

Unravelling the Facts about Job Generation

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ABSTRACT. The purpose of this paper is to provide some new and useful perspectives to assist our understanding of the job creation process; especially of the relative capacities of small and large firms to create jobs.

Through an initial discussion of components of change analysis, it is shown that (dynamic) job change can often be attributed to (static) size cohorts of firms in an illogical fashion. Also, change which results from firms oscillating in and out of neighbouring size cohorts has continued to be confused with shifts in employment levels which are of a long term nature.

Job generation analysis has tended to ignore the role of the stable firm. However, both small and large firms, which tend to exhibit low levels of internal job change, are performing a fundamental and important task in terms of simply sustaining jobs.

In the author's opinion, "traditional" methodologies used to investigate job creation in any economy have tended to distort our understanding of job creation and loss. Recommendations for alternatives, especially those which incorporate a temporal element into the "job" variable, are put forward.

1. Introduction

Claims concerning the relative abilities of small and large firms to create jobs have been subject to considerable debate. The methodology employed by David Birch in his investigation of the job creation process in the U.S. (Birch, 1979, 1987), was subject to considerable criticism by the Brookings research group (Armington and Odle, 1982) as was that employed by Colin Gallagher and colleagues in the U.K. (Gallagher and Stewart, 1986; Doyle and Gallagher, 1987) by David Storey and Steve Johnson (Storey and Johnson, 1986, 1987).

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Disagreement has taken place concerning the absolute numbers of jobs created by firms "belonging" initially to given size classes (the size debate); how many firms, as a proportion of initial stock, were responsible for job creation (the picking winners debate); and how much job creation was a result of new firm formation as opposed to growth in firms already in existence at the start of any period under analysis.

Obviously the relative strengths of the methodological arguments determine the interpretational stance taken when evaluating the data findings produced through job generation analysis and consequently, the implications for policy makers: the ultimate end-users of such data.

However, in the author's opinion, the major debates have failed to address a number of important philosophical issues concerning the nature of a firm, the nature of a job and how these can be related to one another. The job and firm existing at time (t) and change witnessed at time ($t + 1$), have been blindly accepted as the "units of currency", and the debates have primarily revolved around the data sources, mechanics and procedures of longitudinal analysis without adequate consideration of ontology. Highlighted problems have included among others: the representativeness of the databases used; methods of data validation; methods of "correction" to provide population estimates; the length of period of analysis; the lag between firm formation and inclusion on a database; duration between data revision/ updating; measures and indices of performance, and, perhaps most widely, the decision to use enterprises or establishments as the primary units of analysis. However, the debates have implicitly assumed that once such mechanical issues had been resolved then reliable data findings yielding clear policy implications would ensue. The author would contend that this is not

the case. Even given a perfectly unbiased data set, the "traditional" methods can lead to findings which portray a partial and inaccurate picture of the nature of job creation and loss taking place in an economy. In this paper some suggestions are made which, if incorporated into job generation research, should help bring more relevant aspects of the the job creation process to light. In broad terms this can be achieved by the incorporation of a temporal element into the job variable and through viewing firms as dynamic and opposed to static entities.

Alluding to such methodological considerations, three commonly put forward claims concerning job creation are evaluated, namely: small firms, through their capacity to grow, create more jobs than large firms (pro rata); a modest number of high growth small firms (winners) are primarily responsible for job creation; and the most effective and efficient form of policy is therefore to identify and target for support those small firms which have the potential for rapid growth.

The paper is divided into three main sections. The first section discusses the language used in job creation research and the attribution of the dynamic processes of growth and decline to static size cohorts of firms. The second section suggests that job longevity is an important consideration which has not been given due attention. Drawing on the preceding analyses, recommendations for job generation research are then put forward.

2. The language of job generation study

Almost all job generation analyses have made use of the notion of "the small firm"; numerous attempts have been made to define this entity. Most have used a collection of concepts each with their own dimensional ranges. If a particular firm can be mapped within such ranges, then this firm is classified as small. Is there a need to classify a firm in such a manner? According to Wittgenstein (1953) the meaning of a word is simply its use in the language; a small firm would be a firm with more "family resemblances" to other small firms, than to large firms. There is thus no all encompassing, stand alone definition of what constitutes a "small firm". Along similar lines, a small firm could be classed as one which is not yet big; moreover, one which we do not define as big.

