

# Job Creation and Job Loss: Research Questions Arising From The Use of Establishment Based Data.

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Unemployment is a pervasive problem. Both unemployment levels and durations have been considerably higher across the OECD since 1980 than they were in earlier periods (see Table 1). Moreover, even the Scandinavian countries, that were able to maintain exceptionally low levels of unemployment in the 1980s, have experienced dramatic increases in unemployment since 1989. Only Japan has been successful at sustaining low levels of unemployment. The evidence suggests that the vast majority of the unemployed are dissatisfied with their situation (see Oswald, (1994)) and that unemployment is a major source of poverty. During this period many countries -- and especially the UK -- introduced a series of market based reforms aimed at lowering unemployment, improving labor market flexibility and overall macroeconomic performance. These included some or all of the following: the lowering of unemployment benefits; reductions in the levels of -- and in some cases abolition of -- the minimum wage; reductions in the extent of the coverage of minimum wages; income tax cuts designed to make work a more attractive option; restrictions on the power of unions; retraining of workers; subsidies to self-employment and so on. These reforms have largely failed; labor markets do not seem to clear -- unemployment will not go away, if anything it has probably continued to worsen<sup>1</sup>. There are not enough jobs to go around. We appear to be a very long way from having an adequate explanation of the causes of unemployment and why it persists<sup>2</sup>.

The labor market is not like the market for fish: according to Bob Solow (1990) it should be thought of as a social as much as an economic institution. There is the perplexing refusal of employers in a recession to reduce wages or even to hire workers from the pool of unemployed workers at low wages. It may be that in bad times workers put in more effort thus warranting a higher wage than the market-clearing wage (i.e. efficiency wages), it could be that employers choose to reward their existing employees highly because they have known skills because retraining and monitoring the performance of new workers is expensive. Alternatively, in a recession employers refuse to hire skilled workers at lower wages because of the fear that, when circumstances improve, these newly hired, low-paid

workers will quit for better jobs<sup>3</sup>. This does not give the right signal to workers. Wages appear to be relatively unresponsive to changes in unemployment<sup>4</sup>. Why? There is a pressing need, then to better understand, both theoretically and empirically, the hiring and firing behavior of employers and how this changes over a) the business cycle and b) through the life cycle of establishments as well as the owning firm. Persistently high unemployment implies a lack of suitable jobs.

From the standpoint of the policy maker it is important to know what kinds of government policies -- macro or micro -- help or hinder job creation. Should policies be directed at existing firms or towards creation of new entities? What is the evidence to suggest that small businesses should receive preferential treatment? Which groups if any should be targeted for special help? What barriers are there to the workings of product, labor and capital markets that restrict the creation of new jobs? What are the effects of employment protection legislation and industrial subsidies? Unfortunately theoretical analysis on job creation and destruction is at a very rudimentary stage. There are few testable predictions to help us in designing policy. This is an obvious weakness that needs to be put right. This whole area lies outside my purview -- I shall concentrate on the empirical evidence.

In the remainder of the paper I am going to follow my remit which is to examine the research questions about job creation and job loss that arise from the use of establishment based data. Given the nature of the audience the approach I am going to take will be primarily a comparative one across countries. I will evaluate the existing empirical evidence and consider how far it takes us. The answer, in my view, is not very far at all although we are moving in the right direction. The quality of the establishment data currently available is very limited: there are a considerable number of data difficulties that make cross-country comparative work fraught with dangers. In section 1 of the paper I examine why one should use establishment-level data. In Section 2 I look at the evidence that has been obtained using establishment-level data. In Section 3 I identify a series of data problems

that need to be resolved if we are to understand the job generation process. In Section 4 I look at what we need to know and why. Section 5 presents my conclusions.

### **1. Why use establishment level data?**

Over the last couple of decades empirical economics has been revolutionized by the availability of micro-data. Usually such data have tended to be at the level of the *individual* or the *household* or both. Sometimes these data take the form of a single cross-section (e.g. the National Training Survey taken in 1975 in the UK) or even a time-series of cross-sections (e.g. the General Social Surveys in the US and the General Household Surveys in the UK). Many of these cross-section time-series now contain a longitudinal element with the same individuals interviewed on two separate occasions (e.g. the outgoing rotation groups in both the Current Population Surveys in the United States and the Labor Force Surveys in the member countries of the European Community). Other surveys are specifically designed to follow the same group of individuals through time (e.g. the Panel Study of Income Dynamics and the National Longitudinal Study in the US and the German Socio-Economic Panel). Some studies even follow individuals from the time of their birth through childhood and into adolescence and adulthood -- so called birth cohorts (e.g. the National Child Development Study of 1958 in the UK which has tracked the same individuals into their thirties).

