

How Good Are the U.K. VAT Registration Data at Measuring Firm Births?¹

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ABSTRACT. This paper utilises some data from a survey of recent VAT registrations in the North of England to examine two issues: first, the extent to which registrants are involved in setting up entirely new businesses; and secondly, the relationship between the date of registration and the start of trading. The paper suggests that some caution should be exercised in the use of VAT registration statistics in the analysis of firm births.

I. Introduction

Over the past decade or so numerous studies have examined the determinants of variations in U.K. firm birth rates across geographical areas, industrial sectors and over time. (For a good review of these studies and for recent empirical work, see Keeble *et al.*, 1993; see also Storey, 1994, pp. 49–77.) Work is now also being done on the *effects* of firm births on employment and other economic indicators (eg Ashcroft and Love, 1994; Johnson and Parker, 1994, 1996).

An increasingly utilised data source on firms births in the U.K. is now the VAT registration data produced by Customs and Excise and analysed by the Department of Trade and Industry.² Recent time series analyses of these data include those by Black *et al.* (1992); Keeble *et al.* (1993); and Robson (1994). Spatial variations in VAT registrations have been examined by Ashcroft *et al.* (1991); Westhead and Moyes (1992); Keeble *et al.* (1993); Hart and Gudgin (1994); and Johnson and Parker (1994, 1996). These registration data have

the advantage that they are readily available and provide comprehensive spatial and industrial coverage of registrations. Consistent data are available back to 1980.³

The disadvantages of VAT registration statistics – which result from a taxation requirement imposed on businesses rather than from the needs of applied economic research – as a measure of firm births are well rehearsed (see for example Daley, 1990; Storey, 1994, pp. 50–51). Firms are not required to register, although they may do so, until they reach the threshold level of annual turnover, currently £46,000. Thus many very small firms are excluded from the VAT data: Bannock and Partners (1989) estimated that in 1986, only 60 per cent of all firms were registered for VAT. The VAT threshold has changed over time, although during the 1980s, it moved broadly in line with inflation.⁴ Registration may sometimes result from a business reorganisation or a change of ownership. For all these reasons, Storey has rightly concluded (1994, p. 51) that ‘In only the broadest sense . . . can the number of businesses which are newly registered for VAT . . . be regarded as an indicator of the number of new business starts in any particular year’. Nevertheless, Keeble and Walker (1994) have argued that, at least in respect of spatial analyses, the data ‘. . . represents the most up-to-date, comprehensive, reasonably long term and spatially disaggregated data source currently available . . .’.

Investigators using the VAT registration data have usually been careful to point out their limitations, but have been unable to indicate how serious they are. To do so would require direct contact with the registrants involved. Such contact is extremely costly in terms of research resources.

This paper sheds further light on the data by utilising some data derived from a survey of VAT registrations carried out by the authors in the

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North of England. It focuses on two related issues. The first concerns the extent to which registrants are involved in the setting up of entirely new businesses. Such 'firm entry' represents a gross addition to the number of firms and is clearly the relevant concept for firm birth. Whether a *net* change ultimately results from firm entry will of course depend on the existence of positive or negative 'knock-on' effects of the entrant on existing firms (Johnson and Parker, 1994), and indeed on potential entrants (a firm birth may encourage or discourage others from entering). An alternative form of entry in which registrants may be involved may be termed 'purchase entry'. In these cases the registrant buys an existing business, and there is no immediate change in the number of firms (although, again, positive or negative knock-on effects may have an impact on the number of firms in the longer term). Purchase entry may range from the complete acquisition of a business to the buying of (say) a franchise or the tenancy of a business premises, where the individual concerned maintains an independent legal status. A new registration may not always occur when a change in business ownership occurs, but it will often be necessary or desirable. The VAT statistics do not distinguish between registrations on the basis of the type of entry in which the registrant is involved.

The possibility that some registrations may not involve an entirely new start-up but may simply mark a change of ownership clearly has important implications for the use of the VAT data in the analysis of firm births. A birth and a change of ownership are likely to be subject to rather different economic determinants, and to have different economic impacts.