Many useful concepts are not necessarily defined in absolute terms: for example, we are often able to identify phenomena such as *effective* and/or *efficient* behaviour through reference to *ineffective* or *inefficient* behaviour.

The concept of the "small firm" has acquired common usage in a wide range of contexts. It has an imprecise but usually absolute and "fixed" (as opposed to relativist) definition. Research in the area of small firms has tended to be positivistic in nature, treating firms as if they were "hard", often static, physical entities, in the search for causal regularities. In the author's opinion, such approaches have often proved inadequate to encompass the complexity of social phenomena such as "the firm". However, just because we have chosen to understand aspects of the organizational world in a certain way (usually to create some order out of chaos), this does not preclude alternatives. For instance, focus could be placed on "growth" and "decline" and investigating growing, stable and contracting firms as opposed to simply examining firms across the dimension of small and large.

By understanding firms in a "relative" manner, there is a chance that more flexibility can enter into our understanding of related phenomena – especially, the job creation process; for example, the statement "small firms create jobs", can be translated into, "growing firms are likely to be small". By changing the language slightly, a wholly different view is cast on an important aspect of job creation. The latter statement conforms to the organic metaphor so often used in studies of the firm, as opposed to the former, which appears to convey "new" and perhaps, misleading information of political and economic significance.

2.1. The logic of longitudinal analysis

In this section an attempt is made to determine whether the "common sense" notions often unconsciously employed in job generation analysis can lead to misleading conclusions.

The components of employment change which (in sum) contribute to an economy's aggregate employment change over any period can be defined as follows:

- (i) Jobs arising through firm birth/formation;

- (ii) Jobs arising through firm expansion;
- (iii) Jobs lost through firm contraction;
- (iv) Jobs lost through firm death/exit.

The totals of (i) and (ii), less the totals of (iii) and (iv) yield the aggregate population net employment change over a given period.

By definition, components of employment change are allocated to size classes or cohorts of firms as illustrated below. This results in a simple system whereby the sum total of each size cohort's job creation or loss equates to the aggregate change in an economy's private sector employment.

(I) *Birth of a company*

This change is allocated to the cohort into which the firm is born and is therefore deemed as job generation of that cohort.

(II) *Expansion of a company*

If a firm in any given cohort expands then the jobs created are credited to the size cohort which "surrounds" the firm's initial employment level.

(III) *Contraction of a company*

Job loss through firm contraction is apportioned to the cohort in which the firm was initially "based".

(IV) *Death of a company*

A firm is deemed to have died if it has either dissolved, been liquidated or has been declared bankrupt. Employment lost through firm death is usually apportioned to the initial size cohort of the firm.

(V) *Acquisition/divestment*

For the case of a firm which expands by acquisition with no contribution to net aggregate employment change, the "correct" methodology should result in no part of this expansion being accredited to any size cohort. The acquired firm's employment should also not enter into the deaths' statistics.

2.2. *A methodological problem?*

From the above definitions, an anomaly becomes apparent which arises through the use of size cohorts. The small firms' sector receives the credit

for employment growth in firms, which are small at the beginning of the particular period studied, but which have grown into large concerns by the end. However, for most of the period concerned such firms may have been far larger than their initial employment. Conversely, the large firm sector is apportioned employment loss due to employment decline in firms which were large, in terms of employment, at the start of the period of analysis, and small at the end. Again, much of the behaviour witnessed in such firms within the period may not be logically attributable to that of a large firm.