Despite the fact that most western Governments have collected and published data on firms and workplaces for many years, it is only relatively recently that the raw micro-data tapes at the level of the *firm* and/or the *establishment*<sup>6</sup> has become available to researchers. This fact has been much bemoaned by economists (see, for example, Hamermesh (1993) pp. 396-400 and Stafford (1986)). One of the major reasons for the slowness in such data being released to researchers has been because of concerns over confidentiality. The Census Bureau in the United States and the British Department of Employment, for example, have found creative ways to make this kind of data available to researchers by allowing them to work 'in-house' or by doing the required runs for the researcher or even by

aggregating the data to a slightly higher level (e.g. the New Earnings Survey data in the UK where data were aggregated across groups of three individuals who were alike in various ways<sup>6</sup>). The availability of data on the behavior of employers complements data on the behavior of individuals. Employer level data are available at the firm or the establishment level and occasionally at both levels. Data can be in the form of i) a single cross-section (e.g. the Warwick survey of manufacturing plants in the UK in 1977, see Brown (1981)) or ii) as cross-section time-series (the Workplace Industrial Relations Survey series at the level of the establishment in the UK) or iii) as a panel (e.g. the Annual Census of Manufactures in Canada, the Census of Employment and the Workplace Industrial Relations Survey panels of 1980/1984 and 1984/1990 for the UK and the Longitudinal Research Database in the US for establishments, the Dun and Bradstreet corporate database in both the UK and the US and finally the DATASTREAM and EXSTAT databases in the UK in the case of firms<sup>7</sup>). Datasets are also now becoming available that iv) match information on the workers to information on their employers (see, for example, Abowd and Kramarz (1994), Anderson and Meyer (1994), Jacobsen, LaLonde and Sullivan (1993) and Lane et al (1994)) and v) that match establishments to the owning firm (see Marginson et al (1988)). As far as I am aware there are no data files currently available that allow the researcher to match establishments within the same firm.

The distinction between establishments and firms is irrelevant when the firm operates as a single establishment. Where the firm operates from more than one establishment then the distinction does matter. For some research questions such as the analysis of company pricing and performance the firm is likely to be the relevant unit of observation. In other problems where local conditions are of importance, such as an analysis of wage drift, the establishment is likely to be the preferred level. As argued by Carlsson (1987) using the establishment as the unit of observation has a number of advantages.

- 1) It represents the smallest level of aggregation for which useful data are available
- 2) It represents the production unit while the enterprise represents the ownership unit

- 3) Inter-establishment transfers of jobs within an enterprise are frequently accompanied by changes in location, type and overall number of jobs which would be lost if data were aggregated to the firm level.
- 4) Establishments can be classified by sector more easily than by enterprise as they normally produce a more narrowly defined range of products.
- 5) Scale economies are more readily associated with establishments so changes over time in the size distribution are more likely to reflect scale economies rather than growth through mergers and acquisitions which can occur at the firm level.

In the case of an analysis of job creation and destruction both the firm and the establishment are likely to be of interest. New firms are continuously being created and old firms are dying. Over a one year period some existing firms contract, some expand and some remain unchanged in size. Life is more complicated at the establishment level. Just as with firms new establishments are continuously being created and old establishments are dying. Some existing establishments contract, some expand and some remain unchanged in size. However, the death or decline of an establishment may be accompanied by growth elsewhere in the organization: the birth of a new establishment or the decline of an establishment in a multi-establishment firm may be accompanied by decline elsewhere in the organization. One drawback of using establishment level data is that one could mistakenly identify as job creation and destruction any firm-level reorganization that results in transfers of workers across workplaces. If a firm is involved in a restructuring that results in different mix of jobs then these are also likely to be missed. In some cases financial information is not available at the establishment level; not all establishments are profit centers. Sometimes personnel decisions are made from an office in another part of the organization -- this is especially apparent in the public sector. This can mean that the establishment level data has to be supplemented with information from a higher level of the organization e.g. the head office or the divisional headquarters.

## **2. What is the evidence from establishment based data?**

The starting point for any analysis of job gains and losses is to look at net employment change at the workplace. This is just the difference between employment at period  $t$  and that at  $t-1$ . This ignores the gross flows which presumably are a lot larger: we return to this point below. The obvious starting point is to try to understand why some establishments grow a lot and others do not. One can simply run a regression using each establishment as a single data point, simply taking employment in period  $t$  ( $E_t$ ) as the dependent variable and regressing it upon a series of lags of itself, say  $E_{t-1}$ ,  $E_{t-2}$  and  $E_{t-3}$  and groups of other variables at the establishment, firm, industry, regional and perhaps even the national level<sup>8</sup>. This is essentially what is done in papers such as Leonard (1993); Blanchflower and Millward (1988); Blanchflower, Millward and Oswald (1991); and Long (1993) using establishment data and Nickell and Wadhvani (1991), Arellano and Bond (1991) using firm data and Card (1991) and Christofides and Oswald (1991) using union contract data<sup>9</sup>. One can look for asymmetries by running the regression separately for growers and decliners. Principally because of data availability, this is not the way most of the recent research has gone.

Even though large scale panel datasets such as the Longitudinal Research Database in the US and the Annual Census of Manufactures in Canada contain information on employment patterns at the establishment level over long time periods they contain little or no information about the nature of the workforce (e.g. what proportion of workers are skilled, female, part-time, black or young say?) or the workplace itself (e.g. is it profitable, highly capital or labor intensive, multiple or single product, union or non-union etc.), the firm that owns it (how diversified is it, how profitable is it, how has its share price moved through time, has it been taken over recently, has it been recently privatized etc.?) or the markets in which it operates (is the market competitive?) or anything at all about the prices of the products that the firm sells. Most of the work in the area, including some of my own, has involved grouping establishments together at some higher level of aggregation and looking for patterns in the data through time and space<sup>10</sup>. This work tells us very little

about the macroeconomics of the job generation process. There isn't a great deal of agreement over what the stylized facts are. Why? One possible explanation is that aggregation matters (see Blanchflower and Oswald (1994) for evidence on this). By aggregating to the level of the sector we may lose much of the interesting variation in the data.

