

Data Analysis of Public Procurement from Small and Medium Enterprises

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SMALL FIRMS DATA ANALYSIS DTI SBS

NERA

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1. Introduction

This paper addresses the second of the six objectives in the SBS Terms of Reference, namely “to identify key market sectors where there is a significant SME presence and, as far as is possible, identify the nature and the scale of SME involvement”. It is therefore particularly concerned with the following two key research questions, also from the Terms of Reference:

1. To what extent are SMEs involved in public sector markets? Are there particular markets in which SME involvement is concentrated?
2. What is the nature of SMEs’ contribution in these public sector markets?

We address these issues using three main data sources:

1. Information from SBS annual SME UK statistics 1995-2003, to estimate SME shares of turnover and employment in different sectors of the economy. Our analysis of data from this source is in Section 2.
2. Information on government consumption in different sectors of the economy, derived from UK Input-Output Supply and Use Tables for 2002.¹ Our analysis of data from this source is in Section 3.
3. These first two sets of analysis tell us, respectively, which sectors have particularly high concentrations of SMEs, and which sectors have particularly high demand from government. However, neither provides any information on government purchases of SME-supplied goods and services. To obtain some information on this we use a third source of information, namely that supplied to us by the Federation of Small Businesses (FSB), showing the proportions of total SME output supplied to central and local government, derived from the FSB’s survey of their members. Results of this analysis are in Section 4.

In Section 5 we draw overall conclusions about SME involvement in different parts of the public sector.

In Section 6 we present a separate analysis of ‘churn’ (where ‘churn’ is defined as the sum of the number of firms entering and leaving the market in a particular year, divided by the number of firms in the market in that sector at a particular point in time) and the relationship between the number of registrations in a sector and ‘churn’ in that sector. Enterprise ‘churn’ is a factor that has been found to impact positively on labour productivity, and this may provide a general argument for encouraging and sustaining firm start-ups. We show that churn is positively correlated with the rate of registration in each industry analysed. We also find some indication of a positive correlation between churn (and entry) in 1995 and turnover growth by looking at sectoral turnover from 1995 to 2003.

¹ United Kingdom 2002 *Input-Output Analyses, Input-Output Supply and Use Tables*, (consistent with UK National Accounts Blue Book 2004), published July 2004 and available on line from the National Statistics website http://www.statistics.gov.uk/downloads/theme_economy/Input_output_analyses_2004_Edition.pdf.

2. SMEs' Share of Private Sector Turnover and Employment²

In this section we analyse SBS data on SME turnover and employment in total private sector activity.³ SBS sources provide data by size band of enterprise, which means that we can analyse the share in the economy of small businesses (firms that have from 0 to 49 employees), medium size businesses (firms that have from 50 to 249 employees) and of all SMEs together. The SBS data provide information on total sectoral private sector turnover and employment. We have used these figures to calculate SME shares of turnover and employment in each industry sector. We also looked at ONS Annual Business Inquiry (ABI) data on total sectoral turnover, but as there appear to be inconsistencies between the two data sets we have relied exclusively on the SBS data.⁴

We have undertaken this analysis at two different levels of sectoral decomposition, broad and narrow.

In Section 2.1 we look at broad sectoral definitions, namely by Standard Industrial Classification (SIC) Sections A to O. This provides a general overview on the relevance of SMEs in different industries. Tables in this section include 'zero person firms' or *sole traders* (this category comprises sole proprietorships and partnerships comprising only the self-employed owner-manager(s), and companies comprising only an employee director).

In Section 2.2 we look at the narrower 3-digit sectoral statistics, which however exclude 'zero person firms'. In this section, figures are shown only for those sectors where SME share of sectoral turnover is highest. However, these rankings are affected by some data suppression, as data for many industries is unavailable because of confidentiality.⁵ The analysis in Section 2.2 does however indicate niches where SMEs are particularly active.

² "Private sector" is used here as shorthand for "private sector, including public corporation and nationalised bodies, but excluding Government and no-profit organisation".

³ We have also investigated the share of small and medium term size firms in terms of *numbers of firms*. However in almost every sector about 99 per cent or more of firms are small firms of 0-49 employees. In only one sector (Manufacturing) do medium size firms (50-249 employees) approach 2 percent of the total number of firms in the sector. Large firms approach 1 per cent only in Manufacturing and Financial Intermediation.

⁴ The source of the ABI data is the ONS Annual Business Inquiry 2003 which provides data from 1995-2003. There are discrepancies between ABI data (which cover all businesses) and SBS data on total sector turnover. In some cases, using ABI data to calculate SMEs shares led to estimates of SMEs' shares of turnover above 100 per cent.

⁵ The original data supplied to us by SBS used a more detailed range of size bands than our three categorisations (small, medium and SME). To map these categories to those we used in our analysis, we have aggregated a number of the original size categories for each industry. For example, in our analysis of 3-digit groups, our 'small' category includes both the 'micro' and 'small' categorisations in the SBS datasets. Where data were suppressed for any or all of the original subcategories, the aggregated category was omitted entirely from our analysis; we have not used any partial totals. The impact of suppressed data is greatest for the turnover and employment data at a 3 digit level, with the frequency of industries being omitted increasing with the size of the category. If full data were available a few more SIC sectors might appear in any of the columns of Table 2.3.

2.1. SME Involvement at the Broad Sectoral Level (SIC Sections)

Data in Table 2.1 show the shares of SME turnover and employment in the private sector in 2003 by sector, for both small (0-49 employees) and medium (50-249 employees) size firms. The charts in Figure 2.1 summarise the turnover shares by size of firm and sector.

Table 2.1 and Figure 2.1 shows that in 2003 SMEs accounted for 52 per cent of total private sector turnover and 58 per cent of total employment. The share of SMEs turnover in agriculture, hunting and fishing is particularly high: SMEs generated 96 per cent of total turnover in these industries. Other industries where SMEs generate highest proportions of turnover are construction, real estate, renting and business activities, and health and social work. In the last two of these sectors SME turnover shares (respectively 71 and 88 per cent) are higher than SME shares of employment (respectively 68 and 82 per cent).⁶ This is also the case for the wholesale and retail trade industry. Medium sized enterprises seem to play a larger role especially in manufacturing, and health and social work, where they account in each case for 17 per cent of total turnover.

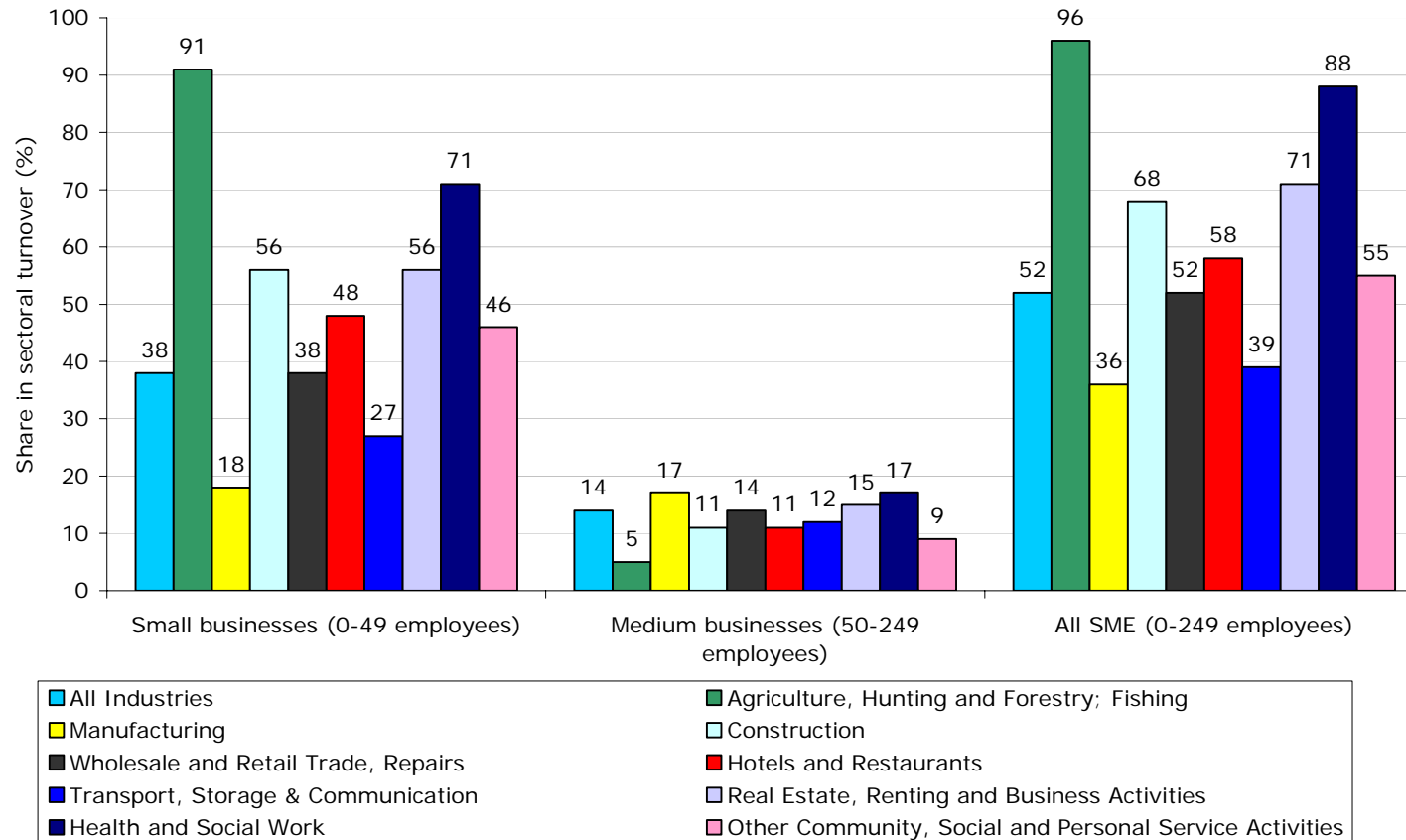
Table 2.1
Small and Medium Enterprise Shares of Private Sector Turnover and Employment, by SME Size Band, 2003

SIC Section		Turnover (%)			Employment (%)		
		Small	Medium	All SMEs	Small	Medium	All SMEs
All	All industries	38	14	52	46	12	58
A & B	Agriculture, hunting and forestry; fishing	91	5	96	94	3	97
C & E	Mining and quarrying; electricity, gas and water supply	n/a	n/a	20	n/a	n/a	n/a
D	Manufacturing	18	17	36	32	22	53
F	Construction	56	11	68	74	9	83
G	Wholesale and retail trade, repairs	38	14	52	39	9	48
H	Hotels and restaurants	48	11	58	44	11	55
I	Transport, storage & communication	27	12	39	31	8	39
J	Financial intermediation	n/a	n/a	n/a	14	6	20
K	Real estate, renting and business activities	56	15	71	56	13	68
M	Education	n/a	n/a	n/a	n/a	n/a	n/a
N	Health and social work	71	17	88	66	16	82
O	Other community, social and personal service activities	46	9	55	65	8	73

Source: NERA calculations on SBS SME Statistics 2003. Small enterprises are those with less than 50 employees, medium enterprises are those with between 50 and 249 employees. SMEs are all enterprises with fewer than 250 employees

⁶ The higher ratio of turnover to employees in SMEs could be explained by higher labour productivity in these sectors (possibly associated with higher salaries) or a more capital intense production (function) in these industries.

