

# The Birth of New Firms — Does Unemployment Matter? A Review of the Evidence\*

D. J. Storey

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**ABSTRACT.** The purpose of this paper is to review the most significant recent literature identifying the determinants of new-firm births and the role that unemployment plays. In doing so, the paper draws upon two distinct strands in the economics literature. The first strand of literature is from the field of industrial organization, where the role of entry has been examined within the structure-conduct-performance paradigm. The second strand comes from the literature on entrepreneurship. Whereas the first approach tends to focus on the industry as the unit of analysis and is concerned primarily with inter-industry comparisons, the second strand of literature is more oriented towards the firm as a unit of analysis and the impact exerted by the macro-economic environment. It is concluded that the most important development for future research is at the interface of these two approaches.

## 1. Introduction

The current interest in understanding the factors influencing the birth of new firms comes from two main sources. Firstly from those who relate this to the vast literature on factors influencing entry into markets (Geroski, 1990). Essentially this interest group are those conducting empirical testing of the Structure — Conduct — Performance paradigm (SCP). According to the SCP school, entry takes place in response to some combination of pre and expected post entry prices in the chosen market and in associated markets. It also depends upon the level of perceived barriers in both groups of markets. The SCP literature therefore emphasises

microeconomic elements rather than macro-economic considerations. Perhaps the only two significant exceptions to this statement are the studies by Highfield and Smiley (1987) and Yamawaki (1990).

It has also been recognised for many years, that no distinction is made in the SCP literature between types of entrants.<sup>1</sup> Acs and Audretsch (1989) quote Gorecki (1975) in saying "In published statistical studies of the determinants of entry, entrants have been treated as a homogeneous class". Yet in order to understand and predict what is happening in the market-place it is necessary to recognise that new small firms are likely to respond to different incentives, compared with established firms either switching or diversifying into a different industry. Theoretical and empirical support for this distinction is provided by Storey (1982), Acs and Audretsch (1989) and by Mills and Schumann (1985).

The second source of interest in the factors influencing the birth of new firms comes from those more concerned with questions of entrepreneurship. This literature is concerned to understand factors influencing the formation of new firms in aggregate and over time. It is not concerned with whether new firms enter industry *i* or industry *j*, but focuses instead upon the decision by an individual whether or not to become an entrepreneur. It takes as its historic antecedents the work of Knight (1921), who theorised that the individual would switch from employee to employer depending on the relative expected returns in these two forms of activity. The empirical work in this area tends to use time series data and is concerned to understand variations in aggregate new firm formation. In conducting this work there are a number of indices of new firm

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*Centre for Small and Medium Sized Enterprises  
Warwick Business School  
University of Warwick  
Coventry CV4 7AL  
U.K.*

formation used — such as new company formations, businesses newly registered for VAT, or the numbers of self employed workers. This literature is concerned with the nature of the macro-economic environment.

It is the purpose of the current paper to review the most significant recent empirical studies in this second stream of literature. In doing so it attempts to draw more closely together the SCP and the entrepreneurial literature.

## 2. Entrants, wholly new firms and self employment: Definitions and data

Before beginning such a review it is important to be clear about the terms used and their significance. In this paper data will be presented on “entrants”, “wholly new firms” and on “the self employed”. These are not identical terms, although all three can be considered as overlapping sets. Hence it is important to be clear on the definitions used and the availability and coverage of data.

For the purposes of this paper we shall define an entrant as a new business unit to industry  $i$ . The entrant, in fact, comprises three sub groups, viz.:

1. Those firms which are operating in industry  $j$  and which continue to operate in  $j$ , but which now operate in  $i$ . These firms therefore currently operate in both  $i$  and  $j$ , and are called diversifiers.
2. Those firms which move from  $j$  to  $i$  — and so no longer operate in  $j$ . They are called switchers.
3. Firms which have never operated in  $j$  or in any other industry. The latter are called Wholly New Firms — WNFs. The latter are therefore a subset of Entrants.

The relationship between WNFs and the self employed is even more complex. Its complexity arises from the fact that self employment combines conceptual and legal/statistical issues. It also varies from one country to another and also over time in the same country. For these reasons we will only refer to the current position in the UK. The Self Employed are broadly defined as “those who in their main employment work on their own account, whether or not they have employees”. (For a discussion of the definitional problems with

Self Employment data in the UK see Johnson (1988).) The self employed include those who own firms which employ others, but are numerically dominated by individuals who work “on their own account” but do not employ others. The further complication which arises is that some individuals who are self employed may own or part own more than one firm whilst others, although they are self employed may, in practice, be little different from most employees.

We turn now to questions of data availability. In the UK, as in virtually all countries, there is no complete enumeration of the population of firms in the economy.<sup>2</sup> There is not even a complete enumeration of firms in the manufacturing sector. Firm coverage declines with decreasing size and coverage of new firms is less complete than coverage of longer established firms. Data problems also arise in measuring the numbers of self employed workers. Partly these are due to irregular surveys, partly due to questions of sampling unreliability, and partly to inconsistencies and ambiguities over definitions (Johnson, 1988).