Unfortunately it is not even clear which are the relevant variables the policy maker should focus upon. Is it good to have a high or a low rate of job turnover? Should governments concentrate on preventing plant closures or trying to increase the number of plant openings, or should they try to increase the numbers of self-employed? Frankly, we haven't got a clue. Theory helps us only a little here -- there are few if any testable predictions to hold against the data. Part of the problem is that many of the relevant theories rely on unobservable variables and hence are difficult to reject with the kind of data that econometricians usually have available to them. The microeconomics of the job generation process also remains largely a mystery. As I will argue below this is the direction that future research must go in if we are to help the policy maker out of his quandary. Dan Hamermesh (1993) has put it succinctly,.

'While they are extremely interesting in their own right, data on gross job flows tells us nothing directly about the magnitude of the wage or output elasticities of employment changes through the births or deaths of establishments, or growth or contraction of existing establishments. All we can infer is that changes occur and that, by assumption, they must be produced by shocks that change labor demand by existing or potential employers '

What have we learnt from all of this work on gross job flows? Much less, in my view than one might have hoped. Most of the key theoretical ideas still remain unresolved. The policy implications are far from being solved. The main findings are as follows.

- 1) Job turnover is high relative to net employment change - see OECD (1994)
- 2) Job turnover is high in all sectors (see Anderson and Meyer (1994)).

- 3) Job creation and destruction are concentrated in a relatively small group of establishments (Davis and Haltiwanger, (1992) and Davis, Haltiwanger and Schuh (1994) and Blanchflower and Burgess (1994)).
- 4) There is considerable heterogeneity in employment growth rates across all sectors, even within sectors that are in rapid decline (see Blanchflower and Millward (1988); Dunne, Roberts and Samuelson (1989a, 1989b)). Labor markets are much more dynamic and turbulent than we once thought.
- 5) Turnover within industries seems to explain the vast majority of overall turnover.
- 6) The expansion and contraction of existing establishments dominate cyclical movements.
- 7) Job destruction varies much more over the cycle than does job creation.
- 8) There does not appear to be any correlation across countries between job turnover rates and unemployment.

The importance of small plants/firms in the job generation process; the extent to which job turnover is cyclical, frictional or structural; the role of labor market regulation still remain open questions. There is little agreement also over the factors that influence job turnover. Despite the growing number of studies in the area there are few consistent patterns in the data. This is especially apparent when doing cross-country comparisons such as in OECD (1994) across a variety of countries, Leonard and Van Audenrode (1993) for Belgium and the USA and Baldwin, Dunne and Haltiwanger (1994) for Canada and the USA.

As can be seen from Table 2, which is reproduced from OECD (1994) there is little systematic variation across countries in either job gains or job losses. Confirming point 8 above there is also no correlation between job turnover and unemployment. It is difficult to know what is going on. Countries with high unemployment over the periods under consideration such as Italy, the UK and France, for example, show similar proportions of jobs generated from expansions of existing workplaces as Sweden, Finland and the US which had relatively low unemployment. Similar stories apply when one replaces the unemployment rate with its range over the same period (final row of Table 2). Indeed, the

simple correlation between each of these rates and the unemployment rate (reported in the final column of Table 2) is generally very close to zero and sometimes even has a perverse sign. For example, one would expect net employment change to be negatively correlated with the unemployment rate rather than positively correlated as found here (+.35). Why is this? One obvious possibility is that the datasets that have been used are not strictly comparable. This is what we consider in the next section.

### **3. Problems that arise when using establishment level data**

A number of definitional problems arise when using establishment based data, which become of particular concern when doing empirical work. They are especially problematic for undertaking international comparisons such as in OECD, (1994)<sup>11</sup>. A number of possibilities come to mind.

1. If a sample is used, how are the sampling frames selected? How representative is the sample? What weighting system is to be used? What size cut-off if any is to be used and why? Are births and closures of establishments included in the sample?
2. How out of date are the sampling frames by the time the sample is pulled and a survey interview obtained? In the case of the British Workplace Industrial Relations Survey the sampling frames are three years old before they are used. Hence they tend to be less representative of small firms/establishments that have relatively high birth and death rates. They are also more likely to be deleted from the sample than larger workplaces as employment is more likely to fall below the cut-off of 25 employees, which applies at the date of the census and at the time the survey interview is taken.
3. How are establishments actually defined? What happens if an establishment moves premises in a time period under examination? Is that counted as a birth and a death? What if it is taken over or merged with another firm? What if the establishment is representative of multiple firms -- perhaps it is the head office of a holding company, how is that treated? The chances of such a workplace being sampled is likely to be disproportionately high<sup>12</sup>.