Figure 2.1
Small and Medium Enterprise Shares of Total Sector Turnover in 2003 by Size Band of Firm



Source: NERA calculations on SBS SME statistics 2003.

Table 2.2
Small and Medium Enterprise Shares of Private Sector Turnover and Employment, by SME Size Band, 1995

SIC Section	Turnover (%)			Employment (%)		
	Small	Medium	All SMEs	Small	Medium	All SMEs
All All industries	38	19	56	48	13	61
A & B Agriculture, hunting and forestry; fishing	81	6	86	94	3	97
C & E Mining and quarrying; electricity, gas and water supply						
D Manufacturing	19	18	37	30	21	52
F Construction	62	16	77	81	8	89
G Wholesale and retail trade, repairs	44	20	64	51	10	61
H Hotels and restaurants	45	17	61	57	10	67
I Transport, storage & communication	29	13	42	35	9	44
J Financial intermediation	18	32	49	18	7	25
K Real estate, renting and business activities	49	25	73	55	15	70
M Education	66	27	94	69	15	84
N Health and social work	38	12	50	42	9	51
O Other community, social and personal service activities	57	16	73	69	11	80

Source: NERA calculations on SBS SME Statistics 1995. Small enterprises are those with less than 50 employees, medium enterprises are those with between 50 and 249 employees. SMEs are all enterprises with fewer than 250 employees

Data from 1995 are shown in Table 2.2. Data on the education sector available for 1995 (but not for 2003) reveal that SMEs generated 94 per cent of turnover in the industry.

A comparison of Tables 2.2 and 2.1 shows that between 1995 and 2003 *small* firms' share of private sector turnover was largely stable, but *medium* firms' share fell by 5 percentage points from 19 to 14 per cent, so SMEs' share of total turnover fell by 4 percentage points, from 56 to 52 per cent.

Sectors where *small* firms' share of turnover rose between 1995 and 2003 were: agriculture etc (up 10 percentage points); hotels and restaurants (up 3 points); real estate etc (up 7 points); and health and social work (up 38 points). Sectors where small firms share of turnover fell between 1995 and 2003 were: manufacturing (down 1 point); construction (down 6 points); retail and wholesale (down 6 points); transport etc (down 2 points); and other community, social and personal service activities (down 9 points).

Small firms' share of total private sector employment fell between 1995 and 2003 from 48 per cent to 46 per cent, while medium firms' share fell from 13 to 12 per cent. Thus SMEs' share as a whole fell by 3 percentage points from 61 to 58 per cent of total private sector employment.

2.2. SME Involvement at a Narrow Sectoral Level (SIC Group Data)

This section highlights SIC 3-digit sectors where small and/or medium firms are providing the largest proportionate contributions to sectoral turnover. Table 2.3 shows figures for all SMEs, and for small businesses and medium size businesses separately.

Medium size firms particularly contribute to manufacturing turnover. The highest shares of medium size firms relative to sectoral turnover are found in the metal, plastics, general purpose machinery, medical and surgical equipment, and paper and paperboard manufacturing sectors.

We also present data on other sectors where *small* firms contribute to more than 70 per cent of total turnover. Small firms generate around or above 90 per cent of sectoral private sector turnover for research in social sciences and humanities, retail sale of second hand goods, repair of personal and household goods, veterinary activity, real estate activities with own property and farming of animals.

SMEs as a whole are particularly active in other service activities, building completion, other entertainment activities, human health activities, manufacturing of metal products, secondary, adult and other education, and printing.

Table 2.3
SME Contribution to 3-digit SIC Sectors: Share in Sectoral Private Sector Turnover by Employment Band, 2003.

SIC	Small	(%)	SIC	Medium	(%)	SIC	SMEs	(%)
732	Research and experimental development on social sciences/humanities	99	281	Manuf. of structural metal products	39	930	Other service activities	92
525	Retail sale of second-hand goods in stores	95	252	Manuf. of plastic products	33	454	Building completion	91
527	Repair of personal and household goods	91	292	Manuf. of other general purpose machinery	32	923	Other entertainment activities	85
852	Veterinary activities	91	331	Manuf. of medical and surgical equipment & orthopaedic appliances	30	851	Human health activities	84
701	Real estate activities with own property	89	212	Manuf. of articles of paper and paperboard	30	281	Manuf. of structural metal products	84
12	Farming of animals	88	342	Manuf. of bodies (coachwork) for motor vehicles, and trailers	29	802	Secondary education	80
504	Sale, maintenance and repair of motorcycles, parts and accessories	86	287	Manuf. of other fabricated metal products	29	748	Miscellaneous business activities not elsewhere classified	80
930	Other service activities	86	503	Sale of motor vehicle parts and accessories	29	222	Printing and service activities related to printing	78
20	Forestry, logging and related services	83	222	Printing and service activities related to printing	28	804	Adult and other education	76
372	Recycling of non-metal waste and scrap	82	361	Manuf. of furniture	28	713	Renting of other machinery and equipment	75
14	Agricultural & animal husbandry service activities (except veterinary)	80	312	Manuf. of electricity distribution and control apparatus	27	522	Retail sale of food, beverages and tobacco in specialised stores	74
11	Growing of crops; market gardening; horticulture	79	274	Manuf. of basic precious and non-ferrous metals	26	503	Sale of motor vehicle parts and accessories	74
267	Cutting, shaping and finishing of stone	77	291	Manuf. of machinery for the production and use of mechanical power	26	703	Real estate activities on a fee or contract basis	71
454	Building completion	77	634	Activities of other transport agencies	26	741	Legal, accounting, book-keeping and auditing activities; tax consultancy; market research and public opinion polling; business and management consultancy; holdings	69
50	Fishing and fish hatcheries	77	926	Sporting activities	26	634	Activities of other transport agencies	68
726	Other computer related activities	76	300	Manuf. of office machinery and computers	26	518	Wholesale of machinery, equipment and supplies	67
362	Manuf. of jewellery and related articles	76	501	Sale of motor vehicles	26	287	Manuf. of other fabricated metal products	66
285	Treatment and coating of metals; general mechanical engineering	73	518	Wholesale of machinery, equipment and supplies	25	742	Architectural and engineering activities and related technical consultancy	66
923	Other entertainment activities	72	631	Cargo handling and storage	25	553	Restaurants	66
366	Miscellaneous manufacturing n.e.c.	70				292	Manuf. of other general purpose machinery	64
522	Retail sale of food, beverages and tobacco in specialised stores	70				513	Wholesale of food, beverages and tobacco	62
803	Higher education	70				514	Wholesale of household goods	61
						554	Bars	61

Source: NERA calculations on SBS data. Small enterprises are those with less than 50 employees, medium enterprises are those with between 50 and 249 employees, SMEs are all enterprises with fewer than 250 employees

3. Government Consumption by Sector

In this section we use ONS UK data published in the Input-Output Supply and Use Tables 2002 to analyse the distribution of government expenditure on procurement across sectors.⁷ In 2002 government output totalled £209 billion, of which 47 per cent represented compensation to public employees, 4 per cent was consumption of capital, and the remaining 49 per cent was purchase of goods and services. It is with the procurement of these goods and services that this section of our report is concerned.

We show both levels of government procurement and the share of government procurement within each sector. Sectoral classification is based on the 123 sectoral codes. This classification substantially overlaps with the SIC codes defining the data used in Section 2. The classifications are compared in Appendix A. Table A.1 reproduces the official Input Output publications guide to SIC and 123 classifications. In most cases 123 sectors match exactly the definition of SIC 2-digit or 3-digit industries, or sums thereof. In some cases however, 123 Sectors correspond to parts of diverse SIC sectors. When this is the case. e.g. for “Real estate activities with own property; letting of own property, except dwellings” and “Letting of dwellings, including imputed rent” we cannot establish a link between detailed SIC based statistics and 123 sector based statistics. It is always possible, however, to aggregate 123 sectors into broad SIC industries as in Section 2.

Data available on government procurement are for consumption from all businesses. There is no data on government procurement from SMEs only.

Figures for current government expenditure are provided separately for local government (divided by six categories of spend), central government (excluding health and veterinary services), and health and veterinary services provided by central government. Table 3.1 shows figures on total supply of products in each sector at purchasers’ prices, and on consumption from local government, central government (excluding health), and central government health and veterinary services (sector 117 in 123 codes), and for total government consumption, which is the sum of all three of these categories.

We have the share of government, procurement expenditure, as a share of each sector’s total output, and ranked sectors accordingly. In Table 3.1 we show data for sectors where the share of government is higher than 7 per cent. Figures show that government consumption of weapons and ammunitions accounts for 60.8 per cent of the output of this sector. Other sectors where government consumption forms a high share are social work activities, pharmaceuticals, sewage and sanitary services, shipbuilding and repair, medical and precision instruments, aircraft and spacecraft, and research and development.

⁷ “Procurement” is used here as shorthand for the coverage of the I-O figures, which exclude taxes and subsidies on production, compensation of employees, and capital consumption. The figures do therefore include some expenditure which might not normally be described as procurement, such as utility bills and property rents.

Table 3.1
Government Current Expenditure Procurement in 2002, by '123' Sectors

Sector 123 code	Product description	Total output at purchasers' prices	Central gov. excluding health & vet	Central gov. health & vet	Total local gov.	Total gov.	Per cent of current procurement expenditure within sector by gov. (no capital)
(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)= (IV+V+VI)	(VIII)=(VII)/(III)
			£m	£m	£m	£m	%
67	Weapons and ammunitions	2 406	1 462	0	0	1462	60.8
118	Social work activities	34 327	6	579	11327	11912	34.7
43	Pharmaceuticals	25 327	121	7 989	69	8179	32.3
119	Sewage and sanitary services	13 075	1 049	434	2024	3507	26.8
78	Shipbuilding and repair	3 926	1 026	0	0	1026	26.1
76	Medical and precision instruments	23 940	1 843	4 155	101	6099	25.5
80	Aircraft and spacecraft	26 725	4 358	0	0	4358	16.3
108	Research and development	9 313	712	672	2	1386	14.9
69	Office machinery & computers	32 702	2 910	185	894	3989	12.2
87	Water supply	4 080	178	74	212	464	11.4
93	Railway transport	7 509	387	116	340	843	11.2
52	Cement, lime and plaster	1 734	0	11	173	184	10.6
98	Postal and courier services	13 583	769	150	318	1237	9.1
33	Paper and paperboard products	14 591	301	390	584	1275	8.7
114	Other business services	86 766	608	1 104	5265	6977	8.0
117	Health and veterinary services	83 645	74	6 491	18	6583	7.9
34	Printing and publishing	38 209	1462	418	1840	2888	7.6
103	Owning and dealing in real estate	34 423	6	539	922	2518	7.3
111	Market research, management consultancy	20 282	121	18	307	1419	7.0

Source: ONS Input-Output Tables and NERA calculations.

The data in Table 3.1 exclude capital. Input-output data on gross capital formation are provided at a more aggregate level than data on current expenditure, and are not available for exactly the same sectors. We can adopt a narrow definition, and slightly underestimate government capital formation by excluding two sectors (119 “Sewage and refuse disposal, sanitation and similar activities”); and 121 “Recreational, cultural and sporting activities”. Alternatively we can adopt a broader definition, and slightly overestimate capital formation, by including three sectors that are not included in the definition of current government expenditure (120 “Activities of membership organisation not elsewhere classified”; 122 “Other service activities”; and 123 “Private households with employed persons”).