Although, in principle, it should be a simple matter to identify the number of “entrants”, new firms or newly self employed workers in either the economy as a whole, or in a given industry in a given period of time, this is not the case. The definitional issues outlined above provide only the briefest insight into the difficulties which exist in operationalising the concept. In practice, therefore, identifying the appropriate measure of entry presents major problems.

## 3. Entrants and wholly new firms: A quantification

Our purpose in this section is threefold. Firstly we show that those firms defined as entrants are a mere fraction of the number of WNFs in an industry. Secondly we argue that not all entrants are WNFs, and finally it is shown that those firms defined as entrants are unrepresentative of WNFs.

To illustrate these points we draw upon Geroski (1990) who obtained a special tabulation from Business Statistics Office (BSO) of entrants in eighty six UK manufacturing sectors for the period 1975–1988. This is reproduced as Table I below.

The first row of the table shows the average number of *entrants* identified by BSO for each of

TABLE I  
The five year life experience of UK entrants at a disaggregated level

|                                         | Cohort year |         |        |         |
|-----------------------------------------|-------------|---------|--------|---------|
|                                         | 1975        | 1976    | 1977   | 1978    |
| Average number of entrants per industry | 106.16      | 99.41   | 69.16  | 77.77   |
| Five year survival rate                 | 68.7%       | 70.5%   | 67.5%  | 71.9%   |
| Initial mean employment size: Survivors | 30.7        | 21.91   | 36.8   | 21.3    |
| Survivors employment growth rates       | 0.76%       | -2.75%  | -8.38% | -12.1%  |
| Cohort employment growth rate           | -39.18%     | -49.78% | -43.9% | -49.29% |

Source: Geroski (1990).

the 86 manufacturing sectors, so that for example there were 6,688 entrants in 1978.

Published data on businesses registered for VAT in 1978 in the Production sector does not seem to be available. However, we know that there were 10,400 newly registered firms in 1980 and 12,300 in 1981 (Ganguly, 1985). In part this discrepancy with the BSO data may be caused by the VAT definitions of "Production" being slightly more wide ranging than "Manufacturing", but this is likely to be partly offset by the exclusion of some sectors from the VAT data set because output from such firms is zero rated, or because the firms did not reach the minimum sales turnover size necessary for VAT registration.

Not all firms newly registered for VAT are wholly new firms: some, for example, will have changed ownership and will re-register for VAT. In other cases new subsidiary companies may choose to newly register for VAT, whereas others may choose to continue to be registered with their parent. The key point is that some cross entrants and diversifiers will register for VAT whereas others will not. Coverage by BSO of "entrants", as would be defined and analysed by those conducting empirical studies under the Structure-Conduct-Performance paradigm, is therefore substantially less than for new VAT registrations.

Both groups, however, combine, probably in different proportions, switchers, diversifiers and wholly new firms.

We have demonstrated that some BSO "entrants" may not be included in the new VAT registrations statistics, but that overall only around two thirds of new VAT registrations appear as "entrants". We now propose to show that those

which do appear as "entrants" in the BSO data are profoundly different from the typical WNF.

The second row of Table I shows that between 67% and 72% of "entrants" in any given year would be expected to survive for a five year period. This, however, is significantly higher than the equivalent figure for businesses registered for VAT as a whole (life-span figures are not published for Production businesses only) where about half of firms newly registered would expect to survive for 5 years (Ganguly, 1985).<sup>3</sup>

The third row of Table I refers to the average (arithmetic mean) employment size of entrants in their initial year. This varies from 21 to 36 employees. The VAT data base, however, does not provide information on employment, so it is necessary to look elsewhere for comparative data. The best comparison we can make is with the data in Table II below which shows *Median* employment levels, by age, for wholly new manufacturing firms in Northern England founded between 1965 and 1981.

Given the highly skewed nature of data on new firm size, the fact that Table I presents mean data and Table II presents median data does serve to magnify differences between the tables. Furthermore Table II presents data on wholly new manufacturing firms in Northern England, where small firms have traditionally prospered rather less well than in other parts of the UK. Nevertheless several points of clear difference do emerge from Tables I and II.

First the average size of firm is likely to be different in the two tables. Secondly Row 4 of Table I shows that average employment size falls with increases in age, even for surviving firms over

TABLE II  
Median employment in wholly new firms, by age of firm

| Age of firm | Number of employees<br>in new firms founded<br>1965–1971 | Number of employees<br>in new firms founded<br>1971–1981 |
|-------------|----------------------------------------------------------|----------------------------------------------------------|
| 1           | 7.5                                                      | 6.5                                                      |
| 2           | 9.0                                                      | 5.5                                                      |
| 3           | 9.0                                                      | 6.0                                                      |
| 4           | 10.0                                                     | 10.0                                                     |
| 5           | 10.0                                                     | 10.0                                                     |
| 6           | 10.0                                                     | 7.0                                                      |
| 7           | 11.0                                                     | 10.5                                                     |
| 8           | 11.5                                                     |                                                          |
| 9           | 11.0                                                     |                                                          |
| 10          | 11.0                                                     |                                                          |

Source: Storey (1985, p. 33).

a five year period. This is not the case for Northern Region firms summarised in Table II. Here surviving firms appear to grow in employment in their early years, and it is only after they have reached about five years of age that employment growth ceases.