Also, there can be difficulties in defining the scope of an establishment through time, particularly when respondents change.

4. Which sectors are covered? Most, but not all of the work that has been done at the establishment level has been restricted to the manufacturing sector (exceptions include Blanchflower and Burgess (1994) and Anderson and Meyer (1994)). As can be seen from Table 3, the proportion of total civilian employment in manufacturing has generally declined over time, but more importantly, varies dramatically across countries. In 1992, for example it is as low as 14.6% of total civilian employment in Canada compared with 30.4% in Germany. Is agriculture excluded? Why? Similar arguments apply to analyses which omit the public sector which may be relatively large in some countries. In columns 3 and 4 we report the proportion of workers employed in public administration. This varies from a high of 31% in the case of Denmark to 8% in Japan. This excludes public sector employment in other sectors for which I could not find suitable data. In some countries such as Sweden and France this can be quite high.

5. What if the establishment produces multiple products, how is industry defined? Industry is usually obtained on the basis of principal product but the balance between the establishments' various products may change through time.

6. How are part-time workers treated? In some establishment level surveys part-timers are treated as one worker, in other surveys they are treated as half a worker. What hours cut-off should be used? The definition of what constitutes a part-time worker has changed through time and varies across countries. This clearly makes a difference to the employment count. Should the same criteria of what constitutes a 'job' be used across sector, country and/or time? How are part-year workers treated? What about workers who are on short-time work or even out on strike, how are they treated?

7. Following on from point 6 above, we know that there is a tendency for the numbers of hours per week and numbers of weeks worked per year to vary strongly through time and across country. The average Swede, for examples, work many less hours per year than does

the average German and the average German works many less hours per year than does the average American. Absence from paid work varies considerably across countries and over time - absences of over one week are especially high in Sweden in comparison with other countries, for example, principally because of the availability of statutory leave of absence for parenthood, education or long-term sickness. Part-week absences are relatively high in the UK. In addition, the numbers of employees at a particular workplace at a moment in time may be a very poor measure of the extent of the labor input if hours are high or vary a lot through the cycle. Perhaps a better measure would be the total number of full-time equivalent job slots at the workplace where a job slot is defined as say 35 hours per week for 52 weeks a year. That would certainly improve comparability.

8. How are the self-employed treated? What if the self-employed person, whether incorporated or unincorporated, has employees or increases/decreases substantially the numbers of his/her employees over time? As can be seen from Table 4 in some countries the self-employed are a very high proportion of total employment. In the US in 1992, for example, there were just over 10 million self-employed or 8.5% of total employment and 7.5% of all non-agricultural workers (employees plus employed) compared with 11.0% in the UK and 7.9% in Germany, 9% in France, 17.6% in Portugal and 22.5% in Italy (source: OECD Employment Outlook, 1992). Are unpaid family workers to be counted? The self-employed are also well known to work extremely long hours (see Blanchflower and Oswald, 1990). In most establishment based studies the self-employed are explicitly excluded. In others, mostly for the US, as long as the self-employed have at least one employee they are included (see, for example, Anderson and Meyer, 1994). As can be seen from the final column of Table 3, the proportion of the self-employed that have employees varies dramatically across countries. In 1990 in Italy only 4% had employees compared with 61% in Germany, 58% in Denmark and 47% in France. This further complicates the task of drawing inferences about the job generation process across countries. Ultimately every job was created by somebody! Self-employed individuals have a talent that most of

us do not possess -- they have created a job for themselves. Some individuals have an even more special talent -- they have created jobs for others. A very few individuals such as Bill Gates and Henry Ford have a rare quality -- they have created many thousands of jobs. Somebody had an idea and went with it. An understanding of entrepreneurship and self-employment seems to me to be central to an explanation of how jobs are created and why.

9. In most countries there has been a move towards using outworkers, freelancers, workers on short-term contracts or temporary workers. It appears that sub-contracting in general has been on the rise. How are these workers to be counted? In period  $t$  the firm employs 1000 employees. In period  $t+1$  it produces the same output at the same cost as in period  $t$  (for simplicity) but it now employs 970 workers. The cleaning work is now contracted out to the same 30 workers it used to employ in period  $t$  but who quit the firm and now work for it on a self-employed basis because of a tax break. The number of employees at the workplace has clearly fallen but total employment remains constant! How should this be dealt with?

10. What are the characteristics of the jobs being generated and destroyed? Some of these jobs are good jobs and some are bad jobs, some are high paid some are not, some last for a long time and some for a short-time. We would like to have detailed information on the type of jobs being destroyed and the type being created and the wage and fringe benefits attached to them. Do we want to count cleaning jobs and hamburger flipping in the same way as we treat jobs for highly skilled craftsmen?

11. How does the structure of employment change over the cycle? I am thinking in terms of skilled versus unskilled jobs, part-time v full-time, young versus old, men versus women etc.. Is there evidence of labor hoarding?

12. How are temporary layoffs with recall treated? These are important in the USA but do not exist at all in the UK and most OECD countries.

13. How is size to be measured? It is also possible to use business receipts or the value of business assets. Should employment be used as the only measure? There is absolutely no

necessity for the measures to be moving in the same direction. Receipts and profits could be rising even though employment is falling, as the firm adopts new technology and substitutes away from expensive labor inputs.