To elaborate further, a usual chain of logic used to attribute firm growth and decline to different size cohorts of firms would run as follows:

small firms are entities with $< X$ employees at t_1 ($< X_s$);

not-small firms are entities with $\geq X$ employees at t_1 ($\geq X_s$);

the entities with $< X$ employees at t_1 "had" (in aggregate) more employment at t_2 ;

the entities with $\geq X$ employees at t_1 "had" (in aggregate) less employment at t_2 ;

therefore *the small firms created the most jobs over the period.*

At first glance, the above statement seems to make sense. However, it is possible to imagine a scenario where the net job creation over a period was the result of large number of jobs being created in a *small* number of high growth "winners" accompanied by job losses through contraction and death in a *large* number of firms which were small at the start of the period. It could be argued that it was only through overcoming certain barriers to growth, for example, by increasing market share to a certain level, that many of the "winners" were then in a position to exercise strategies which would result in rapid and substantial further growth. In relation to the above, it may only have been through reaching X or more employees (i.e., reaching the not-small size band) that firms reached a position to grow rapidly. Obviously, it is not automatic that the size cohort from which the firm had to "escape" in order to have any chance of significant growth, should be apportioned the "credit" for such growth.

Some commentators may say: then attribute the growth observed to an average employment level.

There are a number of problems with this approach: for example, the firm may never have operated at the average level; and, given the growth profiles of most firms, it is unlikely that they spend half the time below and half the time above such a level although the logic would imply that growth was, in fact, attributable to this level rather than to others.

In general, it is not necessarily the case that growth occurring over a t_1 , t_2 period should automatically be attributed to the state of the entity at time t_1 , the state at time t_2 , or to any interim state.

A related (but simplistic) argument would run as follows: if small firm support is based on their job creation capacities, and much job creation arises from "winners", then small firm support is based on the behaviour of entities which, by definition, end up in a different class, and which, in the process of growth, often escape the category to which support is targeted.

Along similar lines, it could be further argued firms need real help when they have reached a size at which the structures, strategies, and processes which resulted in their growth (to such a size) are no longer appropriate to either further growth or survival at such a scale of operations (cf. Churchill and Lewis, 1983; Berryman, 1983). A simple analogy can be derived from Soccer. Every year a number of comparatively under-funded, ill-equipped but "enthusiastic" clubs (with potential) are promoted into the U.K. Soccer league's premier division. However, such clubs, more often than not, are unable to survive for a lengthy period at the top and soon become relegated. Strategies for success in the lower divisions prove to be ineffective in the higher ones. Only when they have established themselves at the top for a number of years do their positions become more stable. In a firm context, an analogous argument would suggest that those firms which have exhibited high growth (and, to all effect, done the hard work) may be deserving of assistance and even financial support to assist them in maintaining such levels of output and employment, and, in some cases grow further.

3. The role of the stable firm in job creation

In a recent study (Robson and Gallagher, 1994) it was found that over a two year period, at least 60% of all U.K. firms were apparently remaining at a constant employment level throughout (this figure would, of course increase significantly if slight oscillation from a mean employment level was taken to be as equivalent to stability). However, in recent years most academic and even "policy" attention has been directed at the minority of firms which tend to exhibit change (whether expansion, contraction, or death) over any period. The question begs itself: why do we continue to emphasise the (often somewhat erratic) behaviour of firms which most likely have not reached a "stable" employment level? In determining policy to create jobs, the role of the stable firm has often been ignored or understated.

The above statement may seem non-sensical; for how can something which is not growing create jobs? However, through a slightly different perspective, every working day, the stable firm can be seen to be "creating" a certain number of "job-days".

To elaborate, a company which grows at a constant rate from 0 to 100 employees over a two year period does, in fact, create the same number of job-days as a firm remaining at a constant 50 employees throughout. Furthermore, the rapid growth of the former may have resulted in displacement of employment from, and death of, other firms; thus, the 50 job years created may not necessarily be viewed as "net".

In terms of policy, if the emphasis is shifted from maximising the number of jobs in an economy at the end of a period, to maximising the number of job-days which are "created" over a period (which in the author's opinion would be more worthwhile), then strategies would definitely change from focusing on the growth side of the "job generation equation" (see Storey, 1994, p. 162) to the loss side.

In terms of keeping unemployment levels down, the stable firm has a crucial role to play. Furthermore, although Birch (1987) among others has found high net job creation to be associated with a high degree of job turbulence (i.e., high numbers of jobs being both created and destroyed), there has been a tendency to overlook

the social and psychological benefits of long term, safe, stable employment, and the stress and uncertainties which a high degree of job turbulence involves.