These differences can be explained in two ways. The first is that some firms which are classified as “entrants” by BSO in a given year are not necessarily firms which have begun trading, or even entered the market in that year. Instead they may have been trading for several years, and have increased their employment size, before they become included in the BSO datafile. Once they are more than four years of age they are much more likely to have either static or declining employment, which is consistent with the characteristics of the BSO “entrants”. Secondly, as was noted in the earlier section, “entrants” include not only wholly new firms, but also switchers and diversifiers. The latter are more likely to be part of a larger organisation and might, particularly in markets where minimum efficient scale (MES) considerations are present, be expected to be rather larger than wholly new firms in their early stages of life.

These comparisons therefore suggest the following. Firstly that those firms included in the BSO database, and which would be classified as “entrants” by those conducting empirical work in the SCP tradition, include switchers, diversifiers

and wholly new firms. Secondly these “entrants” are generally very much larger, have lower growth rates and higher life expectancy than wholly new firms.

#### 4. The birth of wholly new firms

The above section has demonstrated that wholly new firms are a subset of “entrants”, but with somewhat different characteristics. For this reason attempts to explain the factors influencing entry may not be wholly appropriate to an explanation of new firm formation. This section reviews a number of time series based recent econometric studies of new firm formation with a view to testing for key explanations of firm formation behaviour. The role which unemployment plays in the motivation to establish a business is our central concern.

In no sense can the review be regarded as being comprehensive, since it does not even begin to address the econometric estimation problems of such models. Its purpose is firstly to take the findings from these studies and, where appropriate, relate them to others on the same topic. Secondly it attempts to observe patterns in variables included and results obtained, and finally it makes suggestions for new directions for research. The current section begins with a discussion of the choice of dependent variables in these studies.

##### 1. The dependent variables

Given the previously noted absence of a comprehensive data set on firms in the UK, there are three main indices of new firm formation used in time series studies, viz.:

- a) New company incorporations.
- b) Changes in the proportion of workers classified as self employed.
- c) Businesses newly registered for VAT.

As we have shown above none of these three measures of new businesses are either comprehensive or unbiased. New company incorporations, by definition, exclude those businesses which chose, for taxation or other purposes, to be either partnerships or sole traders. On the other hand they include new companies which are

established by existing businesses — primarily those referred to earlier as diversifiers, and may or may not include switchers.

Thirdly whilst a company may be registered in a given year it need not begin trading in that year. Indeed it may be several years before trading begins. Conversely, some businesses may have been trading for many years as a sole trader or partnership before they become registered as a company. Existing companies can also be purchased 'off the shelf'. The year of incorporation is therefore an imperfect measure of the year in which the business began trading. This highlights the potential importance of both lags and leads in such models, since individuals or existing businesses may create new firms in anticipation of changes in trading conditions, whereas others may only respond once matters become more certain.

Despite their limitations, measures (a) and (b) above have been used in studies, the objective of which is to determine the factors which explain time series variations in business formations. Data on measure (c) has not been used for time series analysis in the UK since only 14 data points are currently available.

## 2. The role of unemployment

Our prime interest is to examine the evidence on the role which unemployment plays in the formation of wholly new firms. Specifically, we wish to examine whether new firm formation is positively or negatively related to unemployment. In even posing this question we distinguish ourselves from the mainstream of the SCP literature where this question is not generally addressed.

The mechanism by which unemployment can, in principle, spur new firm formation has long been recognised. Oxenfeldt (1943) articulated that individuals, faced with unemployment and little prospect of gaining work as an employee, would be more likely to work for themselves than an otherwise similar individual who is in employment. The framework articulated by Knight (1921) suggested the individual may be considered to move between three states: unemployment, self employment and employee, depending upon relative prices in the three markets.

The analytical problem facing researchers investigating the impact of unemployment on new

firm formation is that there is an *a priori* case that unemployment can either increase or decrease new firm formation. These are the so-called "push" and "pull" hypotheses.

The "pull" hypothesis is closely related to the SCP tradition. It argues that new firm formation takes place when an individual perceives an opportunity to enter a market to make at least a satisfactory level of profit. *Ceteris paribus*, this is more likely to happen when demand is high and when the individual is credit-worthy or has access to personal savings. In such a situation individuals are "pulled" or attracted into forming their own businesses and are more likely to have access to the assets necessary to start the business.

The converse "push" hypothesis suggests that depressed market conditions mean individuals experiencing or facing the prospect of unemployment are more likely to establish new firms. In the Knight framework, even though the expected income from self employment is low, it is higher than the expected income from unemployment or from searching for employment as an employee. Furthermore, as Binks and Jennings (1986) point out, unemployment in an economy is likely to coincide with the closure of businesses and hence lead to the increased availability and low cost of second hand equipment. In this sense a key barrier to new firm formation may, somewhat paradoxically, be lower in times of depressed than in times of buoyant demand.

