 (1·212)	0·014 (1·672)*	0·014 (1·661)*
KL	−0·066 (−2·229)**	−0·059 (−1·844)*	−0·101 (−2·644)**	−0·080 (−2·002)**	−0·055 (−1·322)
AD	1·601 (0·444)	3·678 (0·942)	1·260 (0·274)	0·474 (0·099)	−0·607 (0·121)
RD	−0·717 (−1·808)*	−0·778 (−1·829)*	−1·097 (−2·160)**	−1·020 (−1·921)*	−1·100 (−1·982)**
SKILL	−5·366 (−0·365)	−1·226 (−0·078)	8·678 (0·460)	0·603 (0·031)	3·698 (0·179)
CR	−0·071 (−2·520)**	−0·067 (−2·225)**	−0·097 (−2·662)**	−0·118 (−3·133)**	−0·111 (−2·853)**
SFIR	0·648 (1·260)	0·896 (1·625)	1·026 (1·561)	1·362 (1·987)**	1·354 (1·892)*
UNION	0·063 (2·096)**	0·054 (1·681)*	0·078 (2·016)**	0·071 (1·745)*	0·079 (1·875)*
CRSFP	0·108 (0·739)	−0·037 (−0·205)	0·371 (2·089)**	0·409 (2·024)**	0·405 (1·778)*
SFP	−0·020 (−0·185)*	−0·057 (−0·880)	−0·063 (−1·338)	−0·078 (−2·171)**	−0·066 (−2·262)**
R^2	0·149	0·141	0·183	0·193	0·165
F	3·740**	3·507**	4·796**	5·094**	4·229**

[a] Small-firm net entry is defined as the change in the number of firms with fewer than 10 employees (1), 20 employees (2), 50 employees (3), 100 employees (4) and 250 employees (5). The dependent variables have been multiplied by 100, and the coefficient of *AD* has been divided by 100.

* Statistically significant at the 90 per cent level of confidence for a two-tailed test.

** Statistically significant at the 95 per cent level of confidence for a two-tailed test.

shown in Table 2 substitute narrower measures defining a small firm, ranging from fewer than 10 employees in equation (1) to fewer than 250 employees in equation (5).[14] For the variables *GR*, *CR*, *RD*, *AD*, *SKILL* and *UNION* the results are virtually identical, regardless of the small-firm measure used. However, the coefficients of *PCM*, *SFIR* and *SFP* are not statistically significant for the three narrowest definitions of a small firm (less than 10, 20 and 50 employees), while the coefficient of *CRFSP* is not statistically significant for the narrowest two measures of a small firm. Further, the coefficient of *KL* is statistically significant only in equations (1)–(4) but not in equation (5), suggesting that capital intensity may serve as an entry barrier to firms with more than 100 but less than 250 employees. However, as equation (5) implies, along with the results from Table 1, entry by firms with at least 250 employees does not appear to be deterred by capital intensity, after controlling for other important factors. It is interesting that *PCM* is not statistically significant in the first three equations in Table 2, suggesting that profitability and entry are not related for firms with fewer than 100 employees. This result confirms the findings of Storey and Jones (1987).[15] The observed positive relationship for slightly larger firms suggests that entry by larger firms is positively related to industry profitability, as has typically been identified in the literature.

In general, the results from Tables 1 and 2 suggest that the entry behaviour of small firms is positively and strongly related to the lagged industry growth rate while it is negatively related to R and D intensity and market concentration. Further, beyond a certain minimal size, small-firm entry tends to be promoted by lagged profitability, small-firm innovation activity and the extent to which the productivity of small firms has increased relative to that of larger firms, while it is deterred from industries in which small firms already constitute a large share of the industry.

IV. Conclusion

The findings of our paper suggest that the entry behaviour of small firms may be distinct in some respects from that of large firms. As for large firms, past growth rates provide a strong incentive for small-firm entry. On the other hand, past profit rates induce entry only in firms with at least 250 employees but not the smallest enterprises. This may be because a very small firm often operates in a market niche or a very small market segment.[15] Similarly, capital intensity deters the entry of the smallest firms, but apparently does not impede the entry of slightly larger firms. In contrast to the studies examining entry behaviour in general, we find very strong evidence that R and D intensity and market concentration serve as deterrents.

Three additional variables which have never been included in any entry study suggest that small firms can at least partially compensate for their inherent size disadvantages by pursuing a strategy of product innovation, entering industries that are highly unionized, and industries in which the scale disadvantage of small firms has been diminishing. While we have found that considering the entry patterns of small firms yields a pattern remarkably distinct from that of large firms, subsequent research should consider the interdependence between entry behaviour and the ability of firms to expand and contract across different firm-size classes within an industry.

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APPENDIX

Data on small-firm entry (*SFE*), small-firm presence (*SFP*), and *CRSFP* come from the US Small Business Administration (SBA), Office of Advocacy, Small Business Database. Since 1979 the SBA has maintained a major micro-database. The US Enterprise and Establishment Microdata (USEEM) file is a bi-annual database containing observations on employment, sales, organizational relationship and location for nearly all US firms (enterprises) and their component establishments (individual business locations). The data are derived from the DUNS Market Identifier (DMI) file leased from the Dun and Bradstreet Corporation. For a description of the data see Boden and Phillips (1985).

The data on the small-firm innovation rate (*SFIR*) are from the US Small Business Administration, Office of Advocacy. The data are described in Edwards and Gordon (1984).