The second issue concerns the relationship between the date of registration and the date trading starts. The underlying question here is the precise time at which birth occurs. When birth is defined to occur is often critical for empirical studies, particularly those of a time series nature. A number of authors (e.g. Mason, 1983; Johnson, 1986) have pointed out that firm birth is not a well defined event. It may be seen as stretching back to the first consideration of the business idea by the founder(s), and forward to the point where the firm becomes fully established in the market place. VAT registration and the start of trading are just

two important events in this process. (Other obvious landmarks in the birth process include the time at which the founder starts working full-time for the business or takes on the first employee.) VAT registration represents an important administrative and legal milestone, but has less economic significance than the start of trading. It is the latter that is used here to define the date of birth.

The two issues outlined above are of course interrelated, since where VAT registrants are involved in taking over existing businesses, it is likely that those businesses will have been trading for some time.

In the next section of this paper, the authors' data source is briefly discussed. Section III presents some data from the study, and Section IV offers a concluding discussion.

II. Data sources

The tables in the next section are based on a sample of VAT registrations made in the North of England⁵ in March and April 1993. For legal reasons, Customs and Excise were unable to divulge the names and addresses of the 1,014 registrants (excluding those associated with registrations arising from business reorganisation) covered by this period, but they kindly agreed to send out a letter from the authors asking the registrants to contact the authors direct. A stamped addressed envelope and response form was enclosed for this purpose. In all 305 responded. Of this number, 89 indicated they did not wish to cooperate and 47 were excluded on the grounds that they were located outside the geographical boundaries within which the intended interview programme was to be conducted, and/or that they were not classified as private sector firms. It is the remaining 169 firms on which the following section is based. (Three of these firms had ceased business by the time their owners were interviewed, but can be included for the purposes of this exercise.) These 169 firms represent a response rate of 16.7 which compares very favourably with the response rate of 13 and 7 per cent for postal surveys of rural and urban small firms respectively, reported in Keeble *et al.* (1992), and with the 10 per cent response rate – again in a postal survey of small firms – reported in Mason and Harrison (1993).⁶

The broad industrial breakdown of the sample mirrors fairly closely that of the population from which the sample was drawn.⁷ Unfortunately it is not possible to say whether the sample is similarly representative in relation to the characteristics of the businesses and respondents involved. For example, are more successful registrants more likely to respond positively or negatively to a request for assistance? The *a priori* arguments are fairly evenly balanced here, and there are no obvious grounds for supposing that the sample is seriously biased in these respects. In this context, it is worth noting that the deregistration rate among the sample firms is very similar to that for all U.K. registrations.⁸

III. Some findings

The two issues raised in section II are considered in turn below.

The type of entry

The distinction between setting up an entirely new business and purchasing an existing one is not always clear cut. For example, a few of the businesses in the sample resulted from the break-up of an existing partnership, with the registrant launching out on his/her own and taking a share of the business. Inevitably therefore, at the margin, judgement over classification had to be exercised. The basic rule applied was that only businesses which experienced no immediate significant change in their organisation and/or operations at the time the new owner took over were classified as having been purchased. Table I provides the

necessary data. About 27 per cent of registrations involved the purchase of an existing business, ie purchase entry. Retailing, unlike any of the other sectors, had more registrations involving purchase than those relating to the setting up of entirely new businesses. Other Services also had a high proportion of registrations resulting from business purchase. If Manufacturing and Services (Wholesaling, Retailing and Other Services) are compared, the null hypothesis that there is no difference in the breakdown of registrations by type of entry may be rejected at the two per cent level ($\chi^2 = 5.53$; critical value with one degree of freedom: 5.41).⁹

Table I raises at least two issues for further research which have not so far been addressed in the literature. Firstly, it would be interesting to know why those entering business choose one channel rather than another to effect their entry. A transactions cost perspective may be of value here in identifying the relative costs – for different owner and business characteristics – of the two channels. In some cases however, legal or institutional barriers may result in would-be entrants having no effective choice in respect of entry mechanism. For example, planning restrictions over the permissible number of shops in an area may mean that firm entry into retailing in that area is not possible. Secondly, it would be worthwhile investigating whether the balance between the two types of entry changes with the economic cycle. On the one hand it might be argued that as economic activity increases and resources come under pressure, the purchase of an existing business, with its established labour force and physical assets becomes a more attractive propo-