A third hypothesis is explored by Hamilton (1989) who suggests that the relationship between unemployment and business formation may be non-linear. He argues that at low levels of unemployment, increases in unemployment will lead to increases in new firm formation. However, once a "critical" level of unemployment is reached, increases in unemployment lead to reductions in new firm formation. Hamilton puts forward two separate justifications for the existence of a critical or break point. The first is that at low levels of unemployment those who become unemployed recognise that market opportunities exist and are therefore "pulled" into forming their own firm. But, as unemployment continues to rise these business opportunities diminish and so new firm formation rates fall. Hamilton's second justification for a "break point" is that an economy may have a fixed supply of new firm founders which,

once exhausted, will lead to a drop in formation rates.<sup>4</sup>

It is then an empirical question as to whether, or possibly in what situations, unemployment is related to new firm formation. Excluding the time series studies which we propose to examine in some detail shortly, there are two other types of evidence which have shed some light on this matter.

The first are Survey results of interviews with those individuals who have recently become new firm founders. The results here broadly support the hypothesis that unemployment is positively related to new firm formation. Binks and Jennings found that about 50% of new owner managers in the early 1980s in Nottingham were "forced" into starting their own business. The present author found that amongst businesses established in Cleveland during the 1970s, one quarter of founders claimed they were unemployed, or likely to become unemployed immediately prior to starting the business (Storey, 1982). These proportions are very much higher than the prevailing levels of unemployment in these localities at the time.

A second approach is to undertake cross sectional analysis, and here the results are much less clear cut. Support for the view that unemployment is positively related to new firm formation is provided by Storey and Jones (1987). They show that, in North East England, new firm formation rates are highest in those industries where job shedding is greatest, yet were not related to a range of profitability measures. Given that individuals tend to form a firm in the industry in which they were formerly employed, it suggests that "push" factors were stronger than "pull" factors.

Cross sectional analysis examining new firm formation across localities with different levels of unemployment has, however, yielded results which contradict the above findings. In the UK it has been shown that areas with the highest levels of unemployment have the lowest rates of new firm formation — Whittington (1984), Coombes and Raybould (1989).

Blanchflower and Oswald (1990a) also suggest that the likelihood of an individual choosing to become self employed is, when account is taken of other variables, greater in areas of prosperity than less prosperous areas. In reaching this conclusion the authors draw upon the National Child Devel-

opment Survey which follows a representative sample of more than 12,000 children in the UK born between 3rd and 9th March 1958. In separate work Blanchflower and Oswald (1990b) using the British Social Attitudes Survey find that whilst there has been a substantial growth in the numbers of self employed workers in the UK between 1983 and 1988 this can be 'explained' by *reductions* in unemployment.

Hamilton attempts to reconcile these findings by arguing that time series analysis needs to take account of changes in public policies which have encouraged the formation of new firms. Conversely in undertaking cross sectional analysis it is necessary to take account of differences in the entrepreneurial potential of areas (Reynolds, 1990; Moyes and Westhead, 1990). In short it is vital to ensure that specification errors are minimised in the equations through a full enumeration of relevant factors.

### 3. *The other independent variables*

There have been six main studies in the UK which have attempted to establish a time series relationship between unemployment and an index of new firm formation. The studies by Hudson (1987), Robson (1990) and by Binks and Jennings (1986) used data on company incorporations in England and Wales as the index, whilst Hamilton (1989) used data for Scotland. The studies by Johnson *et al.* (1988) and by Robson and Shah (1989) used data on self employment.

The independent variables used in these studies are shown in Table III, together with an indication of whether or not the variable was found to be significant. Where appropriate, the coefficient is signed.

As can be seen from the Table only the studies by Hudson, Robson, Johnson *et al.* and Robson and Shah make an attempt to fully specify the relationship between unemployment and firm formation, and it is upon these four studies which we shall primarily concentrate.

The Table shows that there are three types of public policy effects identified. The first is a simple "data effect" in which certain years or quarter years have imperfect information, for example, because of industrial disputes involving civil servants collecting the data.

A second set of policy effects is associated with

TABLE III  
Independent variables

| Concept                 | Variable used                                                      | Studies                                                                                                                             | Signif                                                        | Sign                                                   |
|-------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------|
| 1. Labour market        | Unemployment, or U / V                                             | Robson<br>Hudson<br>Binks & Jennings<br>Hamilton<br>Johnson <i>et al.</i><br>Robson & Shah                                          | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes                        | +<br>+<br>+<br>+<br>+<br>+                             |
| 2. Public policy        | S.E.T. &<br><br>E.A.S.<br><br>Data changes<br><br>Taxation         | Johnson <i>et al.</i><br>Robson<br>Hudson<br>Johnson <i>et al.</i><br>Robson<br>Johnson <i>et al.</i><br>Robson<br>Hudson<br>Robson | Yes?<br>Yes?<br>Yes<br>Yes?<br>No<br>Yes<br>Yes<br>Yes<br>Yes | +?<br>+?<br>+<br>+?<br>N/A<br>+/-<br>+/-<br>+/-<br>+/- |
| 3. Profitability        | Income from self employment<br><br>Share prices                    | Robson<br>Robson & Shah<br>Robson                                                                                                   | Yes<br>Yes<br>Yes                                             | +<br>+<br>+                                            |
| 4. Interest rates       | Real interest rate                                                 | Hudson<br>Robson & Shah<br>Robson                                                                                                   | No<br>Yes<br>No                                               | N/A<br>-<br>N/A                                        |
| 5. Consumer expenditure | Real disposable income                                             | Hudson                                                                                                                              | Yes                                                           | +                                                      |
| 6. Personal savings     | Sum of real savings<br>Real liquid assets from the personal sector | Hudson<br>Robson<br>Robson & Shah                                                                                                   | No<br>No<br>Yes                                               | N/A<br>N/A<br>+                                        |
| 7. Cyclical indicator   | Ratio of GDP to GDP trend                                          | Johnson <i>et al.</i>                                                                                                               | Yes                                                           | +                                                      |
| 8. Structural indicator | IER structural indicator                                           | Johnson <i>et al.</i>                                                                                                               | Yes                                                           | +/-                                                    |