The US Department of Commerce, Bureau of the Census, Annual Survey of Manufactures, 1977, *Industry Profiles* (Washington DC: US Government Printing Office, issued 1981) is the source for the capital–labour ratio (*KL*), the growth rate (*GR*), the price–cost margin (*PCM*) and concentration (*CR*). The advertising–sales (*AD*) ratio was derived by using the value-of-shipments data described above and advertising expenditures, from the 1972 United States Input–Output Table. The union participation rates (*UNION*) are from Freeman and Medoff (1979). The percentage of total employment that is unionized for three-digit SIC industries between 1973 and 1975 is reported. We repeat those three-digit values at the four-digit level. The 1977 R and D–sales ratio (*RD*) comes from the US Federal Trade Commission, *Annual Line of Business Report*, Washington, DC.

NOTES

1. A very recent example of a study examining net entry patterns but not distinguishing between different firm sizes is Highfield and Smiley (1987). We use the same database that they do, but by examining only the entry of small firms we find results that are quite different from theirs.
2. While no precise definition of a small firm exists, the US Small Business Administration defines a small firm as one with less than 500 employees. In Europe this definition may include small- and medium-sized firms.
3. One notable exception is Khemani and Shapiro (1986) for Canadian manufacturing industries.
4. While Smiley (1988) and Highfield and Smiley (1987) found evidence that R and D intensity is positively related to entry, Orr (1974) argues and finds evidence that R and D intensity discourages entry.
5. There are two interrelated questions with regard to small-firm entry that cannot be easily separated: the causes (determinants) of small-firm entry, and the effects of small-firm entry. The effect of small-firm entry and exit has been recently explored by Beesley and Hamilton (1984). The effect of small-firm entry is two-fold in industrial organization. First, small firms, often armed with different strategies from their larger counterparts, can revitalize existing industries. A good example of this has been the recent entry of small firms into the US steel industry (Crandall and Barnett, 1986). Second, small-firm entry plays a vital role in the creation of new industries through the venture process. Innovation, for example, by small firms has been important in the creation of the US semi-conductor industry.
6. In his empirical finding that markets in the United States now appear to be 'far more competitive than at any time during the modern industrial period', Shepherd (1982, p. 613) attributes some of this increase in competition to a reduction in the minimum efficient scale (MES) in at least some industries. Although Shepherd was unable to quantify the impact, he concluded that 'There is a strong general evidence and a growing belief that scale economies have

dwindled since the 1950s as computers and electronics have replaced cruder manufacturing processes' (1982, p. 620).

7. As one of the anonymous referees pointed out, entrepreneurs founding new firms are often motivated by the lack of alternative employment prospects. Thus, the characteristics of firms formed in the expansion phase of the business cycle might vary considerably from those formed during the trough phase. In 1978 real US output grew by 5·3 per cent, while in 1980 it slightly declined by 0·2 per cent. However, in the data available to us, a more stable period was not available. Further research should consider more carefully how entry varies over the business cycle.
8. The data are from the US Establishment Longitudinal Microdata (USELM) and the US Enterprise and Establishment Microdata (USEEM) files, which have been derived from the DUNS (Dun and Bradstreet) Market Identifier File (DMI). For further explanations and qualifications concerning limitations of the data, see Boden and Phillips (1985).
9. Although the US Small Business Administration has found that 'lagged updating of records for existing establishments or enterprises is probably not a problem for most USEEM data applications', there still remain weaknesses in the data base: 'Some firms and establishments are not included in the DMI (and, hence, USEEM) data until several years after they are born.... This phenomenon sometimes depresses the number of firms and establishments represented in each USEEM below the actual count, and is likely to be presented in fast-growing industries (such as certain types of services) as well as in new industries (such as microcomputer hardware and software related industries' (Boden and Phillips, 1985, p. 7). For other qualifications regarding formation of the Small Business Database see US Small Business Administration (1984).
10. Dividing the net change in the number of firms for each size class by the number of firms in that size class, rather than of the entire industry, would provide a better measure of the impact that entry has had on the existing stock of small firms. However, standardizing the amount of entry in each firm size class by the total number of firms in the industry reveals more about the subsequent price and output effects, or the overall industry effects, as a result of the entry.
11. It should be noted that the model specifies a flow measure, net entry, resulting from stock measures such as capital intensity, advertising and market concentration. This specification was first adopted by Bain (1956) and subsequently used in virtually every empirical study of entry. Essentially, an industry will be in equilibrium with no net change in the number of firms if, for a given level of profitability, the configuration of market structure characteristics does not result in either net entry or net exit. That is, the level of profitability is such that the cost to a new firm of entering the market exceeds the expected profitability. If, however, there is a change in either the level of expected profitability or the cost of entering, which is directly related to the entry barrier conditions, a net inflow (or outflow) of firms into the industry is expected, until equilibrium is again restored. Thus, entry (exit), which is a flow measure, occurs when the cost of entering associated with a particular configuration of market structure conditions (entry barriers), which are stock measures by nature, is not equal to the expected profitability subsequent to entry.
12. An anonymous referee pointed out that the highly unionized industries also tend to be composed predominantly of large firms. Since these large firms may not be interested in covering each new market niche that develops, there are continual opportunities for small firms to exploit. This would be consistent with the positive relationship observed between small-firm entry and unionization.
13. A more extensive analysis of multicollinearity was performed and revealed results similar to those discussed above.
14. Because *CRFSP* and *SFP* are specific to the small-firm measure used, they also were recalculated in each regression equation to coincide with the definition of *SFE*. This was not done for *SFIR* owing to data constraints.
15. This point was brought to our attention by one of the anonymous referees.

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