Table 3.2 demonstrates the impact on the rankings of different definitions of government consumption. Table 3.2 ranks sectors according to *levels* of government current expenditure identifying sectors where levels of current expenditure on procurement are highest. Columns (X) – (XI) and (XII) show figures on government procurement *shares* in each sector

including, in columns XI and XII, the two different definitions of capital. Where the figures for capital are zero we leave columns Xi and XII blank. The table shows that the impact of capital on the evaluation of the relative role of government is particularly relevant in only a few sectors: construction; medical and precision instruments; office machinery and computers; computer services; and recreational services.

Table 3.2
Government Current Procurement Expenditure and Gross Capital Formation in 2002, by '123' Sectors

123 code	Product description	Total UK output at purchasers' prices	Cent. gov. excluding health & vet	Cent.gov. health & vet	Total local gov.	Total gov. current expenditure	Total general government + capital formation (narrow capital)	Total general government + capital formation (broad capital)	Per cent of cons. within sector by gov. (excl. capital) (X)=(VII)/(III) %	Per cent of cons. within sector by gov. (narrow capital) (XI)=(VIII)/(III) %	Per cent of cons. within sector by gov. (broad capital) (XII)=(IX)/(III) %
(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)= (IV+V+VI)	(VIII)	(IX)			
		£m	£m	£m	£m	£m	£m	£m			
118	Social work activities	34 327	6	579	11327	11912	11 912	11 912	34.7		
43	Pharmaceuticals	25 327	121	7 989	69	8179	8 179	8 179	32.3		
114	Other business services	86 766	608	1 104	5265	6977	7 067	7 082	8.0	8.1	8.2
117	Health and veterinary services	83 645	74	6 491	18	6583	6 583	6 583	7.9		
88	Construction	152 376	4 627	345	1217	6189	12 189	21 493	4.1	8.0	14.1
76	Medical and precision instruments	23 940	1 843	4 155	101	6099	6 188	6 792	25.5	25.8	28.4
116	Education	74 387	3 113	62	1568	4743	4 743	4 743	6.4		
80	Aircraft and spacecraft	26 725	4 358	0	0	4358	4 358	4 360	16.3		
69	Office machinery & computers	32 702	2 910	185	894	3989	4 505	5 379	12.2	13.8	16.4
119	Sewage and sanitary services	13 075	1 049	434	2024	3507	3 507	3 507	26.8		
107	Computer services	49 156	787	608	1678	3073	3 302	4 083	6.3	6.7	8.3
34	Printing and publishing	38 209	630	418	1840	2888	2 901	2 969	7.6	7.6	7.8
94	Other land transport	40 413	328	892	1346	2566	2 579	2 587	6.3		
103	Owning and dealing in real estate	34 423	1 057	539	922	2518	2 518	2 518	7.3		
99	Telecommunications	42 502	881	470	847	2198	2 435	2 435	5.2	5.7	5.7
121	Recreational services	63 407	214	101	1850	2165	2 165	4 121	3.4	3.4	6.5
112	Architectural activities and technical consultancy	29 038	570	1 047	257	1874	2 016	2 102	6.5	6.9	7.2
100	Banking and finance	69 917	1 711	11	28	1750	1 750	1 750	2.5		
106	Renting of machinery etc	23 654	59	450	1048	1557	1 557	1 557	6.6		
67	Weapons and ammunitions	2 406	1 462	0	0	1462	1 462	1 462	60.8		
111	Market research, management consultancy	20 282	1 094	18	307	1419	1 453	1 464	7.0		
108	Research and development	9 313	712	672	2	1386	1 386	1 386	14.9		
92	Hotels, catering, pubs etc	95 645	541	365	444	1350	1 350	1 350	1.4		
35	Coke ovens, refined petroleum & nuclear fuel	45 700	801	148	386	1335	1 335	1 335	2.9		
101	Insurance and pension funds	43 978	335	309	665	1309	1 309	1 309	3.0		
33	Paper and paperboard products	14 591	301	390	584	1275	1 275	1 275	8.7		
98	Postal and courier services	13 583	769	150	318	1237	1 237	1 237	9.1		
85	Electricity production and distribution	28 054	221	285	545	1051	1 051	1 051	3.7		
78	Shipbuilding and repair	3 926	1 026	0	0	1026	1 026	1 026	26.1		
109	Legal activities	19 992	49	849	41	939	939	939	4.7		

Source: ONS Input Output Tables and NERA calculations.

Our results are broadly consistent with figures on average government procurement (including capital formation) from 1997-2001 reported in chapter 7 of the Office of Fair Trading (OFT) 2004 report *Assessing the Impact of Public Sector Procurement on Competition*.⁸ We identified high government shares in all sectors included in the OFT report. However in some sectors the levels of government involvement are noticeably different from those identified in the OFT report. Figures from the 2002 data analysed by NERA indicate that government shares appear significantly higher than OFT estimates in social work activities, pharmaceuticals, sewage and sanitary services, and medical and precision instruments. Our analysis also shows lower government expenditure on health and veterinary services in 2002 in comparison with the OFT figures for the year 1997 to 2001.⁹ Government consumption in water supply and railway transport, two sectors that were not included in the OFT report¹⁰, accounted for more than 11 per cent of output of these two sectors in 2002.

Finally, we show in Table 3.3, figures on government expenditure shares by SIC broad industries. These aggregate data are used in Section 5 in drawing conclusions on the degree of SME involvement in public procurement. To achieve this all the data are standardised to be consistent with the SIC codes.

Table 3.3
Government Current Procurement Expenditure, 2002 by SIC Section

SIC Code	Description	Total output at purchasers' prices (£m)	Total government current expenditure (£m)	Per cent of cons. Within sector by government (excl. capital)
N	Health and social work	117 973	18 495	15.7
O	Other community, social and personal service activities	96 115	6 275	6.5
M	Education	74 387	4 743	6.4
K	Real estate, renting and business activities	409 175	21 058	5.1
D	Manufacturing	868 710	40 140	4.6
I	Transport, storage & communication	175 909	7 332	4.2
F	Construction	152 376	6 189	4.1
C & E	Mining and quarrying; electricity, gas and water supply	88 738	2 309	2.6
J	Financial intermediation	137 428	3 087	2.2
G	Wholesale and retail trade, repairs	25 737	525	2.0
H	Hotels and restaurants	95 645	1 350	1.4
A & B	Agriculture, hunting and forestry; fishing	27 330	54	0.2
	All sections			4.7

Source: ONS Input Output Tables and NERA calculations.

⁸ The OFT report analysis only includes sectors where government consumption exceeds 10 per cent of total output.

⁹ We believe that the simple explanation of this is that the OFT consultants made an error in their calculations.

¹⁰ The of government share (excluding capital) in these sectors ranged below or around 10 per cent from 1997-2001. On average, the whole period *mean* government share was below 10 per cent for these two industries.

4. SME Sales to Government as a Proportion of SME Output

Information in this section is derived from the Federation of Small Business (FSB) third Biennial Survey of its members in 2004.¹¹ This survey elicited responses from 18,635 members from across the UK. The questions of direct interest to our study are those which asked respondents about the proportion of their sales accounted for by (1) central government, and (2) local government. Answers were divided into ranges, namely zero, 0-25 per cent, 26-50 per cent, 51-75 per cent, and 76-100 per cent.

The FSB have kindly provided us with analyses of these results, split by industry sector, and level of firm turnover. In this section, in addition to the original FSB data shown, we estimate the overall proportion of SME sales accounted for by central and local government. As the industrial classification used in the FSB survey can be reconciled with SIC codes, we provide the estimates of the proportion of SME sales accounted for by central and local government using both the FSB and SIC classification schemes.

We have had to make assumptions about how sales percentages are in practice distributed within the FSB Survey ranges. To do this we have used a form of sensitivity analysis. The tables in this section of aggregate SME sales (Tables 4.2, 4.4, 4.5, 4.7 and 4.9) show estimates for a baseline case assumption and the average of estimates from five alternative scenarios. The baseline case is very close to an assumption that the distribution of firms by percentage of sales within each range is even. Alternative scenarios test the impact of a skewed distribution within each range towards levels of sales lower than the mean and/or a skewed distribution towards higher levels of sales in the top two ranges.¹²

Table 4.1 shows FSB's data on the percentage of firms for which central government accounts for a given range of percentage of annual sales. Across all industries, on average 72.3 per cent of SMEs did not sell anything to central government. The highest proportion of firms that responded to the survey stating that no turnover is accounted for by central government is in financial services (95.6 per cent), and the lowest is in public administration and defence (28.6 per cent).

¹¹ Results are available on the FSB's website. See *FSB Lifting the Barriers to Growth in UK Small Businesses*, the FSB Biennial Membership Survey, 2004.

¹² In our baseline case we have assumed zero, 0.10, 0.35, 0.60 and 0.85 as average turnover values for the given turnover bands (zero, 1 to 25, 26 to 50, 51 to 75, and 76 to 100). The assumptions in our alternative four scenarios are zero, 0.05, 0.35, 0.60 and 0.85; zero, 0.05, 0.30, 0.60 and 0.85; zero, 0.13, 0.38, 0.63 and 0.88; zero, 0.10, 0.30, 0.63 and 0.88.

Table 4.1
Percentage Ranges of SME Sales Accounted for by Central Government by Sector

Sector (FSB Survey Classification)	Zero	1 to 25	26 to 50	51 to 75	76 to 100
Agriculture, forestry, fishing	77.3	15.6	1.6	3.9	1.6
Mining & quarrying	50.0	30.0		20.0	
Manufacturing	79.5	14.5	3.7	1.3	0.9
Electricity, gas and water supply	57.1	31.4	5.7	2.9	2.9
Construction and building related activities	70.0	21.1	6.3	1.7	0.9
Sale maintenance repair of motor vehicles and fuel retail	85.1	12.4	1.9	0.6	
Wholesale trade	76.8	19.6	1.8	0.9	0.9
Retailing	77.7	18.3	1.9	1.0	1.0
Hotels, restaurants, bars and catering	53.8	36.7	7.5	1.6	0.3
Transport & activities related to transport	69.5	22.1	6.3	1.1	1.1
Post, courier & communications services	72.4	24.1	3.4		
Financial services	95.6	3.3	0.5	0.5	
Real estate activities	73.1	16.7	5.1	1.3	3.8
Renting of machinery, equipment, personal, household goods	64.7	29.4	5.9		
Computer and related activities	67.3	20.3	8.3	2.0	2.0
Research and development activities	51.1	17.8	6.7	13.3	11.1
Other business services	71.8	17.2	5.8	3.4	1.7
Public administration and defence	28.6	14.3	7.1	14.3	35.7
Education	53.3	24.0	10.7	5.3	6.7
Health and social work	60.3	25.0	6.0	3.4	5.2
Other personal services	71.1	23.7	5.3		
Other	72.9	20.7	4.6	0.9	0.8
All sectors	72.3	19.7	4.7	1.8	1.4

Source: FSB analysis on FSB 2004 Survey data.

Table 4.2 shows NERA's estimates of the proportion of SME sales accounted for by central government expenditure in 2004 by sector of the economy.

The proportion of total SME sales accounted for by central government appears to be around 5-6 per cent. The proportion is much larger for public administration and defence (43 per cent), research and development activities (21-22 per cent), mining and quarrying (15 per cent), education (15 per cent), and health and social work activities (11 per cent).