Key: N/A = not applicable; ? = weak significance.

specific legislative changes. For example, in the years 1966–1973 Selective Employment Tax (SET) was in operation. This tax was levied on all employed workers in businesses in much of the service sector. However, it was not levied on the self employed, and so may have encouraged businesses to opt for a partnership/sole proprietorship legal form, rather than incorporation. It also ‘encouraged’ firms to have their workers on a ‘freelance’ basis, rather than an employees.

Another potentially important public policy variable is the Enterprise Allowance Scheme (EAS), under which unemployed individuals since 1981 have received a payment of £40 per week for twelve months if they start a business. Johnson

*et al* find some modest support for the impact of EAS, but are somewhat sceptical of this finding since the scheme has been in operation during a period in which there are a number of other policy initiatives designed to promote self employment and new business creation. Both Robson, and Robson and Shah include EAS in their original variable specification, but are unable to find an independent impact for it, upon either the self employment or the company incorporations data. However, Gray (1990) in his evaluation of EAS finds that perhaps up to 15% of the net increase in self employment in the UK in the 1982–88 period is accounted for by EAS.

The third dimension of the public policy effect

is on the choice of legal form. It is examined by Robson who assesses the impact of differential tax rates on corporate, as opposed to personal income. He argues that, as the ratio of the marginal rate of corporation tax to income tax rises, the less likely it is that individuals will choose to incorporate their business.

Item 3 in Table III shows there are two explicit profitability variables included by Robson and by Robson and Shah in their models, neither of which are examined by Hudson or by Johnson *et al.* The simple specification of income from self employment is, not surprisingly, shown to be positively associated with numbers of self employed workers and also with company incorporations. Less obviously, Robson also relates incorporations to real share prices on the grounds that these may reflect expected future profits in the corporate sector.

Three of the UK studies explicitly include an interest rate variable. Hudson argues that interest rates combine potentially conflicting factors for the new firm. The first is that a rise in interest rates reduces the net profitability of the firm. Higher rates, designed to reduce the supply of credit will also mean that it becomes more difficult for individuals to obtain credit. However he also argues that the work of Stiglitz and Weiss (1981) suggests increases in interest rates mean that high risk, high reward projects will be favoured. Since new firms are risky ventures, Hudson argues that they may, perhaps somewhat paradoxically, find it easier to obtain finance at times of high interest rates. Table III shows that in the estimation equations which Hudson presents, the interest rate variable is not shown to be significant.

The Robson, and Robson and Shah findings on the role of real interest rates are interesting. In their study of factors influencing self employment Robson and Shah find that real interest rates are significantly and negatively related to self employment. Robson does not, however, find any significant relationship with new company incorporations, except in the indirect sense that since lagged self employment levels are related to incorporations then real interest rates may be considered to have indirect impact.<sup>5</sup>

Hudson also includes a consumer expenditure variable and finds it positively related to formation rates. In many respects this is likely to closely follow the Johnson *et al.* measure shown in Table III as the cyclical indicator.

Much more surprising is that neither of the different indices of personal savings used by either Hudson or by Robson turn out to be significant in directly influencing new company incorporations. Robson and Shah in their study of self employment, however, do find real liquid assets to be positively associated with entry into self employment. Again Robson believes that the impact upon company incorporations is indirect, working through the lagged self employment term as with the interest rate variable discussed above.

This therefore contrasts with almost all of the interview research with new firm founders in the UK which has shown that personal savings are the prime source of funding for almost all types of new firms, ranging from "conventional" firms, primarily in the service sector (Storey, 1982) to new high technology firms (Monck *et al.*, 1988). Furthermore Blanchflower and Oswald (1990a) show that relatively modest levels of inheritance money significantly increases the likelihood of an individual becoming self employed. They present this as evidence of a binding liquid assets constraint. It is therefore somewhat surprising that the time series analyses have not been able to isolate a clearer influence for personal savings upon business formation.

## 5. Entrants and macroeconomic conditions

To our knowledge there are no UK studies which have attempted to relate macroeconomic conditions to industry entrants within the traditions of the SCP school. The only such studies which have been conducted world-wide are by Highfield and Smiley (1987) for the USA and Yamawaki (1990) for Japan.

The Highfield and Smiley study examined United States incorporations over the 1948 to 1984 period, and used both cross section and time series analyses. It concluded that "lower rates of GNP, lower inflation rates, and greater growth in the unemployment rate were followed by increases in the rate of new incorporations". At the cross sectional level they concluded that high entry rates were associated with high sales growth, high profits and higher R & D. No support for the existence of traditional entry barriers was provided.