If at all possible, as well the design of measures to enable and encourage SMEs to grow, research should be carried out on SMEs which have exhibited decline (or even death) from a previously stable employment level, to determine whether such decline was in any way avoidable. If so, then it may be wise to design policy assistance measures in accordance.

3.1. *Stability, job duration and the perils of traditional job creation study*

Obviously, when interpreting the outcomes of any policy designed to encourage job creation, or when determining the relative fecundity of different size classes of firms, in terms of their ability to create jobs, it is important to consider the longevity of any jobs created. It is also imperative that the true impact of differing growth, stability and decline behaviours witnessed in firms in terms of their contributions to "active hours employed" over any period be adequately assessed.

Unless the (ridiculous) assumptions are made that all jobs are going to last for ever, or that all jobs created over any period were created at the same point in time, it will be very difficult to interpret "correctly" the results of longitudinal analyses of firm behaviour, which measure employment change between two discrete points in time, and use the "job" as the prime variable of analysis.

If a job is viewed as a static entity, using the accepted methods, the smallest firms will always be found to create the greatest number of net-new jobs in relation to their initial employment. The small firms' sector tends to "benefit" from both inherent advantages and through the nature of such methods. A major methodological advantage accrues through employment change being attributed to an initial, start of period, employment level. This process in turn fails to differentiate adequately between genuine growth, leading to either stability or even further growth, and growth, which is most likely to be followed by decline, in an oscillatory fashion.

As Davis *et al.* (1996) rightly point out, small

firms merely oscillating in and out of two neighbouring size ranges, will tend, to be reflected in terms of job gain attributable to the lower of these ranges and job loss attributable to the larger; i.e., "small(er) firm job creation" and large(r) firm loss. Given the nature of the firm size distribution in developed industrial economies (such as the U.S., U.K., and Germany), this will not significantly distort the results when the job creation performance of a single cohort of small firms (e.g., firms of less than 500 employees), is compared with that of a single cohort of large firms (e.g., firms of greater than 500 employees). However, where a significant degree of oscillation can take place, such as through firms moving in and out of the 1 to 9, and 10 to 19 size cohorts, the apparent relative performances of such size cohorts of firms can be severely affected.

For reasons mentioned earlier, attributing employment change to an average employment level is not necessarily illuminating. Furthermore, "oscillation" should not necessarily be viewed in negative terms: a firm moving from 4 to 11 employees in one period then back to 4 employees over the next, can have positive outcomes:

- some employment hours are created;
- it can result in a learning experience for the firm - it may be better equipped to successfully expand "next time around";
- oscillation around a mean level of employment may be fundamental to survival, especially for firms operating in turbulent and unpredictable environments.

However, it is imperative that job generation researchers, when attempting to determine the "fertility" of neighbouring size cohorts of firms, to, if possible, differentiate between long term (genuine) and short term (and perhaps, oscillatory) growth and decline. The may best be achieved through incorporating a temporal element into the job variable and shifting focus from determining the contributions made by small, medium and large firms (i.e., static entities), to determining the contributions (in terms of job-days) made by such firms in the dynamic processes of being born, growing, declining, oscillating, or even remaining stable over the period under analysis.

Without the incorporation of such an element,

it is possible that many important aspects of the job creation process can be overlooked and misleading statistics can be presented; especially, if a study is monitoring change over a considerably long period, for example, a decade. To illustrate, David Storey (1994) has again recently claimed that 4% of firms will create 50% of new jobs over a 10 year period. The argument, however, does not address any "temporal" issues. For example, some of the "50%" jobs may only be formed in the 9th year – in both existing firms and firm births, be present in year 10 (the "late date" of a 10 year analysis) but may also dissolve in the 11th year! Using normal components of change approaches, it is possible to imagine a set of circumstances where a firm starts at 20 employees, expands quickly up to 100, stays at this level for most of a 10 year period, and then, just before the end of the period of analysis, it moves back to 20. Are the 8000 job years created by such a firm simply to be ignored? Furthermore, when a decade or more is chosen as the period of analysis, usual components of change approaches will necessarily omit a significant amount of employment which is created in firms which are born after the "early date" of the analysis and which dissolve before the "late date". However, if we focus upon the "job-year" or the "job-day" instead of the job, such behaviours can be incorporated into job generation analysis, and their effects better assessed. When compared with the full range of behaviours which are exhibited in the firm population over any period which can result in the creation of employment (although, perhaps, employment which is not of a long duration), the impact of "winners" on job creation will be far less than Storey suggests.