Table 4.2
Total Percentages of SME Sales Accounted for by Central Government by Sector

Sector (FSB Survey Classification)	Baseline (%)	“Average” (%)
Agriculture, forestry, fishing	5.8	5.6
Mining & quarrying	15.0	14.8
Manufacturing	4.3	4.1
Electricity, gas and water supply	9.3	8.8
Construction and building related activities	6.1	5.7
Sale maintenance repair of motor vehicles and fuel retail	2.3	2.1
Wholesale trade	3.9	3.6
Retailing	4.0	3.7
Hotels, restaurants, bars and catering	7.6	6.9
Transport & activities related to transport	5.9	5.5
Post, courier & communications services	3.6	3.2
Financial services	0.9	0.8
Real estate activities	7.5	7.2
Renting of machinery, equipment, personal, household goods	5.0	4.5
Computer and related activities	7.9	7.5
Research and development activities	21.6	21.4
Other business services	7.3	7.0
Public administration and defence	42.9	43.0
Education	15.0	14.6
Health and social work	11.1	10.7
Other personal services	4.2	3.8
Other	4.9	4.6
All sectors	5.9	5.6

Source: NERA analysis of FSB data.

FSB data on percentages of SME company sales accounted for by local government are shown in Table 4.3.

Table 4.3
Percentage Ranges of SME Sales Accounted for by Local Government
by Sector

Sector (FSB Survey Classification)	Zero	1 to 25	26 to 50	51 to 75	76 to 100
Agriculture, forestry, fishing	49.7	39.4	7.3	3.0	0.6
Mining & quarrying	18.8	68.8	12.5		
Manufacturing	52.1	37.7	5.7	2.7	1.8
Electricity, gas and water supply	50.0	41.2	5.9		2.9
Construction and building related activities	29.6	45.7	14.2	7.8	2.7
Sale maintenance repair of motor vehicles and fuel retail	66.1	29.6	4.3		
Wholesale trade	38.1	57.4	3.2	1.3	
Retailing	49.9	47.3	2.3	0.4	0.1
Hotels, restaurants, bars and catering	40.3	52.9	5.5	0.8	0.5
Transport & activities related to transport	37.5	41.1	12.4	5.8	3.3
Post, courier & communications services	37.5	50.0	2.5	7.5	2.5
Financial services	92.0	7.4		0.5	
Real estate activities	67.5	27.7	3.6	1.2	
Renting of machinery, equipment, personal, household goods	29.6	59.3	11.1		
Computer and related activities	39.6	43.0	9.1	4.9	3.4
Research and development activities	58.1	20.9	11.6	4.7	4.7
Other business services	44.7	43.1	8.1	2.8	1.2
Public administration and defence	62.5	12.5		12.5	12.5
Education	32.3	37.4	13.1	5.1	12.1
Health and social work	28.0	26.5	12.2	14.3	19.0
Other personal services	53.1	32.7	2.0	5.1	7.1
Other	43.6	45.2	5.3	3.3	2.6
All sectors	44.9	41.9	7.1	3.6	2.5

Source: FSB analysis on FSB 2004 Survey data.

Table 4.4 shows NERA's estimates of the proportion of total SME sales accounted for by local government expenditure in 2004 by sector of the economy. SMEs' proportion of sales accounted for by local government is estimated around 10-11 per cent. This proportion is much larger for health and social work (31-32 per cent), education (21-22 per cent), public administration and defence (20 per cent) and construction and building related activities (16 per cent).

Table 4.4
Total Percentages of SME Sales Accounted for by Local Government by Sector

Sector (FSB Survey Classification)	Baseline (%)	“Average” (%)
Agriculture, forestry, fishing	8.8	8.2
Mining & quarrying	11.3	10.0
Manufacturing	8.9	8.3
Electricity, gas and water supply	8.7	8.0
Construction and building related activities	16.5	15.7
Sale maintenance repair of motor vehicles and fuel retail	4.5	4.0
Wholesale trade	7.6	6.7
Retailing	5.9	5.2
Hotels, restaurants, bars and catering	8.2	7.3
Transport & activities related to transport	14.7	14.0
Post, courier & communications services	12.5	11.8
Financial services	1.1	1.0
Real estate activities	4.8	4.3
Renting of machinery, equipment, personal, household goods	9.8	8.8
Computer and related activities	13.3	12.6
Research and development activities	12.9	12.5
Other business services	9.9	9.2
Public administration and defence	19.4	19.4
Education	21.7	21.1
Health and social work	31.7	31.4
Other personal services	13.1	12.7
Other	10.5	9.9
All sectors	11.0	10.3

Source: NERA analysis of FSB data.

Table 4.5 shows NERA’s estimates of the proportion of SME sales accounted for by central and local government expenditure in 2004 by SIC section of the economy.

To aggregate FSB data into SIC broad industries¹³ we have weighted the relevant sectors by the number of respondents. These *weights* have also been used to calculate the proportion of SME sales to the whole government sector¹⁴.

The proportion of total SME sales accounted for by the whole government sector appears to be particularly high in public administration and defence (68.8 per cent), health and social work (47.1 per cent). Sales to education (36.6 per cent) and construction (23.7 per cent) are also above the average value.

¹³ The FSB provided us with a scheme to reconcile FSB and SIC industrial codes, see appendix B.

¹⁴ We first calculated the weighted average of sales to central government and sales to local government using the number of respondents. Then we multiplied by two the estimated weighted average. The final figures are not very different from the figures calculated simply summing up the percentage sales to local and central government.

Table 4.5
Total Percentages of SME Sales Accounted for by Central, Local and Whole of Government by SIC Section

SIC Section	Description	Central Government		Local Government		Whole Government	
		Baseline	Average	Baseline	Average	Baseline	Average
		(%)	(%)	(%)	(%)	(%)	(%)
A & B	Agriculture, hunting and forestry; fishing	5.8	5.6	8.8	8.2	15.0	14.1
C & E	Mining and quarrying; electricity, gas and water supply	10.6	10.1	9.5	8.6	20.0	18.6
D	Manufacturing	4.3	4.1	8.9	8.3	13.7	12.8
F	Construction	6.1	5.7	16.5	15.7	25.0	23.7
G	Wholesale and retail trade, repairs	3.7	3.4	5.9	5.2	9.8	8.8
H	Hotels and restaurants	7.6	6.9	8.2	7.3	15.9	14.2
I	Transport, storage & communication	5.6	5.2	14.4	13.7	21.6	20.4
J	Financial intermediation	0.9	0.8	1.1	1.0	2.0	1.8
K	Real estate, renting and business activities	8.2	7.9	10.8	10.1	19.3	18.2
L	Public admin, defence	42.9	43.0	19.4	19.4	68.7	68.8
M	Education	15.0	14.6	21.7	21.1	37.6	36.6
N	Health and social work	11.1	10.7	31.7	31.4	47.7	47.1
O	Other community, social and personal service activities	4.2	3.8	13.1	12.7	18.4	17.6
	Other	4.9	4.6	10.5	9.9	16.1	15.2
	All sectors	5.9	5.6	11.0	10.3	17.5	16.5

Source: NERA analysis of FSB data.

Table 4.6 shows FSB's figures on estimates of the percentages of SME sales accounted for by central government expenditure in 2004 by SME turnover. In broad terms, SMEs with a higher turnover tend to make a larger proportion of their sales to central government.¹⁵

Table 4.7 shows NERA's estimates of the overall proportion total of SME sales accounted for by central government expenditure in 2004 by SME turnover. Around 7-8 per cent of sales are accounted for by central government expenditure for firms that generate more than £5 million turnover; this percentage falls to 4-5 per cent for SMEs with a turnover below £25,000.

¹⁵ Although the relationship between total firm turnover and the proportion of SME turnover accounted for by central government is not quite monotonic.

Table 4.6
Percentage Ranges of SME Sales Accounted for by Central Government
and by SME Turnover

Annual turnover range	zero	1 to 25	26 to 50	51 to 75	76 to 100
Less than £25,000	80.63	12.57	3.66	1.31	1.83
£25,001 to £50,000	76.86	16.48	3.49	1.90	1.27
£50,001 to £100,000	74.94	15.29	6.02	2.26	1.50
£100,001 to £500,000	69.93	21.95	5.18	1.67	1.27
£500,001 to £1m	70.15	22.57	3.54	2.24	1.49
£1,000,001 to £5m	66.00	24.75	5.25	2.25	1.75
More than £5m	58.97	30.77	7.69		2.56
All	72.27	19.62	4.80	1.88	1.44

Source: FSB analysis on FSB 2004 Survey data.

Table 4.7
Total Percentages of SME Sales Accounted for by Central Government
by SME Turnover

Annual turnover range	Baseline (%)	“Average” (%)
Less than £25,000	4.9	4.7
£25,001 to £50,000	5.1	4.8
£50,001 to £100,000	6.3	6.0
£100,001 to £500,000	6.1	5.7
£500,001 to £1m	6.1	5.8
£1,000,001 to £5m	7.2	6.7
More than £5m	7.9	7.4
All	6.0	5.7

Source: NERA analysis of FSB data.

Table 4.8 and Table 4.9 show the corresponding FSB data and NERA estimates of the proportion of SME sales accounted for by local government expenditure in 2004. The percentage of SMEs winning contracts from local public sector purchasers is higher than for central government. However the very largest SMEs, with turnover over £5m, supply proportionately less of their sales to local government than SMEs with a turnover between £0.1m and £5m.

Table 4.8
Percentage Ranges of SME Sales Accounted for by Local Government
by SME Turnover

Annual turnover range	zero	1 to 25	26 to 50	51 to 75	76 to 100
Less than £25,000	61.76	27.25	6.59	2.64	1.76
£25,001 to £50,000	55.85	34.69	4.73	2.89	1.84
£50,001 to £100,000	51.28	38.95	5.76	2.57	1.44
£100,001 to £500,000	40.21	44.94	7.78	3.93	3.14
£500,001 to £1m	36.16	46.72	9.14	5.02	2.96
£1,000,001 to £5m	34.77	49.19	7.93	5.05	3.06
More than £5m	39.58	54.17	4.17	2.08	
All	44.72	41.94	7.12	3.70	2.52

Source: FSB analysis on FSB 2004 Survey data.

Table 4.9
Total Percentages of SME Sales Accounted for by Local Government
by SME Turnover

Annual turnover range	Baseline (%)	“Average” (%)
Less than £25,000	8.1	7.6
£25,001 to £50,000	8.4	7.9
£50,001 to £100,000	8.7	8.0
£100,001 to £500,000	12.2	11.5
£500,001 to £1m	13.4	12.6
£1,000,001 to £5m	13.3	12.5
More than £5m	8.1	7.3
All	11.0	10.4

Source: NERA analysis of FSB data.

Input/output figures on government consumption in 2002 indicate that local government expenditure accounted for only 38 per cent of government total intermediate consumption at purchasers' prices. Thus although, as shown in Tables 4.8 and 4.6, SMEs sell proportionately more of their output to local than to central government, the total local government market is smaller. It follows that, as would be expected, the share of local government procurement from SMEs is much higher than the share of central government procurement from SMEs.

5. SME Involvement in the Public Sector

- Health and social work, education, and construction and building related activities display both high SME shares of sales to government (Table 4.5) and SMEs' shares of total private sector turnover within that industry sector (Table 2.1). In owning and dealing in real estate, hotels and restaurants, and agriculture/forestry/fishing (maybe not surprisingly for the latter) high levels of SME activity are not associated with high SME shares of sales to government.
- NERA's estimates of total sales to the whole of government from the FSB 2004 Survey are shown in Table 5.1. These figures are taken from the last two columns of Table 4.5 and have been ranked according to total sales to government. We have rounded these figures to the nearest integer to show them in the same format as that used for FSB statistics.