The Yamawaki study of Japanese manufacturing over the 1979–84 period derived rather different conclusions. It found that net entry

responded procyclically with entry being highest during cyclical upswings and lowest during downswings. At a sectoral level net entry was negatively related to capital intensity and positively related to sales growth and advertising intensity.

## 6. Discussion

In this section our objective is to compare the findings of the UK studies of self employment and wholly new firms in Section 4 with other econometric studies using time series analysis of new firm formation. These studies generally utilise United States data, where it has to be recalled that what we refer to in Table III as the Public Policy framework will be different. It is also likely that there will be some significant differences in other variables, reflecting cultural and historical differences such as attitudes to risk. Nevertheless our purpose in making the comparison is to point to areas where improvements to the UK studies might be made by taking account of these results.

We have been assisted in this task by the work of Hudson who, in addition to the UK study referred to extensively above, has also undertaken a broadly similar study examining births and deaths of United States companies (Hudson, 1989). Two other studies in the United States are also referred to here, viz.: Highfield and Smiley (1987); and Blau (1987). The latter is concerned with self employment and is therefore comparable to the Johnson *et al.* findings, whereas the Highfield and Smiley and the Hudson papers are more directly comparable to the UK studies by both Hudson, by Robson and by Robson and Shah.

In commenting upon the UK studies with reference to those conducted in the United States, there are the obvious Public Policy differences referred to earlier. In the UK case, the 1980s have seen a considerable effort by the government to promote the growth of "enterprise". During that decade the numbers of Self Employed have risen from 1.9m to 2.9m. No new upsurge in explicit government policy initiatives to promote enterprise has occurred in the US, although there is an upward trend in the proportion of workers who are self-employed, which began somewhat earlier in the mid 1970s.

Comparing the variables found to be significant

by Blau with those in the UK studies there are clear similarities, but also some interesting differences. The main finding of Blau — that industrial structure changes are of prime importance, parallels the Johnson *et al.* finding that growth has been high in those sectors with a high proportion of self employed workers.

It is, however, the differences between Blau and the UK studies which are of considerable interest. The first difference is that there is no testing by Blau of the role of unemployment, and the possible "push" role which this may have had in increasing self employment. The nearest which he comes to addressing this question explicitly is to include a variable which takes account of the presence of minimum wage agreements, under which jobs might be expected to be "rationed" by non-wage means. The inconsistent findings on this variable lead him to conclude that general labour market conditions do not have a clear impact upon self employment. This is somewhat surprising bearing in mind that the increasing numbers of self employed workers in the United States coincides with the slow down in growth in the world economies following the first increase in Oil prices.

In contrast the Highfield and Smiley (1987) findings on new incorporations suggest that what they describe as a sluggish macro economic climate of, low rates of GDP growth, low inflation rates and increases in unemployment are conducive to high rates of business formation. All these variables are shown to be significant in explaining quarterly changes in incorporations over the period 1948–84. Hudson (1989) also finds, from his study of United States company births 1951–84, that unemployment is positively correlated with formations, in an equation where profitability and personal consumption expenditures are also included and significant in the expected direction. The macro economic conditions influencing company births in the United States therefore broadly confirm his results for the UK.

Hudson also finds that the interest rate variable has no clearly identifiable effect. Since this finding is both confirmed by Highfield and Smiley for the United States and supports Hudson's other results for the UK, it suggests the impact of interest rates upon firm formation rates is much more complicated than has been sometimes suggested.

Somewhat disappointingly Hudson (1989) does

not appear to examine what we describe in Table III as the Public Policy framework in the United States. If, as the above studies have shown, unemployment is positively associated with firm formation then it seems reasonable to suppose that variations in the individuals income whilst unemployed will influence his or her choice of self employment or unemployment. The characteristics of the Social Security system are therefore likely to influence this choice and should be incorporated within these models.

The Blau study includes variables which are generally absent from the UK studies but which might shed considerable additional light upon the growth of "enterprise" in the UK. The key new result which Blau generates relates to the role of taxation. He finds that higher marginal tax rates for high income earners promotes self employment, but has the reverse effect for low income earners. Blau rationalises the former finding by arguing that increased tax rates will encourage high income earners to become self employed in order to increase their opportunity for under-reporting income and possible overstating expenses. He is unable to offer an explanation of why the reverse should be the case for low income groups.

This finding is, however, of potentially great importance for the UK, since the 1980s saw a major increase in all indices of new firm formation, and a general reduction in tax rates, particularly for the high income earners. There is also some evidence that the largest proportionate increase in, for example, self employment has occurred amongst former blue collar workers who have created businesses which do not employ other workers (Curran and Blackburn, 1988). Nevertheless the role of taxation has not yet been adequately incorporated into the time series models in the UK. Even the Robson study is only concerned to examine the impact which taxation has upon the choice of the legal form of a business, rather than upon the decision to start a business in the first place. It is therefore important that the role of taxation is better incorporated into a time series analysis of "enterprise".