14. When employment change (or the 'job creation rate' say) is calculated should the denominator be measured as some average of size over the period of interest -- which better measures its more medium term intended size. This is the approach taken by Davis, Haltiwanger and Schuh (1994) and Anderson and Meyer (1994) and is clearly useful when new plants are included in a datafile as they would have a base year employment size of zero. Or should we use the more natural denominator of the base year employment size, even though this tends to be temporary, as in Blanchflower and Burgess (1994)? The two methods are connected via a simple formula<sup>13</sup>. Care needs to be taken when comparing results using the two measures.

15. How should 'small' be defined given that there is such variation across sectors, especially in manufacturing, in average establishment size. Perhaps the classification 'small' should be somehow related to the average size of plants in the sector?

16. What is happening to the establishment's use of other factor inputs besides labor over the period under consideration. It is perfectly possible that the firm is increasing its output and increasing its use of some or all of its inputs. It is also perfectly feasible that the relative price of labor to capital or energy say, has shifted and we are simply observing long-run substitution toward a cheaper factor of production. What is happening to output, sales, the capital/labor ratio, productivity, profits etc.?

17. If one uses establishment level data then one has to be clear who the respondents are. This can be a particular problem over time, when individuals move between jobs even if the job itself remains -- information is obtained from the plant manager. In the two panels conducted for the Workplace Industrial Relations Survey in the UK, it appears that there was a lot of discrepancy over time in respondent's definition of the scope of an establishment's operations. This is likely to be special problem when survey dates are far

apart (6 years in the case of the WIRS2/3 panel). Also it may be necessary to use multiple respondents - sometimes more than one manager is interviewed (e.g. information on the workers is obtained from the Personnel Department while financial information is obtained from a financial manager, perhaps at a higher level such as at a head office) and sometimes more than one representative of the workers as in the Workplace Industrial Relations Survey. What happens if there are disagreements between respondents, how are they to be treated?

Given such data difficulties as these it is hardly surprising then that there are relatively little agreement over the facts. Improving the quality of data, extending its coverage and making it more comparable across countries would be a big step forward. This will probably teach us a lot. It may well be that once these data difficulties are resolved there will be many more consistent patterns in the data. What else do we need to know? This is what we consider in the next section.

#### **4. What do we need to know and why?**

Even when we have solved the data difficulties outlined above, there is still a lot we need to know empirically. I would like to have better empirical measures across countries, sectors and through time of the following:

- a) the extent of substitution between various types of labor (skilled versus unskilled, young versus old etc.)
- b) the level of substitutability of various labor types for other factor inputs such as capital and energy
- c) the size of the own-price elasticity for labor
- d) the magnitude of employee-hours substitutions
- e) the structure of adjustment costs
- f) the speed of adjustment of labor demand to both positive and negative shocks?

It is clear that this type of information will not be forthcoming with the type of data currently available. It calls for a slightly different approach that involves an attempt to open

up the workings of the black box that is the firm. We need much more information on the establishment itself, the firm that owns it, the market that it operates in and so on. We need to understand the specific factors that influence the decision making process at an individual establishment. What are the characteristics of the workplace? Is the workforce unionized and has the workforce been on strike recently? What is the occupational structure of the workforce and how has it changed through time? What type of payment system does it operate (payment-by-results, profit sharing etc.). What does the distribution of earnings look like within the establishment and firm: is it very unequal and how has it moved through time and how is it related to performance? What management structure does it have? Is it the possession of a particularly high quality management team trained at the Sloan School at MIT or the Harvard Business School that makes all the difference? Is it just that the product is more technically advanced than the competition? Is it the quality of the market research or the possession of a first class business plan than does it? Is the workplace foreign owned? Has it recently been taken over or merged with another workplace? Is the workplace an administrative center or head office which does not have any salable output? How competitive is the product market(s) in which the establishment operates? Is it a monopolist? Does it sell its products internationally or domestically? Why doesn't it lower its wages in a recession. Does it bargain with its workers over employment? If not why not? How can we get such information?

In his recent book entitled Labor Demand, Dan Hamermesh devotes a whole section to the need for improved data at the level of the employer (chapter 11, pp. 398-400). His ideal data series is very close to mine -- he argues that it should take the following form. It should be taken monthly and be based on random samples of establishments: defunct workplaces should be replaced with appropriate substitutes. Information on employment and hours (both paid for and worked) should be included, he argues, alongside data on flows of workers into and out of establishments. Data are needed on total employment and on employment disaggregated into several skill and demographic categories including at

least sex, race, broad occupation and age intervals. The number of workers hired in each period in each group is needed as are hours per week. Payroll costs and the costs of other benefits are necessary for each type of worker along with information on output. Information on the value of inventories and the replacement value of the establishment's plant and machinery or failing that a series on investment is also desirable. Samples of workers from the plants should also be followed during their tenure in the establishment with replacements substituted for them as they separate their employer. Data on their demographic characteristics including those of other members of their household need to be collected along with their self-reported earnings and hours both with the employer and on other jobs plus those of other household members are also desirable.