Table 5.1
SME Sales to Government as a Percentage of SME Turnover by SIC Section

SIC Section	Description	Whole Government	
		Baseline (%)	Average (%)
L	Public administration, defence	69	69
N	Health and social work	48	47
M	Education	38	37
F	Construction	25	24
I	Transport, storage & communication	22	20
C & E	Mining and quarrying; electricity, gas and water supply	20	19
K	Real estate, renting and business activities	19	18
O	Other community, social and personal service activities	18	18
	All sectors	18	17
	Other	16	15
H	Hotels and restaurants	16	14
A & B	Agriculture, hunting and forestry; fishing	15	14
D	Manufacturing	14	13
G	Wholesale and retail trade, repairs	10	9
J	Financial intermediation	2	2

Source: NERA calculations on FSB data.

- Sectors where SMEs' shares in total private sector turnover are very high, but the shares of their sales to government are low, might indicate a potential area of development for SMEs in public procurement. Table 5.2 shows these shares for several sectors where the SME share of private sector turnover is high. Lacking detailed information on public procurement from SMEs and larger firms, however, it is difficult to assess whether low shares of sales to government are simply driven by the fact that government purchases in those areas are not significant. We address this issue by jointly analysing statistics on SMEs' shares in turnover, SME sales to government, and government consumption, in Table 5.3.

Table 5.2
FSB Data on Sales to Government and SME Activity

Sector	SME % of total private sector turnover	SME sales to government as % of SME turnover (as in Table 5.1)
Education (1995 data)	95	38
Agriculture, Hunting and Forestry; Fishing	96	15
Health and Social Work	88	48
Real Estate, Renting and Business Activities	71	18
Construction	68	25
Hotels and Restaurants	58	16
Other Community, Social and Personal Service Activities	55	18

Source: NERA calculations on SBS and FSB “baseline scenario” data.

- In Table 5.3 we bring together data on SME activity, SME sales to government (from Table 5.1) and government consumption classified according to SIC codes.
 - Each column in this table (starting from column 3) identifies a sector of government consumption. Column headings provide a description of the sector and the share of government current procurement expenditure in total procurement expenditure in that sector (from Table 3.3). For example, the last column provides information on government expenditure share health and social work that is 15.7 per cent of total expenditure. Columns are sorted from the lowest share of government expenditure (left hand side) to the highest (right hand side). Manufacturing, real estate activities, education, other social services and health and social work are sectors where government expenditure is higher than the average of 4.7 per cent.
 - Each row identifies a sector of SME activity. In each row heading we provide a sectoral description and the SME share in total private sector turnover in that sector (from Table 2.1). Rows are sorted from the lowest SME share of private sector turnover (top) to the highest (bottom). Mining and Utilities, Manufacturing, Transport, Financial intermediation, Trade are sectors where SME activity is equal to or lower than the average of 52 per cent. There is, unfortunately, no corresponding data available on defence and public administration.
- We report SME sales to government as a percentage of total SME turnover (from Table 5.1 right hand column) in the cell corresponding to a given sector. For example, sales to government in manufacturing amount to 13 per cent and this figure appears in the intersection between the manufacturing column and row.
 - The table has been partitioned in four quadrants. By construction, the cells in the South-East quadrant (right bottom corner) are associated with sectors where shares of both government expenditure and SME activity are highest. These are sectors where we might expect to find significant proportions of SMEs’ sales to be accounted for by government.

- The opposite holds for the North-West quadrant, which is associated with both low shares of government expenditure and low SME share in private sector turnover.¹⁶ Ex ante, we might expect that these sectors are candidates for the lowest SME shares of sales to government.
- Moving East from this quadrant (to the top right corner) sales to government should increase due to the higher shares of government expenditure in sectors such as manufacturing, real estate etc. In principle, SME sales to government in this North East quadrant should be lower than in the South East quadrant, as moving South is associated with increasing rates of SME activity.
- Similarly, SMEs' sales associated with sectors in the South-West quadrant should be higher than in the North-West quadrant due to the higher shares of SMEs' turnover in private sector turnover. However, since in these sectors the government's share in total expenditure is low, SME sales accounted for by government should be lower than in the South East corner.

Some further broad conclusions are as follows.

- SME sales to government in health social work and activities and education match the ex ante prediction of high sales to government. Similarly, we could expect the low sales to government in trade related activities and financial intermediation.
- SMEs sell to government proportionately more than might be inferred from low levels of government procurement in the construction industry. However, the SME share in total private sector turnover is high in this sector.
- SMEs sell to government proportionately more than what might be assumed a priori (given low levels of government consumption and low share of SMEs in total sales turnover), in particular, in mining and quarrying, electricity, water and gas supply, and transport.
- SMEs sales to government are lower than might be inferred from levels of government expenditure and SME activity particularly in other social services and real estate activities.
- These figures may suggest some potential for efficient higher SME sales to government in all the sectors where the government's expenditure share is above average. Given the high share of SMEs in Construction and Real Estate activities, there may also be room to increase the share of SMEs' turnover accounted for by the government in these sectors (on the other hand these figures do not reflect the considerable contribution of SMEs to construction as sub-contractors).
- A particularly high percentage of SME sales in public administration and defence are to government. However there are no data on the SME share of the total market. This is SIC section L: public administration and defence; compulsory social security), which

¹⁶ The first row should be excluded from this evaluation, as we do not have data on SMEs' turnover in public administration and defence.

includes administration of the State and the economic and social policy of the community¹⁷, provision of services to the community as a whole¹⁸, and compulsory social security activities.

- Finally, it is worth stressing again the absence of direct data on public procurement from SMEs and non SMEs to assess directly the extent to which SMEs are underrepresented in public sector market. If available, these data would allow a straightforward comparison between levels of procurement from SMEs in a given sector and the level of SMEs' activity in that sector. This comparison could uncover the existence (in some industries) of discrepancies between SME activity and procurement from SME. Industries where these discrepancies emerged would then be the obvious candidates for targeted policies to increase SMEs' role in procurement.

¹⁷ This SIC category includes: General (overall) public service activities, Regulation of the activities of agencies that provide health care, education, cultural services and other social services excluding social security, Regulation of and contribution to more efficient operation of business, Supporting service activities for the government as a whole.

¹⁸ This SIC category includes: Foreign affairs, Defence activities, Justice and judicial activities, Public security, law and order activities, Fire service activities.

Table 5.3
SME Sales to Government as Percentage of SME Turnover, Related to Government and SME Shares in Total Market

		Government expenditure (% of total market, I-O data 2002) – from Table 3.3	Agriculture etc AB	Hotels, restaurants, etc H	Trade G	Financial Int. J	Mining-Utilities CE	Construction F	Transport I	Manufacturing D	Real estate etc K	Education M	Other social services O	Health and social work N
			0.2	1.4	2.0	2.2	2.6	4.1	4.2	4.6	5.1	6.4	6.5	15.7
		SME sales (% of market, from SBS data) – from Table 2.1	SME sales as % accounted for by Government, FSB data											
Mining-Utilities	CE	20					19							
Manufacturing	D	36								13				
Transport	I	39							20					
Financial int.	J	49***				2								
Trade	G	52			9									
Other social services	O	55											18	
Hotels, restaurants etc	H	58		14										
Construction	F	68						24						
Real estate etc	K	71									18			
Health and social work	N	88												47
Education	M	94***										37		
Agriculture etc	A B	96	14											

6. Enterprise Churn

This chapter looks at enterprise churn from 1995 to 2003. The analysis relies on SBS data on VAT registrations, deregistrations and the stock of existing firms in each industry.

Churn is defined as the sum of the current year registrations plus the number of deregistrations in the previous year, all divided by the stock of firms existing on the first day of the current year. It is a measure of dynamism in a sector. There is some evidence that higher levels of churn are associated with increased productivity in the economy. Entry and exit of firms is widely recognized as a major driver of growth.

However, churn statistics need to be interpreted carefully with the help of supplementary information. The same churn ratio could be associated with high number of registrations with no deregistrations, a high number of deregistrations with no new entry, or a situation where the number of firms is not changing because the number of entrants matches the number of deregistrations. But these three scenarios describe very different conditions. So churn should not be associated with higher profitability or thriving sectors unless other data suggest that there are good prospects for the firms operating in that market.

We therefore examine stock levels at the beginning and at the end of the period analysed, to assess whether the total number of firms operating in a sector has been increasing or decreasing. Section 6.1 presents our VAT data from SBS statistics and our estimates of churn levels. They show substantial sectoral differences in churn levels and churn growth.

We also analyse the relationship between entry and churn. Section 6.2 shows that high churn is in practice correlated with high rates of registration.

Section 6.3 illustrates the relationship between churn and turnover growth in both aggregate SIC division and more narrowly defined SIC 3-digit sectors. Our analysis does suggest that churn is positively correlated with faster growth in a sector.

6.1. Churn in SIC Divisions from 1995 to 2003

We first show in Table 6.1 the stock of firms in 1995 and 2003 and churn levels in each SIC division from 1995 to 2003. The stock of firms has changed over time, especially in real estate, renting and business activities (where it increased substantially).

In 2003, churn has been highest in mining, quarrying and electricity, hotels and restaurants, and in real estate, renting and business activities.

The largest variations in churn, comparing 1995 and 2003, took place in other community, social and personal services (minus 9 per cent), and in mining, quarrying and electricity (plus 4 per cent) and education, health and social work (plus 4 per cent).

Figure 6.1 illustrates the data shown in Table 6.1. Some sectors display consistently higher or lower churn levels than others (compare for example hotels and restaurants and agriculture, hunting etc.). There is also substantial variability in trends over time within each sector. Other community, social and personal services displays a clear negative trend in

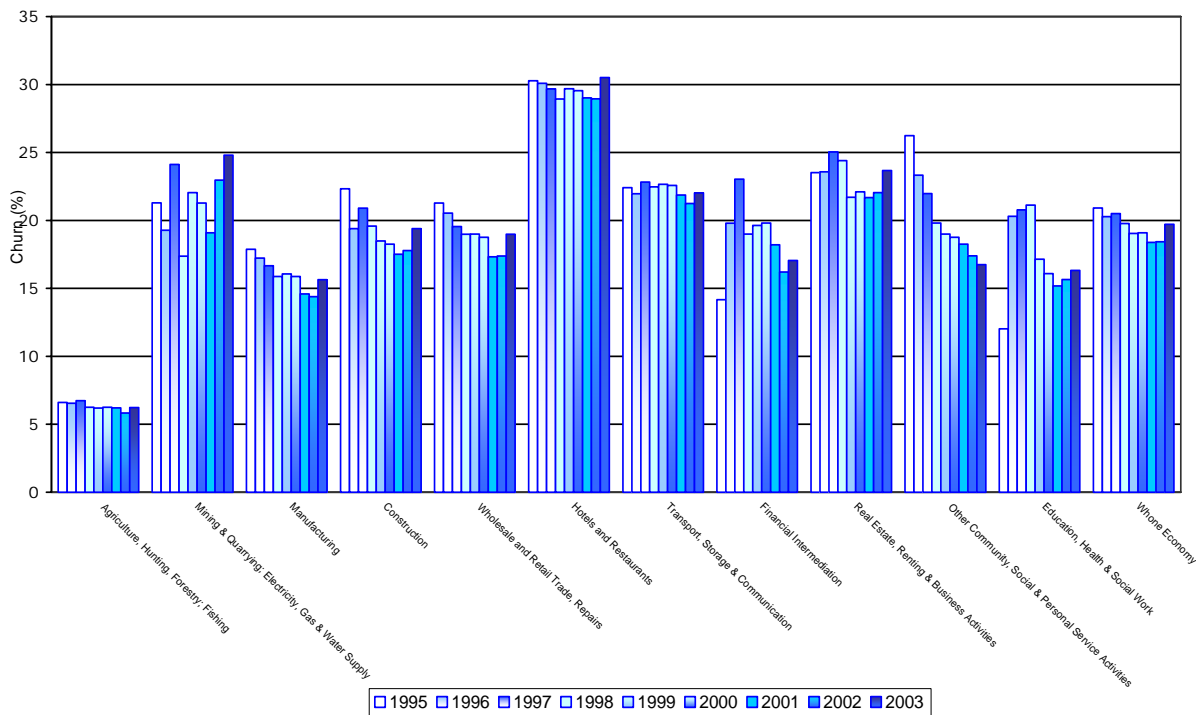
churn, while most other sectors display more erratic behaviour over time, with less pronounced trends.