A second variable included by Blau which, with the exception of Robson and Shah, is not incorporated into the UK studies is changes in Social Security benefits — most notably retirement

benefits. Blau argues that increases in these benefits may have encouraged employees to seek self employment status as a prelude to retirement rather earlier than has been the case in the past. Intuitively this would seem less relevant in the UK where the 1980s has seen, if anything, a general reduction in the level of State Benefits. Nevertheless for a considerable number of workers close to retirement or for those who are unemployed, the characteristics of the state benefit system is a factor which can influence their choice of employee, self employed or unemployed status. An associated issue is the growth of private pension and insurance schemes and the efforts to make them transferable between employers. Their development may also serve to encourage individuals approaching retirement age to become self employed some years before reaching formal retirement age.

In the UK context it is very relevant to consider the nature of State benefits received by the unemployed, and the potentially unemployed. Here it is necessary for the individual to consider the choice of three situations. The first is to be unemployed and to undertake no work other than job seeking. The second is to move from unemployment to self employment, but the third state is to illegally combine unemployment with self employment. The extent to which this happens would, according to the law enforcement literature initiated by Becker (1968), be expected to depend upon the probability of detection, the penalties imposed upon those convicted and rewards of combining income from both states. Only Robson and Shah address these issues in their study of self employment, and conclude that there is a short run negative effect upon self employment of the real value of unemployment benefits. To fully model the choice of employment status requires an examination of these factors.

## 7. Conclusions

This paper has attempted to review the overlap between two strands of literature, with a view to assessing the public policy implications and suggesting new directions for further research. Despite the difficulties of making precise comparisons, we also examine the extent to which

methodologies may be applied in both the United States and the United Kingdom.

The first literature strand is the familiar Structure Conduct Performance analyses which examine firm entry rates, by industry, using cross section data. The second strand is studies which have examined the factors influencing the formation rates of firms over time. With the exception of the work by Highfield and Smiley they are generally not combined together.

Despite the tendency of some analysts to infer that the two groups are homogeneous, we demonstrate that the term "entrant" used in the SCP literature is not necessarily identical to the term "wholly new firm". Secondly that the latter is not, at least in the UK, synonymous with data on new firms registered for VAT, with company incorporations, with new self employed workers or, of course, with "entrants". We show that there are differences in the growth and expected life-span of each of these groupings of business activities. In short we support the views expressed by, for example, Acs and Audretsch, that there are likely to be differences between the reasons why these groups come to be established, and their performance once established. These differences should be clearly highlighted.

The second half of the paper probes the variables which econometric studies have used to explain variations in firm formation rates over time, in terms of data on new company incorporations and numbers of self employed workers. In particular the role which unemployment plays in influencing these data are examined in both the United Kingdom and the United States.

The broad consensus is that time series analyses point to unemployment being, *ceteris paribus*, positively associated with indices of new firm formation, whereas cross sectional, or pooled cross sectional studies appear to indicate the reverse. Attempts to reconcile these differences have not been wholly successful. They may reflect possible specification errors in the estimating equations, since none include all the independent variables which have been shown to be significant in the existing literature. In particular we suggest that more attention is given to the issue of taxation, savings and state benefits than has been the case in the past. This implies the need for a labour market approach to be integrated within the Structure

Conduct Performance paradigm in order to fully model the New Firm Formation/Entry Process. The need is to achieve methodological advancement at the interface of industrial and labour economics.

## Notes

\* I would like to thank Martin Robson, Steve Batstone, Steve Johnson and participants at the WZB conference for comments received on an earlier version of the paper. Remaining errors are my responsibility.

<sup>1</sup> The confusion was not apparent in the early writings of Bain (1956) who defined entry as the establishment of new productive output in an industry by a new firm. This effectively excluded cross entry and takeover. It was much of the subsequent empirical work which defined entry as the production of a good or service perfectly substitutable in the minds of the buyer which then included cross entry and takeover cases. I am grateful to Steve Batstone for pointing this out to me.

<sup>2</sup> The closest to an enumeration of firms comes in the efforts of Bannock (1990).

<sup>3</sup> Businesses may deregister for VAT for several reasons. About 60% are because the trader goes out of business, about 20% through sale, about 5% through changes in legal status and the remainder through reasons such as falling below the exemption limit or no longer being a taxable person. See British Business (1985).

<sup>4</sup> An alternative is to regard the relationship as a quadratic with push forces in operation at low levels of unemployment and being replaced by push factors as unemployment rises. See Batstone and Mansfield (1990).

<sup>5</sup> This point was made to me in a private communication from Martin Robson dated 25 July 1990.