There have been many difficulties in deciding upon the length of time to examine or track under traditional job generation study – over a short period most new jobs have been found to occur in firms exhibiting moderate growth, and over a longer period, most jobs have apparently been created by "winners". Different behaviours are not, in fact, being monitored but the methodology employed tends to necessitate this type of finding. However, by incorporating a temporal element, through focusing on job days instead of jobs, such methodological problems would diminish.

In summary, a number of advantages accrue to

focusing upon "job-days" instead of "jobs" in job generation analysis, namely:

- (i) With the incorporation of a temporal element, adequate comparisons can be made between the short and long terms.
- (ii) Oscillation around a mean employment level will be treated equivalently to stability.
- (iii) The nature of the size distribution of firms (by employment size) becomes actively incorporated into the analysis.
- (iv) Stability (which is an achievement in itself) will be given a higher profile than under present methods.
- (v) It would become possible to compare and contrast different growth profiles: for example, over a period, one firm may have grown quickly, then remained stable; another may have grown incrementally. With the temporal element, a variable is created which enables us to evaluate these different behaviours.
- (vi) It would become possible to better understand the real impact of new job creation upon the economy – especially that arising from job gain in new (and recent) firm birth; and hence, to determine the success or otherwise of policies designed to stimulate new firm formation – present methods mistakenly view the real employment contribution of a birth of a firm of N employees taking place at the end of the period of analysis as equivalent to that of the same amount of growth in an existing firm at the beginning of the period.
- (vii) More features of the job generation process can be addressed: for example, it becomes possible to measure the relative impact of the (short-term) jobs created in firms which are both created and dissolved within the period under analysis.
- (viii) Focus would shift from attributing dynamic job change to static entities (i.e., size cohorts), to attributing job creation and loss to entities in the *processes* of creating, sustaining and losing jobs.

An expected finding of studies which use the job-day as the "unit of currency" will be that, in the short to medium term, new firm births turn out to

be responsible for far less job creation than has been suggested using traditional methods. As most firm births tend to take place into the smallest size cohorts under 10 employees (Daly *et al.*, 1991), the contribution of such size cohorts to *real* job creation has thus also been overstated.

3.2. Testing the "hypotheses"

In a database such as Dun and Bradstreet, changes in firms' employment levels are recorded at relatively short intervals (sometimes, for large firms, as short as 3 months). Hence, job creation or loss taking place in a firm over time can be monitored and plotted accurately. Through carrying out the necessary numerical integrations, meaningful comparisons can be made between groups of firms exhibiting varied behaviours using the standard currency of the job-day, over more or less any time period.

Using the "integral" referred to above is, of course, only one possible alternative measure which could be used to aid improved understanding of the nature of job creation. It would be a worthwhile exercise to also develop measures consisting of two or more variables. For example, at the individual firm level, a joint measure consisting of size of firm, length of time exhibiting growth, and rate of growth at time *t*, could be informative.

3.3. The functions of "traditional" job creation research

It is not the author's intention to demerit "traditional" job generation studies which have used the "job" as the variable of interest. Of course, such studies as have been undertaken by Colin Gallagher and David Birch have resulted in important outcomes and have served some very important purposes, for example:

- (i) Merely to highlight the importance of small firms through the use of hard and fast numbers (although these numbers are difficult to interpret).
- (ii) To highlight areas of support [for example, firms in the 10–100 employee size range have been shown to exhibit remarkably high death rates (cf. Gallagher *et al.*, 1991; Daly *et al.*, 1991)].

- (iii) To monitor change in performance [especially of large firms] in times of changing economic environments.
- (iv) To determine which point on the continuum from small to large that net job creation becomes net job loss.
- (v) To monitor sectoral shifts in employment concentrations.
- (vi) To assist in the determination of regional policy through comparative regional analysis.
- (vii) To indicate (indirectly) at which size of operations managerial difficulties may arise and hence where help can be targeted.
- (viii) To enable some international comparisons to be made.