We need to get at the firm's behavior. We need to move beyond inferring motives for particular types of behavior and observe behavior. The only way to do this is for economists to get their hands dirty. This may be blasphemous to some but we need to go and find out for ourselves what is happening at the workplace by talking to the principle actors -- the owners, customers, debtors and creditors, managers and workers. I am reminded of the justification given by Dertouzos et al (1989) for the approach taken in their study of productivity entitled Made In America -- they went out to talk to managers to seek explanation

"Most of the earlier studies treat the economy as a black box, which leads to a natural inclination to focus on macroeconomic explanations. Even where other factors are invoked, the explanations tend to take on an abstract quality that is difficult to connect with what is actually happening on the shop floor, in the office, or in the marketplace." (1989, pp. 43-44)

and

"To understand how a firm interacts with customers and suppliers, detects shifts in demand, and uncovers new opportunities, we need to know more than the prices the firm pays for its inputs and charges for its products. To evaluate the sources of flexibility in the firm's use and redeployment of human and capital resources, we need to consider a range of variables that cannot be deduced from a top-down perspective on the economy." (1989, p. 38)

I would complement the establishment level data described above with detailed interviews taken at regular intervals with one or more owners and/or managers at the workplace. The main purpose would be to examine their decision making process and the factors internal and external that influence it. A number of recent studies, including that by Dertouzos et al (1989) have used such an approach-- see, for example, Blanchflower and Oswald (1990), Blinder and Choi (1990), Bewley (1994) and Bewley and Brainard (1994) and Kaufman (1984). This follows path breaking early work by Sumner Slichter (1929) and Richard Lester (1948). It is also conceivable that interviews would have to be conducted with managers in other parts of the organization because the information is unavailable at the level of the establishment. It might also be appropriate to interview one or more worker representative. This is the approach that has been followed in each of the three waves of the Workplace Industrial Survey in the UK as well as in the Australian WIRS. Of interest here is also to model disagreements between the parties (workers say cause of strike was X, employers say Y) as has been suggested in Mellow and Sider (1983).

We would like to know what barriers there are in capital, labor and product markets to the creation of jobs. Recent work by Evans and Jovanovic (1989), Blanchflower and Oswald (1994) and Holtz-Eakin et al (1994a, 1994b) suggests that the supply of entrepreneurship is restricted by the presence of liquidity constraints. How important a constraint is the lack of availability of finance? What prevents employers adjusting their labor inputs to the desired levels? How important are skill shortages? To what extent do trade unions influence the probability of a plant closing? To what extent does openness to international trade affect an establishment's ability to create jobs? In what ways and to what extent does employment protection legislation affect labor demand?

## 5. Conclusions

We have no convincing explanation, or indeed solution for, unemployment persistence. There are simply not enough high quality jobs being generated for all the people that want them. The market does not seem to be about to deliver them as if by magic. Moves toward more market flexibility in many countries in the 1980s do not appear to have solved the problem. We need to have a policy or policies toward jobs that works. The only way to properly inform such a policy is to have high quality matched panel data across countries on individuals and their employers that is comparable. Such data files need to contain a lot more detail than has been available in most existing establishment data sets, which are usually based on administrative records. We need to develop theoretical models of these groups' behavior which have testable predictions that can be held against the data. Econometric tests of these models at both the micro and macro level are important to our understanding. We also need to understand some of the workings of the black box that is the firm. In my view the only way we can do this is by conducting more detailed investigations at the workplace. We need to observe more directly what is going on by interviewing interested parties. We are still at the stage where we need to set out the stylized facts. Theory is at a very rudimentary stage. There is a long way to go.

### Endnotes

<sup>1</sup>. As can be seen from Table 1 in comparison with other OECD countries the UK, for example, has experienced relatively low employment growth and high unemployment despite having a relatively small increase in population aged 15-64. For an assessment of the effectiveness of labor market reforms in the UK see Blanchflower and Freeman (1994).

<sup>2</sup>. Manning (1995) confirms this.

<sup>3</sup>. See Bewley (1994) and Bewley and Brainard (1993) for evidence on this.

<sup>4</sup>. Blanchflower and Oswald (1994) find that the responsiveness of wage levels to changes in unemployment is remarkably similar across countries and through time. The unemployment elasticity of pay is measured at -0.1 in the 1970s and 1980s in the UK, USA, Canada, Germany, Netherlands, Italy, Norway, Ireland, Japan, India, Sweden, Ivory Coast, South Korea, Austria and Switzerland.

<sup>5</sup>. We use the terms 'establishment' and 'workplace' equivalently. The term 'plant' is only used for establishments that operate in the manufacturing sector.

<sup>6</sup>. For details see Gregory and Thomson (1990)

<sup>7</sup>. For details see Nickell and Wadhvani (1990).

<sup>8</sup>. Of course this is equivalent to running an equation with the change in employment as the dependent variable --  $E_{t-1}$  is deducted from both sides.

<sup>9</sup>. This work has shown that trade unions have a negative impact on employment change (see Leonard (1993); Blanchflower and Millward (1988); Blanchflower, Millward and Oswald (1991); and Long (1993)). Financial factors exert an important influence on employment. For evidence on this at the firm level using British data see Nickell and Wadhvani (1991) and Arellano and Bond (1991)) and using Canadian union contract data see Card (1991) and Abowd (1989). Christofides and Oswald (1991) and Card (1991) use these union contract data to show a relationship between employment change and wages.