## References

- Acs, Z. and D. Audretsch, 1989, 'Births and Firm Size', *Southern Economic Journal* 55(2), 467-475.
- Bannock, G. 1990, *Small Business Statistics: A Feasibility Study Prepared for Department of Employment*, London: Graham Bannock & Partners.
- Batstone, S. and E. Mansfield, 1990, 'Births, Deaths and "Turbulence" in England and Wales', University of Warwick, mimeo.
- Becker G. S., 1968, 'Crime and Punishment: An Economic Approach', *Journal of Political Economy* 76, 169-217.
- Binks, M. and A. Jennings, 1986, 'Small Firms as a Source of Economic Rejuvenation', in J. Curran, J. Stanworth, and D. Watkins (eds.), *The Survival of the Small Firm*, Vol. 1, Aldershot: Gower, pp. 19-37.
- Blanchflower, D. G. and A. J. Oswald, 1990a, 'What Makes an Entrepreneur?', Dartmouth College, NBER Working Paper No. 3252.
- Blanchflower, D. G. and A. J. Oswald, 1990b, 'Self Employment and Mrs. Thatcher's Enterprise Culture', in

- R. Jowell and S. Witherspoon (eds.), *British Social Attitudes: The 1990 Report*, Aldershot: Gower Press.
- Blau, D. M., 1987, 'A Time Series Analysis of Self Employment in the United States', *Journal of Political Economy* 95(3), 445–467.
- British Business, 1985, 'UK Firms Grow by 11 Per Cent in Five Years', *British Business*, 23 August, 354–356.
- Coombes, M. G. and S. Raybould, 1989, 'Developing a Local Enterprise Activity Potential (LEAP) Index', *Built Environment* 14(2), 107–117.
- Curran J. and R. Burrows, 1988, 'Enterprise in Britain: A National Profile of Small Business Owners and the Self Employed', Small Business Research Trust, London.
- Ganguly, P., 1985, *UK Small Business Statistics and International Comparisons*, London: Harper and Row.
- Geroski, P. A., 1990, *Entry and Market Dynamics*, Oxford: Basil Blackwell.
- Gorecki, P., 1975, 'The Determinants of Entry by New and Diversifying Enterprises in the UK Manufacturing Sector 1958–63', *Applied Economics* 7, 139–147.
- Gray, C., 1990, 'Some Economic – Psychological Considerations on the Effects of the Enterprise Allowance Scheme', *Piccola Impresa* 1, 111–124.
- Hamilton, R. T., 1989, 'Unemployment and Business Formation Rates: Reconciling Time Series and Cross Section Evidence', *Environment and Planning* 21, 249–255.
- Highfield, R. and R. Smiley, 1987, 'New Business Starts and Economic Activity: An Empirical Investigation', *International Journal of Industrial Organisation* 5, 51–66.
- Hudson, J., 1987, 'Company Births in Britain and the Institutional Environment', *International Small Business Journal* 6(1), 57–69.
- Hudson, J., 1989, 'The Birth and Death of Firms', *Quarterly Review of Economics and Business* 29(2), 68–86.
- Johnson, S., 1988, 'An Assessment of Industrially Disaggregated Data on Self Employment', Institute of Employment Research Project Report, University of Warwick.
- Johnson, S., R. Lindley and C. Boursakis, 1988, 'Modelling Aggregate Self Employment: A Preliminary Analysis', Institute of Employment Research Project Report, University of Warwick.
- Knight, F. H., 1921, *Risk, Uncertainty and Profit*, New York: Houghton Mifflin.
- Mills, D. E. and L. Schumann, 1985, 'Industrial Structure with Fluctuating Demand', *American Economic Review* 75(4), 758–767.
- Monck, C. S. P., 1988, *Science Parks and the Growth of High Technology Firms*, London: Croom Helm.
- Moyes A. and P. Westhead, 1990, 'Environments for New Firm Formation in Great Britain', *Regional Studies* 24(2), 123–136.
- Oxenfeldt, A., 1943, *New Firms and Free Enterprise*, Washington, D.C.: American Council on Public Affairs.
- Rees, H. and A. Shah, 1986, 'An Empirical Analysis of Self Employment in the UK', *Journal of Applied Econometrics* 1, 95–108.
- Reynolds, P. D., 1990, 'US Regional Characteristics, New Firms and Economic Growth', Paper prepared for presentation to Cross National Workshop on the role of Small and Medium Enterprises in Regional Economic Growth, University of Warwick, 28 March.
- Robson, M. T., 1990, 'Self Employment and New Firm Formation', Department of Economics, University of Newcastle upon Tyne, mimeo.
- Robson, M. T. and A. Shah, 1989, 'A Capital Theoretic Approach to Self Employment in the UK', Department of Economics, University of Newcastle upon Tyne, mimeo.
- Stiglitz, J. E. and A. Weiss, 1981, 'Credit Rationing in Markets with Imperfect Information', *American Economic Review* 71(3), 393–410.
- Storey, D. J., 1982, *Entrepreneurship and the New Firm*, London: Croom Helm.
- Storey, D. J., 1985, 'Manufacturing Employment Change in Northern England 1965–78', in D. J. Storey (ed.), *Small Firms in Regional Economic Development: Britain, Ireland and the United States*, London: Cambridge University Press.
- Storey, D. J. and A. M. Jones, 1987, 'New Firm Formation – A Labour Market Approach to Industrial Entry', *Scottish Journal of Political Economy* 34, 37–51.
- Whittington, R. C., 1984, 'Regional Bias in New Firm Formation in the UK', *Regional Studies* 18, 253–256.
- Yamawaki, H., 1990, 'The Effects of Business Conditions on Net Entry: Evidence from Japan', in P. A. Geroski and J. Schwalbach (eds.), *Entry and Market Contestability: An International Comparison*, Oxford: Basil Blackwell.

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