However, as indicated earlier, if, *in addition* to "the job", job generation analyses would use the "job-day" as the variable of interest, longitudinal analyses of job creation and loss would become more illuminating, especially in terms of determining the contribution of varied firm birth, growth, stability, contraction and death behaviours to employment change taking place in an economy.

4. The implications of job creation findings

It is not appropriate to evaluate the varied job creation behaviours of differing size cohorts of firms in terms of winning or losing, or good and bad. If through the use of sentences and headlines such as "small firms created more jobs" we are explicitly saying that they did better than their larger counterparts, then we are letting "language go on holiday". Good or bad does not come into it. The behaviours and interactions of small, medium and large sized firms and the wider social environment together constitute a system, and it is the workings of this system which determine the job creation profiles of different firms and consequently, different firm size cohorts.

Hence, even if we observe an individual firm which has exhibited exceptional growth over a period, we must remember that such growth may have been so dependent and intertwined with the firm's environment, and unforeseen changes taking place therein, that credit for such growth may not be logically attributable to this firm. Also,

the strategies and structures employed in this firm which resulted in growth may not be relevant to other "species" of firm in different environments. Unless we can fully understand (and operationalise) the nature of the environments facing different species of firms, and, of course, be able to predict change in such, we will remain unable to predict firm growth behaviour or which firms are likely to be "winners" over any period. By solely examining internal variables, such as those relating to financial and organizational structure, we will necessarily be ignoring fundamental external variables which impact on growth. Furthermore, even at the "internal" level, standardised measures often fail to address the factors which make a firm unique or exceptional (as such firms may be *qualitatively* as well as quantitatively unique).

However, using the "established" methodologies, the "small firms" sector has been shown as the one sector of the economy to flourish under all circumstances; and this most likely has been viewed *in good terms*.

In times of economic slump and depression, such a finding may be viewed as evidence that at least part of the economy is "doing well" (although, most probably not as well as it could be doing!) and thus provide a "ray of hope" to those concerned with reducing unemployment levels. However, the argument may subsequently be put forward that because small firms are "doing well" in terms of job creation, they can, through carefully directed state assistance, be encouraged to "do better" and, thus, become the key to rising employment levels and economic growth. Such an argument is, of course, erroneous.

The major function of "traditional" job generation analysis has been to determine the relative job creation performances of small and large firms, and to determine changes which take place in this relationship over time. However, the findings of such studies are extremely difficult to interpret; hence, only a limited amount of explanatory theory has been derived. For example, the Gallagher studies (for example, Gallagher *et al.*, 1991) indicate that in times of recession, large firms tend to lose more jobs than in times of economic prosperity. Also, in recession, concentrations of employment in small firms tend to increase (Robson and Gallagher, 1994). Unfor-

tunately, such theories may be of little use to policy makers.

5. Conclusions

Three major arguments have been presented in this paper. Firstly, the methodology of "traditional" components of change analysis, which attempts to apportion dynamic entities (e.g., growth, decline) to static ones (i.e., size cohorts) can result in bias which may over-state the contribution of small firms to job creation.

Secondly, we should not ignore the major contributions made by firms operating at more or less stable levels of employment to the economy; determining cost-effective methods by which to assist firms to sustain existing levels of employment or minimise employment loss when faced with environmental turbulence would be a worthwhile exercise.

Thirdly, it has been argued that in addition to using "the job" as the variable of interest, by incorporating a temporal element, relating to job duration, a better balanced (and less controversial) picture of the different flows which together make up the job generation process would ensue. The continued employment of the established methodology, which does not take into account job longevity, will result in the ubiquitous finding that "small firms outperform large firms in terms of job creation"; a finding which is very difficult to interpret and thus, of little use to policy makers.

To conclude, researchers should aim to present data which are clear and unambiguous and which can be of use in decision making. *If we do not know how to interpret data, the value of such data must be called into question.* Perhaps, in job generation study, there has been a tendency to become immersed too early in data manipulation and processing. However, little regard has hitherto been paid to evaluating the broad methodological factors which underpin the production of "job generation" statistics, and thus, what any statistics so produced actually imply. In other words, too much emphasis may have been placed on generating, and too little upon unravelling, the facts about job generation.

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