TABLE I
The nature of registration

Industrial/ Commercial sector	Registrations involving entirely new businesses		Registrations involving purchase of businesses	
	Number	% of all businesses in sector	Number	% of all businesses in sector
Manufacturing	18	90.0	2	10.0
Construction	20	100.0	–	–
Transport	9	100.0	–	–
Wholesaling	8	100.0	–	–
Retailing	13	40.6	19	59.4
Other services	55	68.8	25	31.3
Total	123	72.8	46	27.2

sition; on the other hand, firms are likely to be doing well, and hence will be reluctant to sell. It is not clear what the net effect of these opposing forces is likely to be. Whatever the answers to these questions, it is evident that the VAT registration data include a significant proportion of cases that cannot be classified as firm births.

Registration and the start of trading

Table II compares the date of registration with the start of trading for the 169 firms. For registration involving the purchase of an existing business both the start of trading by the registrant (second row) and the start of trading of the business (third row) are given. (In three cases the date of the start of trading of the business was not known by the current owner.)

A number of features relevant to the interpretation of VAT statistics stand out from this table. Firstly, for entry involving the setting up of an entirely new business, just over 12 per cent of the businesses concerned had been trading for over twelve months prior to registration; and a further 15 per cent had not started trading at registration. Forty-five per cent started trading in the month of registration. Secondly, where entry occurred by the purchase of an existing business, 72 per cent of the registrants started trading in the month of registration. This is hardly surprising given that in

these cases the registrant is taking over a ready made business. Finally, however, the third row shows that 95 per cent of the *businesses* had been trading for more than three years. It is clear from table 2 that the registration date will often be only a poor guide to the date at which trading starts. The use of *quarterly* data on VAT registration (Keeble *et al.*, 1993) is particularly problematic.

IV. Discussion

Limitations of the registration data

This paper has provided some empirical insight into two of the limitations of the VAT registration data as a statistical source on firm births. Firstly, it shows that in a substantial minority of cases, registration marks the purchase of an existing business rather than the setting up of an entirely new one. This finding in turn highlights the general distinction between formation activity and movement into business. The former is focused on *institutions* – firms – while the latter is concerned with *individuals*, who may or may not become founders when they move into business. This distinction is not always acknowledged in the literature. A number of studies of *firm* formation (e.g. Creedy and Johnson, 1983; Storey and Jones, 1987; Beesley and Hamilton, 1994) utilise – to a greater or lesser degree – a theoretical framework

TABLE II
VAT registration and the start of trading

Type of entry by registrant	Started trading: months before registration							Started trading after month of registration No (%)	Total No (%)
	More than 36 No (%)	25–36 No (%)	13–24 No (%)	7–12 No (%)	4–6 No (%)	1–3 No (%)	0 No (%)		
Entirely new business	5 (4.1)	2 (1.6)	8 (6.5)	8 (6.5)	10 (8.1)	17 (13.8)	55 ^a (44.7)	17 ^b (13.8)	123 ^c (100)
Existing business purchased	Registrant	4 (8.7)	– (–)	1 ^d (2.2)	2 (4.3)	2 (4.3)	3 (6.5)	33 (71.7)	1 ^e (2.2)
	Business	41 ^d (95.3)	1 (2.3)	– (–)	1 (2.3)	– (–)	– (–)	– (–)	43 ^f (100)

^a Includes two businesses no longer trading.

^b Sixteen of these businesses started trading within three months of registration, and one started trading in the fourth month after registration.

^c Includes one business that has not yet started trading.

^d Includes a business no longer trading.

^e This business started trading in the eighth month after registration.