<sup>10</sup>. Hence 'Job gains' is calculated as the sum of new jobs created at new establishments and the net increase of jobs in expanding existing establishments. 'Job losses' is the sum of jobs destroyed in establishments that died plus the net decrease of jobs in existing establishments whose employment declined over the period in question. 'Job turnover' is the absolute sum of 'Job losses' plus 'Job gains'.

<sup>11</sup>. To be fair to the authors of the study they were well aware of such problems. They argued that "...accurate cross-country comparisons are hindered by often major differences in the type of data available. For the most part, these are drawn from administrative sources that differ not only in their collection methods, but also in their employment coverage, industry classification scheme and other factors. These affect results and so comparisons must be made carefully" OECD, 1994 p. 127.

<sup>12</sup>. This is a problem in the British Workplace Industrial Relations Survey which uses the Census of Employment as the sampling frame. The unit of observation is the census unit which closely approximates an establishment. However, the weighting scheme has to be adjusted for the existence of multiple-census units which raise the probability of any one establishment being selected.

$$13. \quad G_t = \frac{EMP_t - EMP_{t-1}}{EMP_{t-1}} \quad \text{and} \quad g_t = \frac{EMP_t - EMP_{t-1}}{\frac{1}{2}(EMP_{t-1} + EMP_t)} \quad \text{then} \quad G = \frac{2g}{2-g}.$$

See Davis, Haltiwanger and Schuh (1994) chapter 2, p.9.

Table 1. OECD Employment and Unemployment

Country	Population age 15-64*				Civilian Employment*				Unemployment (%)			
	1969	1979	1989	1992	1969	1979	1989	1992	1969	1979	1989	1992
Canada	75.0	93.2	103.8	112.5	69.8	92.6	111.3	109.1	4.4	7.4	7.5	11.2
USA	78.5	93.5	103.2	105.4	72.7	92.2	109.5	109.8	3.4	5.8	5.2	7.3
Japan	85.9	94.7	103.9	105.3	86.8	94.4	105.5	110.8	1.1	2.1	2.3	2.2
Australia	74.4	90.3	107.8	110.7	77.4	90.5	115.2	114.4	1.8	6.1	6.1	10.7
New Zealand	77.5	92.0	102.8	105.7	78.7	95.0	-	-	0.3	1.9	7.1	10.3
Austria	90.2	94.1	100.9	104.0	-	94.3	103.3	109.6	1.8	2.1	3.1	3.6
Belgium	91.6	97.3	100.6	100.7	102.4	104.1	104.4	105.9	2.3	7.5	9.3	10.3
Denmark	92.7	97.0	101.5	102.6	90.5	96.7	103.5	103.6	1.1	6.0	8.1	9.0
Finland	91.4	96.5	100.2	101.4	85.9	92.5	101.4	89.1	2.8	5.9	3.4	13.0
France	86.2	93.5	102.7	103.6	95.8	101.9	102.6	105.3	2.3	5.9	9.4	10.2
Germany	89.4	94.3	101.2	105.0	99.3	100.2	104.5	110.2	0.7	3.2	6.8	5.8
Italy	88.6	94.2	100.8	99.8	93.2	97.8	101.6	103.7	5.6	7.6	11.8	11.4
Netherlands	81.1	93.0	103.3	105.2	91.0	95.0	-	-	1.0	5.4	8.3	6.7
Portugal	84.7	94.5	100.3	103.0	-	95.0	107.9	110.9	2.5	8.1	5.0	4.0
Spain	83.5	93.5	103.5	105.7	113.7	111.9	115.3	116.2	2.4	8.4	16.9	18.1
Sweden	97.0	98.4	101.3	101.1	88.0	97.2	103.9	97.6	1.9	2.1	1.3	5.3
United Kingdom	94.2	96.5	100.8	101.3	101.1	103.6	108.9	104.0	2.0	4.6	6.1	9.5
OECD Total	83.0	93.5	103.1	101.6	85.1	96.0	107.4	107.5	2.9	5.1	6.4	7.5

Note: \* 1985=100

Source: Labour Force Statistics, 1972-1992, OECD, 1994, tables 6.1 and 5.1 respectively.

Table 2. Job gains and job losses -- Average annual rates as a percentage of total employment.