Table 6.1
Enterprise Churn by SIC Division,
1995 to 2003

SIC	Division	Stock	Churn (%)									Stock
		('000)	'95	'96	'97	'98	'99	'00	'01	'02	'03	('000)
AB	Agriculture, hunting & forestry; fishing	161	7	7	7	6	6	6	6	6	6	146
CE	Mining & quarrying; electricity, gas & water supply	2	21	19	24	17	22	21	19	23	25	2
D	Manufacturing	164	18	17	17	16	16	16	15	14	16	158
F	Construction	186	22	19	21	20	18	18	18	18	19	196
G	Wholesale & retail trade, repairs	425	21	21	20	19	19	19	17	17	19	389
H	Hotels & restaurants	110	30	30	30	29	30	30	29	29	31	123
I	Transport, storage & communication	72	22	22	23	22	23	23	22	21	22	80
J	Financial intermediation	15	14	20	23	19	20	20	18	16	17	17
K	Real estate, renting & business activities	330	24	24	25	24	22	22	22	22	24	508
LO	Other community, social & personal service activities	134	26	23	22	20	19	19	18	17	17	151
MN	Education, health & social work	25	12	20	21	21	17	16	15	16	16	26
	Whole economy	1624	21	20	21	20	19	19	18	18	20	1795

Source: NERA calculation on SBS VAT data 1995-2003.

**Figure 6.1
Churn Levels by SIC Division, from 1995 to 2003**



Source: NERA calculations on SBS VAT data.

6.2. Niche VAT Data

In Table 6.2 we show churn levels constructed as in the earlier section but now using data from narrower SIC 3-digit sectors. We have ranked these sectors according to churn in 2003. This has been done to identify areas where enterprise *churn* is particularly intense. The availability of historical data allows us to detect wider changes in churn in smaller sectors than in SIC divisions.

Table 6.2
Churn in VAT Registrations by SIC 3-digit Sector,
1995 to 2003

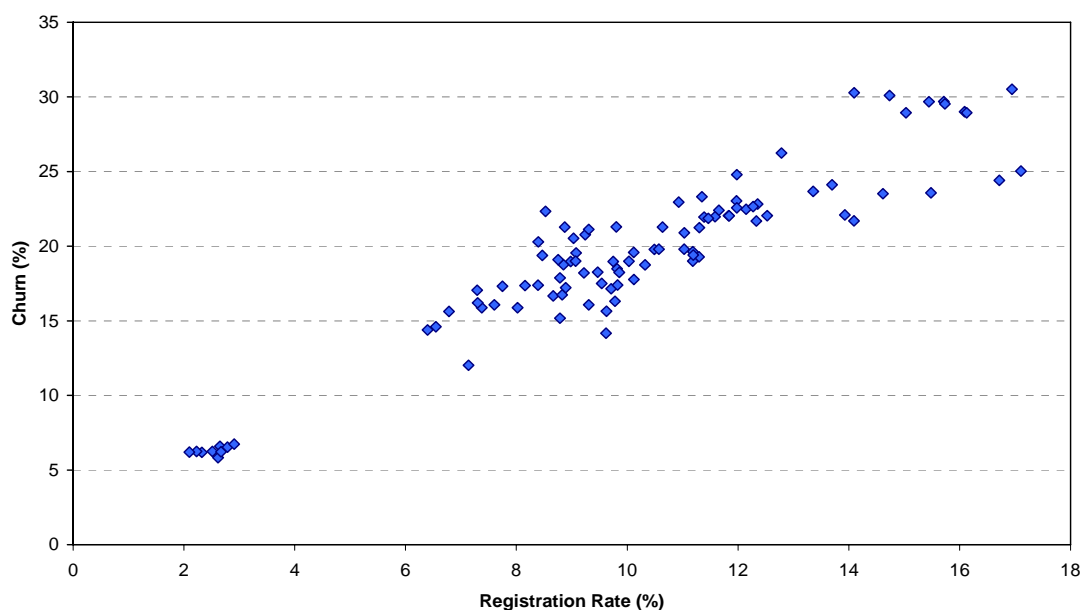
SIC Section	Stock 1995	1995	1996	1997	1998	Churn					Stock 2003
						1999	2000	2001	2002	2003	
231 Manufacture of coke oven products	20	50	25	0.0	33.3	0.0	0.0	0.0	50	100	5
154 Manufacture of vegetable & animal oils & fats	80	12.5	11.8	17.6	20.0	20.0	25.0	18.2	22.2	57.1	35
271 Manufacture of basic iron & steel & of ferro-alloys	250	56.0	42.2	31.3	25.5	30.0	27.7	25.6	35.3	54.2	120
410 Collection, purification & distribution of water	80	50.0	27.8	43.8	23.5	23.5	23.5	29.4	15.8	42.1	95
101 Mining & agglomeration of hard coal	180	25.0	20.0	27.3	18.8	25.9	31.8	26.3	31.3	41.7	60
724 Data base activities	1,055	61.6	56.2	63.7	44.9	20.6	25.1	26.5	27.3	41.2	3,485
641 Post & courier activities	2,500	41.0	51.9	52.1	48.5	49.6	45.1	41.7	41.1	40.8	9,175
642 Telecommunications	2,345	40.3	50.7	60.7	55.6	52.5	49.1	42.8	39.0	40.5	6,165
402 Manufacture of gas; distribution of gaseous fuels through mains	45	55.6	62.5	30.0	20.0	40.0	27.3	23.1	53.8	37.5	80
401 Production & distribution of electricity	135	25.9	24.1	29.0	30.3	27.8	22.5	20.5	22.4	37.3	255
723 Data processing	1,905	33.9	35.9	45.6	38.3	17.8	21.3	24.9	25.6	36.6	3,555
746 Investigation & security activities	2,095	25.5	51.4	42.3	40.2	37.9	35.2	36.1	33.6	35.0	5,360
721 Hardware consultancy	3,320	37.2	43.5	46.7	37.9	20.1	21.9	24.4	25.1	33.9	7,870
143 Mining of chemical & fertiliser minerals	30	0.0	16.7	60.0	20.0	16.7	20.0	0.0	25.0	33.3	15
603 Transport via pipelines	15	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	33.3	15
553 Restaurants	45,425	32.2	30.9	31.7	30.6	31.5	31.2	29.7	30.9	33.1	55,395
112 Service activities incidental to oil & gas production excluding surveying	155	22.6	21.2	35.3	21.6	27.5	27.3	25.0	22.0	32.0	250
554 Bars	44,880	33.1	32.6	31.6	30.8	31.4	31.6	32.4	30.5	31.1	47,840
526 Retail sale not in stores	7,375	52.0	34.3	31.9	33.6	34.6	38.1	25.9	26.0	30.8	13,165
745 Labour recruitment & provision of personnel	7,040	27.1	29.8	32.3	32.4	32.8	34.0	29.3	29.4	30.7	15,515

Source: NERA calculations on SBS VAT data 1995-2003.

6.3. Churn, Entry and Growth

Figure 6.2 illustrates the relationship between churn and rates of registration (defined as the number of registrations divided by the total number of firms within a sector). The data show that the primary driver of high churn figures is the number of registrations (hence firms' entry) as opposed to firms de-registering (firms' exit).

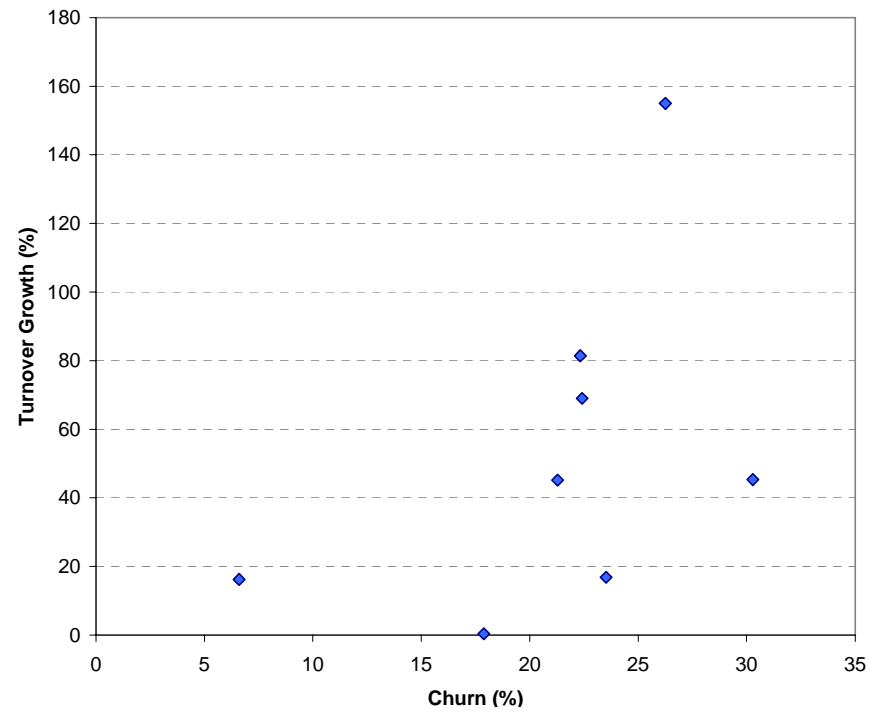
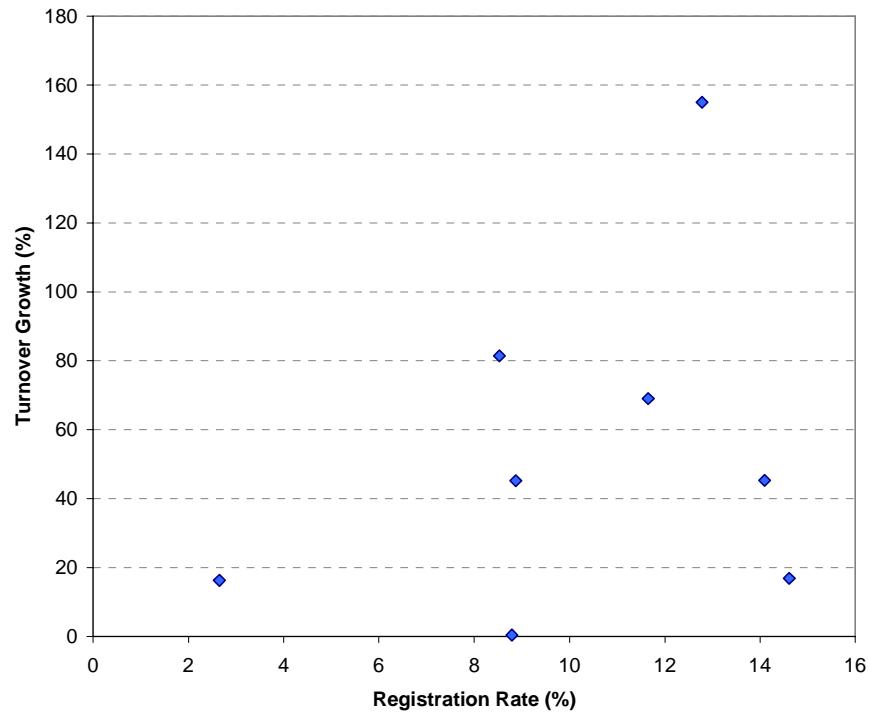
Figure 6.2
Churn and Registration Rates in UK SIC 3-digit Sectors 1995 to 2003



Source: NERA calculations on SBS VAT registration data.