^f In three of the cases where the registrant purchased a business, the date at which the business started trading was unknown.

in which *individuals* considering entering business are viewed as comparing the potential returns from self employment – a term used here to embrace all ‘own account’ activity – with those from alternative uses of their labour. Such individuals may however decide to enter through the purchase of a going concern, an event which will not be covered by data on entirely new formations.¹⁰ The VAT registration data are of course picking up both types of entry mechanism, but it is because of this inclusiveness, that their use as a statistical source on firm births is open to some debate.

The key question in this debate is whether the inclusion of purchase entry in the registration data generates any systematic bias. Table I suggests that there may be some cause for concern on this score, since as indicated earlier, purchase entry is relatively much more common in Retailing and Other Services, than it is in Manufacturing. These sectoral differences have implications for the use of registration data in the time series analysis of the aggregate number of births, since sectors have had very different registration growth rates. For example, between 1980 and 1991 annual VAT registrations in the U.K. grew by 29 per cent in ‘Production’ (which includes Manufacturing) while the corresponding figures for ‘Retailing’ and ‘Finance’ were –14 and 109 per cent respectively (DTI, 1993, p. 13). Analyses of spatial variations in total numbers of births are also likely to be affected by sectoral differences in the breakdown between firm and purchase entry, as regions vary significantly in the sectoral distribution of registrations. For example, between 1980 and 1991, registrations in Retailing accounted for 13 per cent of all registrations in the South-East whereas the

corresponding percentage for the North was 22. The implications of such sectoral bias require further consideration.

The second potential problem with the VAT data – highlighted by Table II – is that the date of registration may in some cases bear little relation to the date at which the business started trading. Not surprisingly, this is particularly true where the registrant purchases a going concern. There is of course no reason why the determinants and effects of the time path of registrations *per se* should not be studied. However it is not at all clear what economic or business significance is associated with the registration event.

Adjusting the data

A clearer idea of the usefulness of VAT registration statistics in firm formation studies may be obtained by comparing – over time, and across industries and regions – the published registration data, with adjusted figures which exclude purchase entry, and which use the date at which trading started rather than the registration date.

Unfortunately the data provided here are insufficiently robust for extensive comparisons of this kind. However, for the purposes of illustration, Table III compares published (unadjusted) and adjusted data – for the Northern Region of the U.K. only – for 1981–87, the longest period for which the comparisons can currently be made. The unadjusted series is for all VAT registrations, excluding those in agriculture. The adjusted series is derived as follows. First, purchase entry is removed from each year’s registrations. This is done by applying the coefficients derived from the

TABLE III
Unadjusted and adjusted VAT registration data: Northern region, 1981–1987

Year	Unadjusted registrations	Adjusted registrations	Adjusted registrations as % of unadjusted registrations	Annual growth (%)	
				Unadjusted registrations	Adjusted registrations
1981	5497	3860	70.2	–	–
1982	5791	4135	71.4	5.4	7.1
1983	6305	4448	70.5	8.9	7.6
1984	6331	4462	70.5	0.4	0.3
1985	6228	4458	71.6	–1.6	–0.1
1986	6543	4697	71.8	5.1	5.4
1987	7060	5114	72.4	7.9	8.9

second column of Table I and assumed not to change over the period, on a sector by sector basis. For this exercise it was necessary to group some of the sectors for which registration data are separately available.

The resulting firm entry registration figures are then converted to a start of trading basis using data summarised in the first row of Table II.¹¹ For this conversion procedure, it was assumed, because of data limitations, that registrations in any given year are evenly distributed across the months of that year, and that the relationship between the date of registration and the date at which trading starts is the same in all sectors and in all years.

In view of the assumptions needed to construct Table III, the figures must be treated cautiously, and as illustrative only. They do however serve to emphasise the wide divergence, in terms of absolute numbers, between the two series. Of more concern for the analysis of births over time are the noticeable differences in the annual growth rates. A more detailed investigation of registrations which enabled some of the assumptions underlying the calculations presented here to be relaxed and which extended the exercise beyond the Northern Region would be valuable.