	Canada 1983- 1991	Denmark 1983- 1989	Finland 1986- 1991	France 1984- 1992	Germany 1983- 1990	Italy 1984- 1992	N. Zealand 1987- 1992	Sweden 1985- 1992	UK 1985- 1991	USA 1984- 1991	Correlati on Unempt
Gross job gains	14.5	16.0	10.4	13.9	9.0	12.3	15.7	14.5	8.7	13.0	0
Openings	3.2	6.1	3.9	7.2	2.5	3.9	7.4	6.5	2.7	8.4	-0.2
Expansions	11.2	9.9	6.5	6.7	6.5	8.4	8.3	8.0	6.0	4.6	0.25
Gross job losses	11.9	13.8	12.0	13.2	7.5	11.1	19.8	14.6	6.6	10.4	-0.2
Closings	3.1	5.0	3.4	7.0	1.9	3.8	8.5	5.0	3.9	7.3	0
Contractions	8.8	8.8	8.7	6.3	5.6	7.3	11.3	9.6	2.7	3.1	-0.3
Net employment change	2.6	2.2	-1.6	0.6	1.5	1.3	-4.1	-0.1	2.1	2.6	0.35
Net entry	0.2	1.1	0.5	0.2	0.5	0.2	-1.1	1.5	-1.2	1.1	-0.5
Net expansion	2.4	1.1	-2.1	0.4	0.9	1.1	-3.0	-1.6	3.4	1.5	0.59
Job turnover	26.3	29.8	22.4	27.1	16.5	23.4	35.5	29.1	15.3	23.4	-0.1
Base period empt. (‘000s)	7,034	1,447	1,308	12,778	16,350	8,381	828	2,306	16,744	85,824	n/a
Unemployment rate (%)*	9.5 [4.3]	7.5 [5.0]	3.4 [4.1]	9.9 [1.3]	7.6 [1.2]	11.1 [1.9]	7.5 [6.3]	2.5 [4.0]	8.8 [6.0]	6.3 [2.2]	

Notes: net entry = openings - closures. Net expansions = expansions - contractions. Numbers in square parentheses [] are the range of the unemployment rate.

Source: OECD (1994) and \* Labour Force Statistics, 1972-1992, OECD, 1994

#### Data description

Canada : Small Business and Special Surveys Division, based on tax information from all employers at the firm level. Underestimates employment in small workplaces.

Denmark: Integrated database for Labour Market Research -- excludes the public sector. Longitudinal file of individuals and establishments.

Finland: Enterprise data supplemented by annual establishment surveys. Firms must have operated 6 months and have a minimum turnover of 45000 FMk in 1991.

France: Register of establishments excluding public sector but coverage uneven because major national enterprises excluded

Germany: Collected by Social Insurance Scheme notification procedure. Excludes those <15 hours/week or employed short periods or with wage below a set minimum.

Italy: Uses firm level social security contribution data. Excludes public sector firms. Delays in processing data affect counts, particularly for small firms.

New Zealand: Business Demography Database at the level of the activity unit which approximates an establishment. Part-timers= half a full-time position.

Sweden: From Database Statistics on Regional Employment longitudinally for individuals and establishments.

UK: Dun and Bradstreet for firms. Coverage incomplete for small firms - 1985-1987 excludes firms with less than 5 employees. Problem of delays in processing data

USA: Establishment and Employment Microdata file and the Establishment and Longitudinal Microdata file. Covers all domestic business establishments with >1 employee

Table 3. Distribution of civilian employment by sector, 1972-1992

<b>Country</b>	<b>Manufacturing</b>		<b>Public administration</b>	
	<b>1972</b>	<b>1992</b>	<b>1975</b>	<b>1992</b>
Canada	21.8	14.6	20.7	22.0
USA	24.2	17.0	17.1	15.9
Japan	27.0	24.4	8.7	8.1
New Zealand	25.4	16.4	19.7	16.2
Denmark	24.9	20.3	23.6	30.5
Finland	27.1	19.6	14.8	22.1
France	27.9	20.4	19.2	23.2
Germany	47.7	30.4	13.8	14.7
Italy	39.6	22.0	14.6	17.2
Sweden	27.1	18.9	25.7	32.4
United Kingdom	32.9	27.3	20.9	19.7

Source: Labour Force Statistics, 1972-1992, OECD, 1994. Data on Public Administration kindly supplied by the OECD.

Table 4. Proportion of non-agricultural civilian employment that is self-employed (%)

<b>Country</b>	<b>% self-employed</b>				<b>% self-employed with employees</b>
	<b>1972</b>	<b>1979</b>	<b>1989</b>	<b>1992</b>	<b>1990</b>
Canada	6.7	6.7	7.2	8.0	28.4
USA	6.8	7.1	7.5	7.5	-
Japan	13.9	14.0	12.0	10.7	27.1
Australia	9.4	12.4	12.5	13.3	35.9
New Zealand	-	9.5	14.7	15.8	43.2
Austria	12.0	8.9	6.6	6.3	-
Belgium	11.5	11.2	12.9	13.3	10.6
Denmark	9.2	9.2	6.9	6.7	57.6
Finland	6.6	6.1	8.7	9.1	-
France	11.7	10.6	10.5	9.0	47.3
Germany	9.4	8.2	7.8	7.9	60.8
Italy	23.4	18.9	22.4	22.5	4.3
Netherlands	-	8.8	7.8	9.2	35.1
Portugal	13.2	12.1	16.4	17.6	30.1
Spain	16.6	15.7	17.6	18.2	21.4
Sweden	4.9	4.5	7.1	7.9	42.9
Turkey	-	-	26.6	27.8	29.4
United Kingdom	7.3	6.6	11.4	11.0	31.5

Notes: self-employed defined as being employers and persons working on own account, excluding unpaid family workers who are counted in the denominator

Source: Labour Force Statistics, 1972-1992, OECD, 1994 and Employment Outlook, OECD, 1992, table 4.3.

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