Figure 6.3 shows the level of churn and registration rates in 1995 on the horizontal axis and turnover growth from 1995-2003 on the vertical axis. The figure suggests some positive impact of higher churn and entry rates on future sectoral development. We have looked at a simple measure of statistical correlation (the correlation coefficient) and found that correlation is stronger between churn and growth (the correlation coefficient equals 0.5) than between registration rates and growth (the correlation coefficient equals 0.3). Due to the restricted number of observations we have looked at this relationship focussing on SIC 3-digit sectors.

Figure 6.3
Registration Rates, Churn and Turnover Growth from 1995 to 2003



Source: NERA calculation based on VAT and turnover data from SBS.

By looking at the relationship between churn (and registrations) and turnover growth in 3-digit sectors we have again found some positive relationship between churn and growth. This relationship emerged from a much larger number of observations. Focusing on this relationship by looking at smaller sectors has also allowed us to address potential concerns with the aggregation of data within industries. Indeed, the analysis at the more aggregated level might have concealed substantial variation in churn and growth at sector level.

Simple statistical analysis of the 3-digit data shown in Figure 6.4 and the coefficient of the slope of the best fitting line also indicate a positive correlation between churn and turnover growth. This result is robust to the exclusion of some obvious high churn/high growth outliers, which are excluded from Figure 6.4 (although the correlation coefficient is 0.2 when we exclude the outliers and is higher, at 0.5, when the outliers are included). The R-square measure of goodness of fit for this simple regression is low, at less than 0.1.

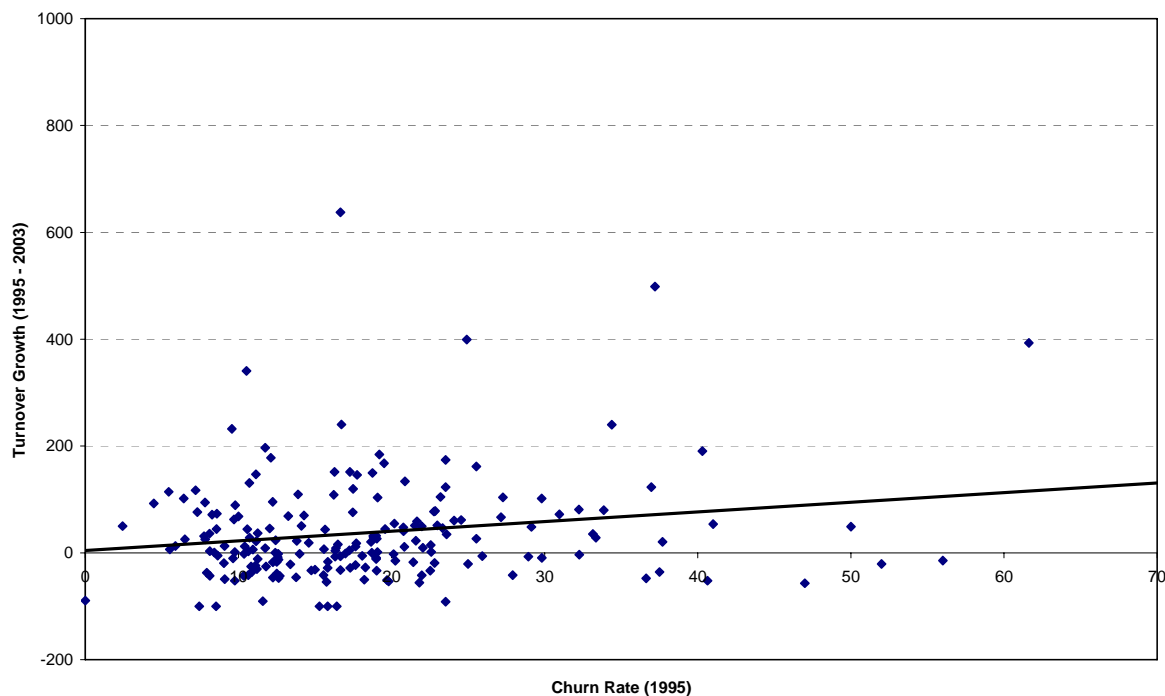
It is however not surprising that these broad measures of statistical correlation indicate a weak relationship. We have not attempted to control for important factors that might have affected growth from 1995-2003 and for sector specific variables, which are an important component in explaining growth patterns.

Furthermore, the relationship might be non linear. For example, we could have a negative correlation for very low level of churns and an increasing relationship between churn and growth for levels of churn that are medium-low to high. As a consequence, the linear relationship would look flatter and weaker than the real relationship.

Stronger insights on the relationship between entry and growth are provided by the research of Aghion¹⁹ et al (2004). These leading economists and econometricians have analysed the relationship between entry and growth in total factor productivity (TFP) of incumbents in about 200 SIC 4-digit UK manufacturing industries from 1987 and 1993. Controlling for innovation, industry heterogeneity and macroeconomics effects, the authors find that entry impacts positively on growth. However, they also detect considerable heterogeneity in this effect. In particular, the impact is strong in technologically advanced industries, and weak (or even negative) in technologically laggard industries. These findings, the effect of pooling all firms together, as in we do with our data to produce this chart, will weaken the empirical relationship substantially.

¹⁹ Aghion et al, August 2004 “ Firm Entry, Innovation and Growth: Theory and Micro Evidence”. Work in progress, paper available from http://post.economics.harvard.edu/faculty/aghion/papers/firm_entry_and_growth.pdf. Aghion is Professor of Economics at Harvard University, Blundell is Professor of Economics at University College London, Howitt is Professor of Economics at Brown University, Griffith and Prantl work at the IFS.

Figure 6.4
Growth and Churn



Source: NERA calculations on VAT data and turnover data from SBS.

6.4. Conclusions

- As shown in Table 6.2, with the exception of agriculture and fishing, in all sectors where SMEs account for a large proportion of total turnover churn levels are high.

Table 6.3
Churn and SMEs' Share of Industry Turnover, 2003

Sector	SMEs share in turnover	Churn
Education (1995 data)	95	16
Agriculture, hunting and forestry; fishing	96	6
Health and social work	88	16
Real estate, renting and business activities	71	24
Construction	68	19
Hotels and restaurants	58	31
Other community, social and personal service activities	55	17

Source: NERA calculations on SBS SME statistics.

- Our simple statistical analysis of correlation between churn and turnover growth suggests a positive relationship between higher churn and faster growth.

- The economic literature on SMEs identifies churn as a factor that enhances productivity. In particular, recent work by Aghion et al. (2004) provides solid empirical evidence of the positive effect of entry on TFP using detailed data on UK manufacturing industries.

Appendix A. Reconciliation of Input-Output and SIC Classifications

In Table A.1 the second column records the 123 classification used in the ONS I-O tables, which are the statistical basis for Section 3 of the main paper. The fourth column records the SIC classification used for the SBS data which are the basis of Section 2. The last four columns show sub-divisions of the SIC classification, including, in the column headed “Sect A17”, the letters used in Table 2.1. NACE is the EC economic classification system, with which the SIC is required to be consistent.

Table A.1
Classification of Input-Output Industry/Product Groups by Standard Industrial Classification (1992) and NACE

11 level	123 level	Industry/product groups	SIC (1992) Divisions Groups, Classes	SIC/NACE Rev.1 Industrial classifications				
				Divisions A60	Sub-sections A31	Sect A17	A6	
Agriculture	1	Agriculture, hunting and related service activities	01	01	AA	A	1	
	2	Forestry, logging and related service activities	02	02				
	3	Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing	05	05	BB	B		
Mining and quarrying	4	Mining of coal and lignite; extraction of peat	10	10	CA	C	2	
		Extraction of crude petroleum and natural gas; service activities incidental to oil & gas extraction	11 + 12	11 + 12				
	5	Mining of metal ores	13	13	CB			
	7	Other mining and quarrying	14	14				
Manufacturing	8	Production, processing and preserving of meat and meat products	15.1	15	DA	D		
	9	Processing and preserving of fish and fish products; fruit and vegetables	15.2 + 15.3					
	10	Vegetable and animal oils and fats	15.4					
	11	Dairy products	15.5					
	12	Grain mill products, starches and starch products	15.6					
	13	Prepared animal feeds	15.7					
	14	Bread, rusks and biscuits; manufacture of pastry goods and cakes	15.81 + 15.82					
	15	Sugar	15.83					
	16	Cocoa; chocolate and sugar confectionery	15.84					
	17	Other food products	15.85 to 15.89					
	18	Alcoholic beverages	15.91 to 15.97					
	19	Production of mineral waters and soft drinks	15.98					
	20	Tobacco products	16					
	21	Preparation and spinning of textile fibres	17.1				17	DB
	22	Textile weaving	17.2					
	23	Finishing of textiles	17.3					
	24	Made-up textile articles, except apparel	17.4					
	25	Carpets and rugs	17.51					
	26	Other textiles	17.52 to 17.54					

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11 level	123 level	Industry/product groups	SIC (1992) Divisions Groups, Classes	SIC/NACE Rev.1 Industrial classifications			
				Divisions A60	Sub-sections A31	Sect A17	A6
	27	Knitted and crocheted fabrics and articles	17.6 + 17.7				
	28	Wearing apparel; dressing and dyeing of fur	18	18			
	29	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery and harness	19.1 + 19.2	19	DC		
	30	Footwear	19.3				
	31	Wood and wood products, except furniture		20	DD		
	32	Pulp, paper and paperboard	21.1	21	DE		
	33	Articles of paper and paperboard	21.2				
	34	Publishing, printing and reproduction of recorded media	22	22			
	35	Coke, refined petroleum products and nuclear fuel	23	23	DF		
	36	Industrial gases, dyes and pigments	24.11 + 24.12				
	37	Other inorganic basic chemicals	24.13				
	38	Other organic basic chemicals	24.14				
	39	Fertilisers and nitrogen compounds	24.15				
	40	Plastics and synthetic rubber in primary forms	24.16 + 24.17				
	41	Pesticides and other agro-chemical products	24.2	24	DG		
	42	Paints, varnishes and similar coatings, printing ink and mastics	24.3				
	43	Pharmaceuticals, medicinal chemicals and botanical products	24.4				
	44	Soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	24.5				
	45	Other chemical products	24.6				
	46	Man-made fibres	24.7				
	47	Rubber products	25.1	25	DH		
	48	Plastic products	25.2				
	49	Glass and glass products	26.1				
	50	Ceramic goods	26.2 + 26.3				
	51	Bricks, tiles and construction products, baked in clay	26.4	26	DI		
	52	Cement, lime and plaster	26.5				
	53	Articles of concrete, plaster and cement; cutting, shaping and finishing of stone; manufacture of other non-metallic products	26.6 to 26.8				
	54	Basic iron and steel and of ferro-alloys; manufacture of tubes and other first processing of iron and steel	27.1 to 27.3	27			
	55	Basic precious and non-ferrous metals	27.4				
	56	Casting of metals	27.5				
	57	Structural metal products	28.1				
	58	Tanks, reservoirs and containers of metal; manufacture of central heating radiators and boilers; manufacture of steam generators	28.2 + 28.3	28	DJ		
	59	Forging, pressing, stamping and roll forming of metal; powder metallurgy; treatment and coating of metals	28.4 + 28.5				
	60	Cutlery, tools and general hardware	28.6				
	61	Other fabricated metal products	28.7				
	62	Machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines	29.1				
	63	Other general purpose machinery	29.2				
	64	Agricultural and forestry machinery	29.3	29	DK		
	65	Machine tools	29.4				
	66	Other special purpose machinery	29.5				
	67	Weapons and ammunitions	29.6				
	68	Domestic appliances not elsewhere classified	29.7				