Table III implies that the registration data significantly overstate births. It should be remembered however that very many entirely new businesses do not register for VAT because they are too small. Some of these businesses may eventually become registered as they grow, but others will either die before they reach the threshold, or remain below it. The absence of these firms means that there is also an important source of *understatement* of births in the VAT registration figures. Indeed it is likely that this understatement significantly exceeds the overstatement addressed in this paper,¹² although without further research on the non-registrants, the resultant net bias in the the registration data is difficult to establish.

Conclusion

The VAT data are likely to remain a key statistical source in the analysis of new and small business. Their relative comprehensiveness, their 'official' status, and the regularity with which they are collected, give them a powerful advantage, despite their limitations, over other sources.

Nevertheless some caution should be exercised in their use in the analysis of births. Their value to researchers undertaking such analyses would be greatly enhanced if the registration process could be used to collect, via a few additional questions on the relevant forms, data on the type of entry and on the date at which trading started. A study which examined the relationship between VAT registrations and the formation of firms which do not register for VAT would also yield important benefits.

Notes

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² The analysis was previously undertaken by the Department of Employment.

³ Data are in fact available back to the introduction of VAT in 1973. However the current published series only goes back to 1980.

⁴ In 1991 there was a very significant rise in the real value of the threshold. 'Adjusted' 1991 data which take account of this rise are however available. These data are comparable with those for the 1980s. Because of additional changes in 1992, a new series was started in that year. It should be noted however that even a threshold which is constant in real terms does not allow for any increases in business productivity. Such increases would mean that a firm reaching the threshold in a particular year might require a larger labour force than is implied by the same (real) threshold five years later. Thus the VAT data would be capturing progressively smaller firms in employment terms.

⁵ Specifically, those businesses coming within the areas covered by the Carlisle, Middlesbrough, Newcastle and Washington offices.

⁶ It is likely that a significant proportion of those who did not respond in any way at all to the authors' letter were ineligible anyway for inclusion in the study. Of the 305 who did in fact respond, 47 (15.4 per cent) were excluded as being ineligible for one reason or another (see text). If a similar proportion of the total of 1014 registrations was also ineligible, the total number of eligible registrations would be $1014 \times (1.00 - 0.154) = 858$. When the 169 firms included in this study are expressed as a proportion of this total, the response rate rises to 19.7 per cent. This calculation is of course critically dependent on the assumption that the proportion of respondents who were ineligible for inclusion in this study is the same as that in the population as a whole.

⁷ The breakdown, by industrial sector, of all 1,014 registrations occurring during March/April 1993 and of the 169 registrations in the sample is as follows.

	1014 %	169 %
Manufacturing	6.6	11.8
Construction	11.5	11.8
Transport	4.8	5.3
Wholesale	7.8	4.7
Retail	17.9	18.9
Other services	51.4	47.3
Total	100.0	100.0

Using the chi-square goodness-of-fit test, the null hypothesis that the 169 firms in the sample have the same sectoral distribution as the 1014 cannot be rejected at the five per cent level ($\chi^2 = 9.82$; critical value, with five degrees of freedom: 11.07).

⁸ Over the one and three quarter years that the sample firms have been monitored, 24 have deregistered, a loss rate of 14 per cent. The VAT data analysed by Ganguly (1985, p. 140) suggest that during the years 1973 to 1981, the percentage of registrants deregistering within two years was between 14 and 22. The loss rate for the sample registrations adjusted for a two year period on a pro rata basis, was 16 per cent.

⁹ Removal of Wholesaling would of course make the difference even more robust.

¹⁰ It is interesting to note that Beesley and Hamilton (1994) regard the inclusion of entry involving 'mere' ownership change as a weakness in their 'openings' data, even though they are 'seeking to explain the propensity with which individuals enter self-employment . . .'. Of course some changes of ownership will simply involve diversification of other businesses, but some will also relate to first time entry.

¹¹ A full data set is available from the authors.

¹² Earlier in the paper, it was suggested that about 60 per cent of businesses are not registered for VAT. The proportion of entirely new businesses not doing so is likely to be at least as high. Table I suggested that about 27 per cent of those businesses registering for VAT are not births of new firms.

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