11 level	123 level	Industry/product groups	SIC (1992) Divisions Groups, Classes	SIC/NACE Rev.1 Industrial classifications			
				Divisions A60	Sub-sections A31	Sect A17	A6
	69	Office machinery and computers	30	30	DL		
	70	Electric motors, generators and transformers; manufacture of electricity distribution and control apparatus	31.1 + 31.2	31			
	71	Insulated wire and cable	31.3				
	72	Electrical equipment not elsewhere classified	31.4 to 31.6				
	73	Electronic valves and tubes and other electronic components	32.1	32			
	74	Television and radio transmitters and line for telephony and line telegraphy	32.2				
	75	Television and radio receivers, sound or video recording or reproducing apparatus and associated goods	32.3				
	76	Medical, precision and optical instruments, watches and clocks	33	33			
	77	Motor vehicles, trailers and semi-trailers	34				
	78	Building and repairing of ships and boats	35.1	35			
	79	Other transport equipment	35.2 + 35.4 + 35.5				
	80	Aircraft and spacecraft	35.3				
	81	Furniture	36.1	36 + 37	DN		
	82	Jewellery and related articles; manufacture of musical instruments	36.2 + 36.3				
	83	Sports goods, games and toys	36.4 + 36.5				
	84	Miscellaneous manufacturing not elsewhere classified; recycling	36.6 + 37				
Electricity, gas and water supply	85	Production and distribution of electricity	40.1	40	E	E	
	86	Gas; distribution of gaseous fuels through mains; steam and hot water supply	40.2 + 40.3				
	87	Collection, purification and distribution of water	41	41	F	F	3
Construction	88	Construction	45	45			
Wholesale and retail trade	89	Sale, maintenance and repair of motor vehicles, and motor cycles; retail sale of automotive fuel	50	50	G	G	
	90	Wholesale trade and commission trade, except of motor vehicles and motor cycles	51	51			
	91	Retail trade, except of motor vehicles and motor cycles; repair of personal and household goods	52	52			
	92	Hotels and restaurants	55	55	H	H	
Transport and communication	93	Transport via railways	60.1	60	I	I	4
	94	Other land transport; transport via pipelines	60.2 + 60.3				
	95	Water transport	61	61			
	96	Air Transport	62	62			
	97	Supporting and auxiliary transport activities; activities of travel agencies	63	63			
	98	Post and courier activities	64.1	64	J	J	5
	99	Telecommunications	64.2				
Financial intermediation	100	Financial intermediation, except insurance and pension funding	65	65	K	K	
	101	Insurance and pension funding, except compulsory social security	66	66			
	102	Activities auxiliary to financial intermediation	67	67			
	103	Real estate activities with own property; letting of own property, except dwellings	70.1 + 70.2(pt)	70			
	104	Letting of dwellings, including imputed rent	70.2 (pt)				
	105	Real estate activities on a fee or contract basis	70.3				
	106	Renting of machinery and equipment without operator and of personal and household goods	71	71			
	107	Computer and related activities	72	72			
	108	Research and development	73	73			
	109	Legal activities	74.11	74			
	110	Accounting, book-keeping and auditing activities; tax consultancy	74.12				

11 level	123 level	Industry/product groups	SIC (1992) Divisions Groups, Classes	SIC/NACE Rev.1 Industrial classifications			
				Divisions A60	Sub-sections A31	Sect A17	A6
	111 112 113 114	Market research and public opinion polling; business and management consultancy activities; management activities Architectural and engineering activities and related technical consultancy; technical testing and analysis Advertising Other business services	74.13 to 74.15 74.2 + 74.3 74.4 74.5 to 74.8				
Public administration	115	Public administration and defence; compulsory social security	75	75	L	L	6
Education, health and social work	116	Education	80	80	M	M	
	117	Human health and veterinary activities	85.1 + 85.2	85	N	N	
	118	Social work activities	85.3				
Other services	119	Sewage and refuse disposal, sanitation and similar activities	90	90	O	O	
	120	Activities of membership organisations not elsewhere classified	91	91			
	121	Recreational, cultural and sporting activities	92	92			
	122	Other service activities	93	93			
	123	Private households with employed persons	95	95	P	P	

Appendix B. Data from FSB Survey 2004

Table B.1
Survey Respondents by SIC Sectors,

SIC Industry	Definition	FSB 2004	Percentage of Total Respondents
A&B	Agriculture, forestry, hunting, fishing	630	3.4
C	Mining & quarrying	51	0.3
D	Manufacturing	1985	10.7
E	Electricity, gas and water supply	132	0.7
F	Construction	1908	10.2
G	Wholesale and retail trade; repair	4179	22.4
H	Hotels and restaurants	1315	7.1
I	Transport, storage and communication	759	4
J	Financial intermediation	656	3.5
K	Real estate, renting and business activities	2966	15.9
L	Public admin, defence	23	0.1
M	Education	281	1.5
N	Health and social work	450	2.4
O	Other community, social and personal service activities	323	1.7
	Other	2810	15.1
	Not answered	167	0.9
	Total	18635	100

Source: FSB 2004 Survey.

Table B.2
Cross-tabulation of Survey Respondents by SIC and FSB Sectors

	Forestry & Fishing	Agriculture, Forestry & Fishing	Mining & Quarrying	Manufacturing	Energy & Water	Construction	Retail, Wholesale & Motor Trade	Hotels & Restaurants	Transport & Communications	Financial Services	Business Services	Public Admin & Defence	Education	Health & Social Work	Personal Services	Other	Total
Agriculture, forestry, fishing	630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	630
Mining & quarrying	0	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
Manufacturing	0	0	1985	0	0	0	0	0	0	0	0	0	0	0	0	0	1985
Electricity, gas & water supply	0	0	0	132	0	0	0	0	0	0	0	0	0	0	0	0	132
Construction and building related activities	0	0	0	0	1908	0	0	0	0	0	0	0	0	0	0	0	1908
Sale, maintenance and repair of motor vehicles and fuel retailing	0	0	0	0	0	0	747	0	0	0	0	0	0	0	0	0	747
Wholesale trade	0	0	0	0	0	0	625	0	0	0	0	0	0	0	0	0	625
Retailing	0	0	0	0	0	0	2807	0	0	0	0	0	0	0	0	0	2807
Hotels, restaurants, bars and catering	0	0	0	0	0	0	0	1315	0	0	0	0	0	0	0	0	1315
Transport and activities related to transport	0	0	0	0	0	0	0	0	675	0	0	0	0	0	0	0	675
Post, courier, telecommunications services	0	0	0	0	0	0	0	0	84	0	0	0	0	0	0	0	84
Financial services	0	0	0	0	0	0	0	0	0	656	0	0	0	0	0	0	656
Real estate activities	0	0	0	0	0	0	0	0	0	0	342	0	0	0	0	0	342
Renting of machinery, equipment, personal and household good	0	0	0	0	0	0	0	0	0	0	73	0	0	0	0	0	73
Computer and related activities	0	0	0	0	0	0	0	0	0	0	866	0	0	0	0	0	866
Research and Development activities	0	0	0	0	0	0	0	0	0	0	118	0	0	0	0	0	118
Other business services	0	0	0	0	0	0	0	0	0	0	1567	0	0	0	0	0	1567
Public administration and defence	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	23
Education	0	0	0	0	0	0	0	0	0	0	0	0	281	0	0	0	281
Health and social work	0	0	0	0	0	0	0	0	0	0	0	0	0	450	0	0	450
Other personal services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	323	0	323
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2810	2810
																	1846
Total	630	51	1985	132	1908	4179	1315	759	656	2966	23	281	450	323	2810		8

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Table B.3
Number of Firms for which Local Government Accounts for Different
Percentages of Annual Sales

Sector	Zero	1 to 25	26 to 50	51 to 75	76 to 100	All
Agriculture, forestry, fishing	82	65	12	5	1	165
Mining & quarrying	3	11	2	0	0	16
Manufacturing	293	212	32	15	10	562
Electricity, gas and water supply	17	14	2	0	1	34
Construction and building related activities	219	338	105	58	20	740
Sale maintenance repair of motor vehicles and fuel retail	123	55	8	0	0	186
Wholesale trade	59	89	5	2	0	155
Retailing	364	345	17	3	1	730
Hotels, restaurants, bars and catering	147	193	20	3	2	365
Transport & activities related to transport	103	113	34	16	9	275
Post, courier & communications services	15	20	1	3	1	40
Financial services	173	14	0	1	0	188
Real estate activities	56	23	3	1	0	83
Renting of machinery, equipment, personal, household goods	8	16	3	0	0	27
Computer and related activities	152	165	35	19	13	384
Research and development activities	25	9	5	2	2	43
Other business services	253	244	46	16	7	566
Public administration and defence	5	1	0	1	1	8
Education	32	37	13	5	12	99
Health and social work	53	50	23	27	36	189
Other personal services	52	32	2	5	7	98
Other	422	437	51	32	25	967
All Sectors	2656	2483	419	214	148	5920

Source: FSB 2004 Survey.

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Table B.4
Number of Firms for which Central Government Accounts for Different Percentages of Annual Sales

Sector	Zero	1 to 25	26 to 50	51 to 75	76 to 100	All
Agriculture, forestry, hunting, fishing	99	20	2	5	2	128
Mining & quarrying	5	3	0	2	0	10
Manufacturing	361	66	17	6	4	454
Electricity, gas and water supply	20	11	2	1	1	35
Construction and building related activities	325	98	29	8	4	464
Sale maintenance repair of motor vehicles and fuel retail	137	20	3	1	0	161
Wholesale trade	86	22	2	1	1	112
Retailing	454	107	11	6	6	584
Hotels, restaurants, bars and catering	164	112	23	5	1	305
Transport & activities related to transport	132	42	12	2	2	190
Post, courier & communications services	21	7	1	0	0	29
Financial services	174	6	1	1	0	182
Real estate activities	57	13	4	1	3	78
Renting of machinery, equipment, personal, household goods	11	5	1	0	0	17
Computer and related activities	202	61	25	6	6	300
Research and development activities	23	8	3	6	5	45
Other business services	334	80	27	16	8	465
Public administration and defence	4	2	1	2	5	14
Education	40	18	8	4	5	75
Health and social work	70	29	7	4	6	116
Other personal services	54	18	4	0	0	76
Other	549	156	35	7	6	753
All sectors	3322	904	218	84	65	4593

Source: FSB 2004 Survey.

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